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UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	TTCC-01021US0
First Inventor	Hasan S. Alkhatib
Title	SECURE VIRTUAL COMMUNITY NETWORK SYSTEM
Express Mail Label No.	EV 251 363 937 US

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. ☐ Fee Transmittal Form (e.g., PTO/SB/17) *(Submit an original and a duplicate for fee processing)*
2. ☐ Applicant claims small entity status. See 37 CFR 1.27.
3. ☑ Specification [*Total Pages* 83] *(preferred arrangement set forth below)*
   - Descriptive title of the invention
   - Cross Reference to Related Applications
   - Statement Regarding Fed sponsored R & D
   - Reference to sequence listing, a table, or a computer program listing appendix
   - Background of the Invention
   - Brief Summary of the Invention
   - Brief Description of the Drawings *(if filed)*
   - Detailed Description
   - Claim(s)
   - Abstract of the Disclosure
4. ☑ Drawing(s) *(35 U.S.C. 113)* [*Total Sheets* 21]
5. Oath or Declaration [*Total Pages*]
   a. ☐ Newly executed (original or copy)
   b. ☐ Copy from a prior application (37 CFR 1.63 (d)) *(for continuation/divisional with Box 18 completed)*
      i. ☐ DELETION OF INVENTOR(S) Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
6. ☐ Application Data Sheet. See 37 CFR 1.76

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7. ☐ CD-ROM or CD-R in duplicate, large table or Computer Program (*Appendix*)
8. Nucleotide and/or Amino Acid Sequence Submission *(if applicable, all necessary)*
   a. ☐ Computer Readable Form (CRF)
   b. Specification Sequence Listing on:
      i. ☐ CD-ROM or CD-R (2 copies); or
      ii. ☐ paper
   c. ☐ Statements verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

9. ☐ Assignment Papers (cover sheet & document(s))
10. ☐ 37 CFR 3.73(b) Statement *(when there is an assignee)* ☐ Power of Attorney
11. ☐ English Translation Document *(if applicable)*
12. ☐ Information Disclosure Statement (IDS)/PTO-1449 ☐ Copies of IDS Citations
13. ☐ Preliminary Amendment
14. ☑ Return Receipt Postcard (MPEP 503) *(Should be specifically itemized)*
15. ☐ Certified Copy of Priority Document(s) *(if foreign priority is claimed)*
16. ☐ Request and Certification under 35 U.S.C. 122 (b)(2)(B)(i). Applicant must attach form PTO/SB/35 or its equivalent.
17. ☐ Other: .....

18. If a CONTINUING APPLICATION, *check appropriate box, and supply the requisite information below and in a preliminary amendment, or in an Application Data Sheet under 37 CFR 1.76:*

☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No.: _____/_____

Prior application information: *Examiner* _____ *Group Art Unit:* _____

For CONTINUATION OR DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 5b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

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SECURE VIRTUAL COMMUNITY NETWORK SYSTEM

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SECURE VIRTUAL COMMUNITY NETWORK SYSTEM

CROSS-REFERENCE TO RELATED APPLICATIONS

This Application is related to the following Applications: U.S. Patent Application No. 10/233,289, "Accessing An Entity Inside a Private Network," filed on August 30, 2002; U.S. Patent Application No. 10/161,573, "Creating A Public Identity For An Entity On A Network," filed on June 3, 2002; U.S. Patent Application No. 10/233,288, "Communicating With An Entity Inside A Private Network Using An Existing Connection To Initiate Communication," filed on August 30, 2002; U.S. Patent Application "Secure Virtual Address Realm," filed on March 31, 2003, Atty. Docket TTCC-01020US0; and U.S. Patent Application "Group Agent," filed on March 31, 2003, Atty. Docket TTCC-01022US0. All these related applications are incorporated herein be reference in their entirety.

BACKGROUND OF THE INVENTION

FIELD OF THE INVENTION

The present invention is directed to a network services system.

DESCRIPTION OF THE RELATED ART

Networked data devices provide users with efficient means for communication and collaboration. In recent years, the Internet has played a central role in allowing different types of networked devices to connect and share information across a myriad of networks. As technology advances and more organizations and people rely on the Internet, new challenges are

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presented for enhancing the ability to communicate. One such challenge is to enable the rapid creation of a secure means that allows local and remote specified entities to communicate and collaborate from any location via a standard Internet connection. For any solution to be widely accepted, it must take into account the realities and limitations currently existing.

For communication on the Internet, the Internet Protocol (IP) has become the default protocol used by most hosts and to which communication applications are now written. To transmit data from a source to a destination, the Internet Protocol uses an IP address. An IP address is four bytes long and consists of a network number and a host number. When written out, IP version 4 addresses are specified as four numbers separated by dots (e.g. 198.68.70.1). Users and software applications do not always refer to hosts or other resources by their numerical IP address. Instead of using numbers, they use ASCII strings called domain names. The Internet uses a Domain Name System (DNS) to convert a domain name to an IP address.

The Internet Protocol has been in use for over two decades. It has worked extremely well, as demonstrated by the exponential growth of the Internet. Unfortunately, the Internet is rapidly becoming a victim of its own popularity, it is running out of addresses.

One popular solution to the depleting address problem is Network Address Translation (NAT). This concept includes predefining a number of network addresses to be private addresses and public addresses. Public addresses are unique addresses that should only be used by one entity having access to the Internet. That is, no two entities on the Internet should have the same public address. Private addresses are not unique and are typically used for entities not having direct access to the Internet. Private addresses are used in private networks. Private addresses can be used by more than one

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organization or network. NAT assumes that all of the machines on a network will not need to access the Internet at all times. Therefore, there is no need for each machine to have a public address. A local network can function with a small number of one or more public addresses assigned to a NAT device. The remainder of the machines on the network will be assigned private addresses. Since entities on the network have private addresses, the network is considered to be a private network.

When a particular machine having a private address on the private network attempts to initiate a communication to a machine outside of the private network (e.g. via the Internet), the NAT device will intercept the communication, change the source machine's private address to a public address and set up a table for translation between public addresses and private addresses. The table can contain the destination address, port numbers, sequencing information, byte counts and internal flags for each connection associated with a host address. Inbound packets are compared against entries in the table and permitted through the NAT device only if an appropriate connection exists to validate their passage. One problem with a many NAT implementations is that it only works for communication initiated by a host within the private network to a host on the Internet that has a public IP address. Many NAT implementations will not work if the communication is initiated by a host outside of the private network and is directed to a host with a private address in the private network.

For most organizations, the security of devices coupled to the Internet is a concern. As a result, not all devices are directly connected to or accessible via the Internet. Rather, many devices are placed in private networks for security concerns (in addition to the address usage issue describe above). Many private networks are secured by placing a firewall device between the private network and the Internet.

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Another problem with many current communication schemes is that mobile computing devices can be moved to new and different networks, including private networks. These mobile computing devices may need to be reachable so that a host outside of the private network can initiate communication with the mobile computing device. However, in this case the problem is two-fold. First, there is no means for allowing the host outside of the private network to initiate communication with the mobile computing device. Second, the host outside the private network does not know the address for the mobile computing device or the network that the mobile computing device is currently connected to.

Thus, there is a need for a system that provides for local and remote entities to communicate and collaborate using the Internet, can work with existing NAT devices and firewalls, and allows for devices to move to different physical networks. To increase the ability of such a system to be accepted by the Internet community, it is desirable for such a system to not require changes to existing applications, allow peer-to-peer applications to communicate directly across the Internet and to not require changes to existing protocols. Each of these issues will be discussed below.

Large amounts of resources have been used to purchase and deploy existing applications currently running on the millions of computing devices. Organizations and individuals are not likely to want to adopt new communications solutions that require them to absorb the additional cost of replacing all of their applications.

To provide efficient and secure communication, it is desirable for devices to have the ability to allow their IP based applications to communicate directly with each other. By allowing peer-to-peer applications to communicate directly across the Internet, security is enhanced since the recipient is specifically

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identified and communication is passed directly between the applications on two or more respective machines.

Most machines on the Internet use the TCP/IP (Transmission Control Protocol/Internet Protocol) reference model to send data to other machines on the Internet. The TCP/IP reference model includes four layers: the physical and data link layer, the network layer, the transport layer, and the application layer. The physical layer portion of the physical and data link layer is concerned with transmitting raw bits over a communication channel. The data link portion of the Physical and Data Link layer takes the raw transmission facility and transforms it into a line that appears to be relatively free of transmission errors. It accomplishes this task by having the sender break the input data up into frames, transmit the frames and process the acknowledgment frames sent back by the receiver.

The network layer permits a host to inject packets into a network and have them travel independently to the destination. On the Internet, the protocol used for the network layer is the Internet Protocol (IP).

The transport layer is designed to allow peer entities on the source and destination to carry on a "conversation." On the Internet, two protocols are used. The first one, the Transmission Control Protocol (TCP), is a reliable connection-oriented protocol that allows a byte stream originating on one machine to be delivered without error to another machine on the Internet. It fragments the incoming byte stream into discrete segments and passes each one to the network layer. At the destination, the receiving TCP process reassembles the received segments into the output stream. TCP also handles flow control to make sure a fast sender cannot swamp a slow receiver with more segments than it can handle. The second protocol used in the transport layer on the Internet is the User Datagram Protocol (UDP), which does not provide the

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TCP sequencing or flow control. UDP is typically used for one-shot, client server type requests-reply queries for applications in which prompt delivery is more important than accurate delivery.

The transport layer is typically thought of as being above the network layer to indicate that the network layer provides a service to the transport layer. Similarly, the transport layer is typically thought of as being below the application layer to indicate that the transport layer provides a service to the application layer.

The application layer contains the high level protocols, for example, Telnet, File Transfer Protocol (FTP), Electronic Mail - Simple Mail Transfer Protocol (SMTP), and Hypertext Transfer Protocol (HTTP).

Fig. 1 depicts the basic structure of an IP version 4 packet 10 used at the Network Layer. IP packet 10 consists of header 12 and payload 14. Payload 14 stores the data received from the Transport Layer in the TCP/IP model. Fig. 2 depicts the format of a header of an IP packet. The header is depicted to include six rows. The first five rows are 32 bits wide. The first five rows of the header comprise a 20 byte fixed portion of the header. The last row of the header provides a variable sized options field 22. Version field 24 keeps track of which version of the protocol the packet belongs to. The current version used on the Internet is version 4. IHL field 26 describes the length of the header in 32 bit words. Type field 28 indicates the type of service requested. Various combinations of reliability and speed are possible. Length field 30 contains the size of the packet, including both the header and the data. Identification field 32 is needed to allow the destination host to determine which packet the received fragment belongs to. All fragments of a packet contain the same identification value. Next comes three flags, which include an unused bit 33 and then two 1 bit fields 34 and 36. DF field 34 stands for don=t fragment. It is an order to the

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routers not to fragment the packet because the destination is incapable of putting the pieces back together again. MF field 36 stands for more fragments. All fragments except for the last one have this bit set. Fragment offset field 38 indicates where in the current segment this fragment belongs. Time to Live field 40 is used to limit packet lifetime. It is supposed to count time in seconds, allowing a maximum life time of 255 seconds. In practice, it may count hops (or hops and seconds). The time is decremented on each hop by a router. When the time to live hits 0, the packet is discarded and a warning is sent back to the source using an Internet Control Messaging Protocol (ICMP) packet. This feature prevents packets from wandering around forever. Protocol Field 42 indicates which transport layer type is to receive the segment. TCP is one possibility, UDP is another. Checksum field 44 verifies the header. One method for implementing a checksum is to add up all 16 bit half words constituting the header and take the ones compliment of the result. Note that the checksum must be recomputed at each hop because the Time to Live field 40 changes or the content of the options field changes. Source field 46 indicates the IP address for the source of the packet and destination field 48 indicates the IP address for the destination of the packet. Options field 22 is a variable length field designed to hold other information. Currently, options used on the Internet indicate security, suggested routing path, previous routing path and time

UDP is an alternative to TCP. Fig. 2B depicts the structure of a packet that uses UDP. Like the TCP, UDP uses the Internet Protocol to actually send a data unit from one computer to another. Unlike TCP, however, UDP does not provide the service of dividing a message into packets (datagrams) and reassembling it at the other end. Specifically, UDP does not provide sequencing of the packets that the data arrives in. Hence, application programs using UDP must ensure that the entire message has arrived and is in the right order. As

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shown in Fig. 2B, the packet includes and IP header 12a and IP payload 14a. The payload 14a comprises the UDP header 50 and UDP data 60. UDP header 50 consists of a 16 bit source port identifier, a 16 bit destination port identifier, a length field and checksum field. In Fig. 2B, the Destination Port has a meaning within the context of a particular Internet destination address, and the Length field is the length in octets of this user datagram including its header and the data. The checksum is the 16-bit one's complement of the sum of consecutive two octaves of a pseudo header of information from the IP header, the UDP header, and the data (padded with zero octets at the end, if necessary, to make a multiple of two octets).

In addition to using the existing Internet infrastructure, another issue in allowing public-to-private, or private-to-private, communications lies in the addressing of the devices. Where a system is coupled to the public Internet with an IP address, communication packets can be routed directly to the machine. However, many devices couple to the Internet via service providers which provide them with a dynamic IP address. Thus, those wishing to communicate with this type of user must know the constantly changing address of the user in order to communicate with them. Still other hosts may be coupled to networks that use technologies other than IP.

One solution currently in use that provides for local and remote specified entities to communicate and collaborate using the Internet is the Virtual Private Network ("VPN"). The VPN uses additional network software layers to increase security between users in the public realm and those in private realms. For example, some VPNs encrypt packets using IPsec (or other protocols). The encrypted packets are then encapsulated within a standard packet and transmitted across the Internet to the destination. At the destination, the encrypted packet is decrypted. While the exiting VPN provides remote users

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with secure access to a network, via the Internet, many existing VPNs have various shortcomings that prevent them from satisfying the needs of many users. For example, many VPNs do not provide for peer-to-peer communication with IPsec (or other security measures), do not work though NAT devices in all cases, are difficult to set up and maintain, do not provide for full mobility of entities communicating on the VPN, and do not always provide for communication with entities in the various private network configurations discussed herein.

One method of overcoming the mobility problem includes the use of Dynamic DNS. More information about Dynamic DNS can be found in RFC 2136 incorporated herein by reference.

Dynamic DNS is illustrated in Fig. 3. Figure 3 shows a first computer or device B having a host name of B.COb.com having a dynamic or static private IP address IPb and a second computer or device A having a host name of A.COa.com and having a dynamic or static private IP address IPa. Devices B and A are coupled to the Internet 506 via firewall devices 302, 304 incorporating NAT. The addresses of B and A, as seen by devices on the Internet, are public IP addresses GIPb and GIPa, respectively. Also shown is device D, having a publicly address IPd and a host name of d.COd.com.

Also shown is a Dynamic DNS server, DDNS, residing on the Internet. In essence, the DDNS server is a DNS server supporting the dynamic DNS protocol of RFC 2136, and in this example is an authoritative name server containing records for B, A and D. The DDNS server will update it's records of B, A and D in real time, so that if or when D's address IPd changes, any query by other devices (B, A, for example) based on D's host name, will result in the response being the correct IP – IPd. Any DNS records for devices B and A will

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always reflect the public IP addresses (GIPa and GIPb) of the firewall/NAT devices.

Unfortunately, DDNS technology is complex and difficult to implement securely--two factors that have dramatically slowed the rate of deployment of Dynamic DNS. As a result, VPNs have not been able to adopt DDNS to solve all of the problems discussed herein.

Hence, a system is desired that allows local and remote entities to communicate and collaborate from any location via a standard Internet connection and which solves the problems discussed above.

SUMMARY OF THE INVENTION

A system is disclosed that desired that allows local and remote entities to communicate and collaborate from various locations. In one embodiment, the system makes use of a virtual subnet with a virtual address realm. The virtual address realm allows two or more users to communicate securely via at least one public network, whether the users are both coupled directly to the public network, both coupled directly to separate private networks or whether one is in a public network and one is in a private network. The virtual address realm uses virtual addresses to identify the devices on the virtual subnet. Although the devices are in different physical subnets, from the point of view of the applications the devices of the virtual subnet appear to be in one local subnet.

In one embodiment, the virtual address realm comprises a virtual address realm definition including at least a set of users. Each user accessing the virtual address realm may have at least one virtual address in the virtual address realm and at least one physical address.

Another embodiment of the present invention comprises a virtual community network for transmitting communications via at least one physical

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network. The virtual community network comprises a virtual address realm including a logical name assignment, a set of users capable of communicating in the virtual address realm, and a secure communication channel. In a further aspect, the virtual community network logical name is a domain name, and the domain name may be a fully qualified domain name or a virtual domain name. In another aspect, the set of users includes at least a first user coupled to a first private physical network and a second user coupled to a second private physical network, and the first private physical network and the second private physical network may have at least one common private physical subnet address. The physical addresses may be dynamic or static.

Yet another embodiment of the invention is a method comprising the steps of: defining a virtual address realm overlying a public address realm, the virtual address realm including at least a user set and a logical name for said user set; and routing communications between users in the user set by means of virtual address realm addresses. In a further aspect, this method includes the step of registering users in the user set as members of the virtual address realm. Further, the method may include the step assigning each registered user a unique virtual address in the virtual address realm. The method may further include the steps of encrypting communications between devices in the realm, and/or applying at least one address realm group policy.

A further embodiment of the invention is a method for providing secure communications between two devices. The method comprises the steps of: providing a virtual realm identifier; defining a set of users for the virtual realm; registering users in the realm; assigning virtual addresses; and routing information between users in said virtual address realm.

A still further embodiment of the invention comprises one or more processor readable storage devices having processor readable code embodied

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on said processor readable storage devices. In this embodiment, said processor readable code is for programming one or more processors to perform a method comprising the steps of: providing a virtual address realm configuration including a user set and a domain name for said user set; and routing communications between users in said virtual address realm.

Another embodiment of the invention comprises a method for providing a secure virtual network. The method may include the steps of: providing a virtual network manager coupled to a public network; defining a member set of users entitled to communicated in the virtual network; registering members with the manager; assigning members a virtual address; and routing network traffic between the members in the virtual community.

An additional further embodiment of the invention may comprise one or more processor readable storage devices having processor readable code embodied on said processor readable storage devices. The processor readable code may be for programming one or more processors to perform a method comprising the steps of: managing a virtual community network realm; defining a member set of users entitled to communicated in the virtual community; registering users with the virtual community; assigning each user a virtual address; and routing network traffic between the users in the virtual community.

Another embodiment of the invention is a virtual community network system. The system includes a virtual network manager including at least one virtual community definition comprising at least a domain name and a user set; and at least one route director capable of communicating with users in the user set.

In a further aspect, the virtual community network includes a communication agent installed on a device. The agent may comprise a virtual

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network adapter interfacing with the device and applications on the device to route traffic to members of the virtual community via their virtual address.

For some devices, additional software or hardware cannot be installed on a member device or it is not desirable to install such additional software or hardware on the device. For such devices, a Group Agent can be used. The Group Agent acts as a proxy for one or more members of a virtual community without requiring installation of member agent software on the client devices.

One embodiment of a system that uses a Group Agent includes communicating with a first client and acting as an intermediary between the first client and members in a first virtual address realm so that the first client can communicate in the first virtual address realm. Note that in this embodiment the first client is not configured to communicate in the first virtual address realm. For example, no software is installed on the client to add drivers, layers or interfaces specific to the first virtual address realm.

Another embodiment of a system using a Group Agent includes communicating messages with a first client and communicating the messages with members in a virtual address realm on behalf of the first client. While communicating with the first client, the messages do not use virtual addresses. During the communication process, the messages are transformed so that the messages include virtual addresses when communicating with members in the virtual address realm and the messages do not include virtual addresses when communicating with the first client.

In one implementation, the first entity resides in a first physical address realm and the second entity resides in a second physical address realm, where the first physical address realm overlaps with the second physical address realm. For example, consider the situation where the first physical address realm is a first private network using a first set of private addresses and the

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second physical address realm is a second private network using a second set of private addresses, where there are private addresses that exist in both the first set of private addresses and the second set of private addresses.

The present invention can be accomplished using hardware, software, or a combination of both hardware and software. The software used for the present invention is stored on one or more processor readable storage media including hard disk drives, CD-ROMs, DVDs, optical disks, floppy disks, tape drives, RAM, ROM or other suitable storage devices. In alternative embodiments, some or all of the software can be replaced by dedicated hardware including custom integrated circuits, gate arrays, FPGAs, PLDs, and special purpose computers. In one embodiment, software implementing the present invention is used to program one or more processors. The processors can be in communication with one or more storage devices, peripherals and/or one or more communication interfaces.

These and other objects and advantages of the present invention will appear more clearly from the following description in which the preferred embodiment of the invention has been set forth in conjunction with the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will be described with respect to the particular embodiments thereof. Other objects, features, and advantages of the invention will become apparent with reference to the specification and drawings in which:

Fig. 1 depicts an IP packet.

Fig. 2A depicts the format of a header of an IP packet.

Fig. 2B depicts the format of a UDP packet.

Fig. 3 depicts a print-out implementation of a dynamic routing system.

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Fig. 4 depicts a block diagram of an implementation of the system of the present invention.

Fig. 5A is a structural network block diagram illustrating elements used in the system of the present invention.

Fig. 5B is a logical block diagram depicting communication types in an implementation of the system of the present invention

Fig. 6A depicts a packet structure for a communication packet in accordance with the present invention.

Fig. 6B is a table depicting the shim configuration of the packet in Fig. 6.

Fig. 7 is a flow chart describing the overall process for communicating.

Fig. 8 is a block diagram illustrating the structure of the Member Agent application in the system of the present invention.

Fig. 9 is a flowchart illustrating the steps which occur in the creation of a virtual community.

Fig. 10 is a flowchart illustrating the process of configuring a virtual community.

Fig. 11 depicts an HTTP wrapper structure.

Fig. 12A is a flow diagram depicting a user registration process of the present invention.

Fig. 12B is a table illustrating the structure of the registration file information structure.

Fig. 13 is a flowchart depicting a member join process in accordance with the present invention.

Fig. 14 is a flowchart depicting a member leave request in accordance with the present invention.

Fig. 15 is a flow diagram depicting DNS request for a member in the virtual community in accordance with the present invention.

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Fig. 16A depicts the commonly used IKE phase one aggressive mode exchange.

Fig. 16B depicts the IKE phase one aggressive mode exchange used in accordance with the present invention.

Fig. 17 depicts a packet structure of the virtual IKE phase 1 packet.

Fig. 18 depicts the IKE ticket payload data structure.

Fig. 19 is a representation of a system ping sequence in accordance with the present invention.

Fig. 20 is a flow diagram depicting a query request in the system of the present invention.

Fig. 21 depicts a flow structure for addressing and routing conducted by a Route director.

Fig. 22 is a block diagram depicting one embodiment of various components of the present invention utilizing a Group Agent.

Fig. 23 is a flow chart describing one embodiment of the process for Group Agent initialization.

Fig. 24 is a flow chart describing one embodiment of a process for initiating communication with a member that is using a Group Agent.

Fig. 25 is a flow chart describing one embodiment of a process for communicating using a Group Agent.

Fig. 26 is a flow chart describing one embodiment of a process for initiating communication by a member that is using a Group Agent.

DETAILED DESCRIPTION

One embodiment of the present invention provides for a secure Virtual Community Network or "VCN." In essence, a VCN is a private dynamic network which acts as a private LAN for computing devices coupled to public networks or

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private networks. This enables computing devices anywhere in the world to join into private enterprise intranets and communicate with each other. Thus, the invention provides a separate private virtual address realm, seen to each user as a private network while seamlessly crossing public and private network boundaries.

A basic overview of the system is shown in Fig. 4. Fig. 4 shows a computer or device B (host name - b.COb.com) in a first private domain and computer or device A (host name - a.COa.com) in a second private domain, both of which are coupled to the Internet by firewall devices 402, 404. The firewall devices are configured to implement Network Address Translation (NAT). A and B have dynamic or static private IP addresses. Computer or device X is coupled directly to the public Internet and has a public IP address.

In the present invention, a virtual community network (VCN) X.VCN is formed. Machines A, B and X can join the VCN, leave the VCN, or allow other machines in the VCN to communicate with them. More than simply a virtual private network (VPN), all members of the VCN are accessible as if they were part of a physical local network. The application running on the members of the VCN can accomplish what they would be able to accomplish if they were on the same physical routed network (e.g. all in the same private network). Membership in the VCN is controlled by an administrator via an administrative interface. In general, the administrator defines certain aspects of the VCN and then invites members into the VCN by specifying the domain name for each member. Members then register themselves with a VCN Manager, and notify the Manager via join and leave requests when they are available to participate in the community. Once registered and joined, members can communicate with other members as though connected via a local LAN.

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As shown in Fig.4, A, B and X may all make direct connections to each other through communications within the virtual domain. In Fig. 4, dashed lines represent direct communication paths seen to applications running on A, B and X, all "seeing" the virtual addresses of each other and communicating with each other using the application's IP interface.

A hardware architecture for the machines, server or other devices used to implement the present invention should be well understood to one of average skill in the art. Suitable hardware includes one or more processors, a memory, a mass storage device, a portable storage device, a first network interface, a second network interface and I/O devices, in communication with each other. The choice of processor is not critical as long as a suitable processor with sufficient speed is chosen. The memory can be any conventional computer memory. The mass storage device can include a hard drive, CD-ROM or any other mass storage device. The portable storage can include a floppy disk drive or other portable storage device. If the computer is acting as a router, it includes two or more network interfaces. In other embodiments, the computer may include only one network interface. The network interface can include a network card for connecting to an Ethernet or other type of LAN. In addition, one or more of the network interfaces can include or be connected to a firewall. For a gateway, one of the network interfaces will typically be connected to the Internet and the other network interface will typically be connected to a LAN. However, a gateway can exist physically inside a network. I/O devices can include one or more of the following: keyboard, mouse, monitor, display, printer etc. Software used to perform the methods of the present invention are likely to be stored in mass storage (or any form of non-volatile memory), a portable storage media (e.g. floppy disk or tape) and/or, at some point, in memory. The above described hardware architecture is just one suitable example depicted in a

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generalized and simplified form. The present invention could include dedicated hardware, a dedicated router with software to implement the invention or other software and/or hardware architectures that are suitable.

A more detailed overview of one embodiment of the present invention is depicted in Figs. 5A and 5B. Fig. 5A illustrates various embodiments of devices coupled to public and private networks in a manner which allows use of the present invention, and is a representation of a physical connection of such devices. Fig. 5B illustrates a logical representation of elements used to create a VCN and of the various formats of communication traffic between those elements shown in Fig. 5A.

Specifically, Figs. 5A and 5B illustrate various user machines M_n coupled to the Internet 506, as well as other devices, described below, which implement a virtual community in accordance with the present invention. Devices M_n can be personal computers, servers or other computing devices (mobile or non-mobile). Each machine may have different communication connectivity with the Internet.

In general, an exemplary system for implementing a VCN in accordance with the invention comprises a VCN Manager 510, a Network Route Director 520 and/or Private Route Director 530, and a number of Member Agents 565. Communication between systems in various protocols is illustrated by dashed lines (UDP) and solid lines (TCP). The VCN manager and Network Route Director are shown in Fig. 5A as being coupled directly to Internet 506.

User devices M_A and M_E are connected to the Internet and have public IP addresses. These addresses may be dynamic or static. If static, M_A and M_E can easily communicate with each other in a manner well known in the art by simply addressing IP packets directly to each other. If the addresses are dynamic, then M_A and M_E require some means of knowing when the IP address

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of the other changes in order to communicate. As described below, the VCN system provides such a means.

Device M_B is in a private domain (e.g. private network)) 540 and connected to a NAT Device 530 to access the Internet 506 by a private network path 540a. Device M_B may use have a dynamic or static IP address specific to the private domain 540. Generally, such addresses are part of the private received IP classes which are not routable via the Internet. For example, 10.0.0.0 - 10.255.255.255, 172.16.0.0 - 172.31.255.255, 192.168.0.0 - 192.168.255.255 are network addresses classified for private networks. Firewall/NATdevice 515 translates Machine M_B's private IP address to a routable public IP address. NAT device 515 may include other security functions as well. M_B communicates with other non-VCN devices on the Internet via the NAT device 515, and with other members of the VCN via Private Route Director (PRD) 530, which is coupled to the private network path 540a and is a member of the private network 540. Device M_X is also shown as connected to and a member of the private domain 540 but has a static, routable public IP addresses. As such it may communicate with devices coupled to Internet 506 in a different manner, as illustrated in Fig. 5B.

Devices M_C and M_D are part of a second private domain (e.g. private network) 550 coupled to a second private network path 550a. Again, these machines have static or dynamic private IP addresses and are coupled to the Internet via a firewall/NAT device 517, which is itself coupled to network path 550a.

The VCN Manager 510 is a central server or server cluster providing management services, connection services and security services for the VCN. Each Member Agent 565 includes client agent software (or, in some embodiments, hardware) that runs on end machines and provides virtual

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network services. It enables the machine to be reached from public and private networks, and implements the security aspects of the system. In Fig. 5B, machines M_A, M_B, M_C, M_D, M_E and M_X all include Member Agents and, therefore, can be members of a particular VCN.

The Network Route Director (NRD) 520 is a stand-alone unit that runs on the public side of the Internet enabling Member Agents and Group Agents (discussed below) to be reached inside one or more private networks from the public network. Private Route Director ("PRD") 530 is an element that runs inside a private network enabling access to machines inside the private network from machines outside the private network. It can run as a service on a platform offering other services such as a Windows Server.

Generally, VCNs are defined and managed by the VCN Manager 510. Clients utilize Member Agents or Group Agents to access other client machines (M_n), in private or public realms. The NRD or PRD routes communications to Member Agents.

As described herein, three forms of communication are used in creating and implementing the VCN. TCP is used in the registration and joining processes; encapsulated UCP packets are used between elements in establishing communication between joined devices and for management traffic, and Encrypted UCP packets are used for agent-to-agent communications.

Fig. 5B shows exemplary traffic between elements of the VCN. A first type of traffic is TCP traffic. TCP traffic is used between member agents to establish membership in the VCN (the registration process), and make the VCN manager aware they are available to communicate with other members of the VCN (the join process). In Fig. 5B, this is represented by solid lines 513b, 511b, 523b and 543b. TCP is also used: by the PRD 530 to establish communications with the VCN (lines 527b, 527d); and by the member agent of device M_B to

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communicate with the PRD 530 (line 533b). TCP may also be used by devices M_C and M_D on private network 550 to communicate with each other.

Encapsulated UDP traffic is used by elements of the VCN once membership has been established and the elements are joined in the VCN for management and administrative communications. This is represented in Figure 5B by lines 511a, 513a, 523a, 527a, 527c, 523c, 527e, 521, 543a, 541, and 519. Encrypted UDP communications are used between devices, shown in Fig. 5B between device M_X and M_A at 525 and device M_B and M_C at 537.

In one embodiment, secure connections are built dynamically using IPsec tunnels based on a virtual IP space that can traverse from private networks, across the Internet and into other private networks. Strong authentication and the establishment of IPsec policies at the time members join the community offers privacy and security to the members of the virtual community. This facilitates the introduction of a variety of policy-based network services with centralized management such as Virtual Private Networks for intranets and extranets, IP-telephony domains, and IP-based PDA communities.

COMMUNICATION PROTOCOL

In the present invention, an encapsulation routing protocol allows packets to traverse addressing boundaries and identifies routing endpoints by unique DNS domain names. It employs an address virtualization scheme that accomplishes backwards compatibility with IPv4 applications. With certain optional exceptions, UDP encapsulation is used between elements of the Virtual Community.

One example of an encapsulated packet 600 is depicted in Fig. 6A. It includes a 20 octet IP header 602, an 8 octet UDP header 604, a 20 octet

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system shim 606, and a variable size virtual IP packet 608. A virtual IP packet has the same format as a standard IP packet.

Members of a VCN communicate to other members of that VCN by means of virtual IP Packets 608. Virtual IP addressing is used to establish unique connection identities for community connected devices. IPsec can (optionally) be applied to the Virtual IP Packet for end-to-end security. Virtual IP addresses are used to identify members in the community in the virtual packet and are not directly routable. Rather, they are unique identifiers of a given connection to the upper layer application. In one embodiment, virtual IP addresses are in IPV4 format.

In general, the UDP header is set for a default port. System shim 606 carries enough addressing information to allow the Route Directors to forward the tunneled packet through the various address realms on its way to the destination. Such a routing methodology is often referred to as source routing.

In order to route packets to a peer in a different addressing realm, the protocol stack knows the address of the appropriate Route Director that serves the peer's realm, the private address of the peer or a NAT address. The Member Agent obtains the information by using the VCN Manager as a DNS authority for DNS lookup operations as described below (Figs. 13 and 21). The DNS response from the VCN Manager will include the above-identified information in an optional text field of the response to the Member Agent.

TCP/IP connections require IP addresses to be used as connection identifiers at the user level. If an application wishes to make a connection to "m3.abcdef.com" and another to "m4.abcdef.com", it resolves both DNS identifiers into IPv4 addresses. The system cannot assign the private IP addresses of the members to be unique connection identifiers, because two

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members might have the same private address in different private address realms.

Assigning a virtual address to each peer designated by a DNS string solves the problem of ambiguous endpoints. These virtual addresses may be any legal IPv4 addresses, but conflicts will occur if the same addresses are used to directly designate a peer in an IPv4 network application. For instance, if 10.0.0.10 is used as a virtual address, and is also used on a member's network as the mail server, packets that are ordinarily destined to the mail server may be redirected to a random peer. In general, when choosing virtual addresses it is best to choose addresses that will not be routable to the member. Hence, each member is assigned a virtual IP address unique in the context of the virtual community and that will not conflict with any local addresses on its LAN or any public IP addresses on the Internet.

By having each member of a VCN use a virtual address, a virtual address realm is created. The virtual address realm is the set of addresses that can be used to identify and send communications to other members of the VCN. The virtual address realm is different from a physical address realm because the physical address realm is actually used to route on a physical network. The members of a VCN will all be in the virtual address ream of that VCN, but may be in different physical address realms. For example, looking at Figs. 5A and 5B, M_B and M_C are in different physical address realms (e.g. 540 and 550); however, they are both in the virtual address realm of the VCN. Another example can be seen with Fig. 4, where A and B are in different physical address realms (Cob.com and Coa.com); however, they are both in the same virtual address realm. Applications on members of a VCN will see the VCN as the local subnet; therefore, the VCN can be thought of as a virtual subnet. Each

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member of the VCN will appear to the application as an entity connected to the local subnet.

Route Directors 530 and 520 facilitate routing UDP encapsulated traffic to private address domains 540, 550. In general, Route Directors either have public IP addresses or addresses that are statically remapped to a public IP address. The static translation of a Route Director's IP must leave the port in the UDP header unchanged to allow the UDP encapsulated destination port number to be directly used by public members, by other Route Directors, and by private members. Route Directors 520, 530 and VCN Manager 510 may be configured to use a non-default UDP encapsulation port. In one embodiment, all outgoing messages are sent to this port on the next destination node and all incoming messages are read from this port. As discussed below, information in a "join" packet tells Member Agents the UDP encapsulation port to use in communications to Route Directors, network managers, and other members of the community.

System Shim 606 (see Fig. 6A) has a format given by way of example in Fig. 6B. Protocol Version information, data type, header option flags, and Router Information are potentially stored in the Shim. (The abbreviation "gIP" stands for "global" or public IP address, indicating an Internet routable IP address). The Data Type field indicates the meaning of the optional data that may follow the Shim. This may include a Virtual IP Packet 608, a ping to a Route Director, a request for a Network Route Director virtual address, a Route Director response with a virtual address, a member leaving and releasing a virtual address, and a member-to-Route Director packet. The shim also includes the public IP address for the source machine's Route Director, the public IP address for the destination machine's Route Director, the private IP address for the source machine and the private IP address for the destination

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machine. In the case where the source or destination use a public IP address, then the shim will not need to include the private addresses of the source/destination or a route director.

The system can optionally use TCP encapsulation between a member and a Route Director. If the VCN Manager determines that a Member Agent (e.g., Agent software on a member machine) and a Route Director are both able to support a TCP connection, then it may instruct the member to initiate a TCP connection with the Route Director. TCP port 80 may be used as the destination port for all TCP encapsulated messages to the Route Director, and TCP port 20202 may be used as the source port for all TCP encapsulated messages from a private member to the Route Director.

As noted above, Network Route Directors (NRDs) 520 facilitate routing traffic into and out of private address domains without requiring reconfiguration of a firewall 517 protecting the domain 550. As in UDP encapsulation, a special field in the system join packet (explained below) tells the Member Agent which TCP encapsulation port to use as the source port. The NRD will then re-encapsulate virtual-traffic in UDP-encapsulation before passing it on to other elements of the virtual network.

Note that more than one user can use the same device, with each such user having different virtual addresses in the same or different address realms.. Additionally, regardless of the number of users, one device can be in multiple virtual address realms. In some embodiments, a user can have multiple identities, each in a different address realm.

Fig. 7 is a flow chart describing the overall process for communicating between members of a VCN. Any member of a VCN can communicate with any other member of a VCN regardless of whether either of the members are behind a firewall, behind a NAT device, directly accessible via the public Internet, in a

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private network, etc. From the point of view of an application on a member device, all the other members appear to be on the same LAN. Thus all applications running on a member's device will think that all other members of the VCN are on the same LAN and in the same address realm (e.g. the virtual address realm of the VCN).

In step 650 of Fig. 7, the Agent for the potential member joins the VCN and receives a virtual IP address. In order to establish or participate in communication within the VCN, a device must register with and join the VCN, thereby becoming a member of the VCN. The Agent will send a message to VCN Manager 510 and receive a virtual IP address back. The virtual IP address received is used to identify the member in the VCN. More details of step 650 as well as other portions of Fig. 7 will be discussed below. Note that there is a dotted line between step 650 and step 652. This dotted line signifies that a lot of time can pass between step 650 and step 652. Additionally, after step 650 is performed, it does not need to be repeated.

In step 652 of Fig. 7, an application on the source machine (the member initiating communication) intends to send a message to an application on the destination machine (another member of the VCN). Examples of applications that can communicate on the VCN include instant messaging, email, FTP, browsers, data transfer programs, and other applications that can communicate. Consider an example when application on device M_A intends to initiate communication with an application on device M_B. Thus, M_A is the source device and M_B is the destination device. In step 654, the application on M_A will initiate a DNS request using the domain name for M_B. This DNS request is sent to VCN Manager 510. In step 656, VCN Manager 510 returns the public address of the Route Director for the destination, the private address for the destination device and a virtual IP address for the destination device. In the example described

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above, step 656 includes returning the public IP address for private Route Director 530, the private address for M_B and a virtual IP address for M_B. If the destination machine has a public IP address (and, thus, does not use a routing director) then step 656 will only include returning the public IP address for the destination. If the destination machine is in a private network that uses a Network Route Director (e.g., NRD 520), then step 656 will return the public IP address for the Network Route Director.

In step 658, the Agent for the source device, which received the information in step 656, will store that received information. This information can be stored in a table, or any other data structure. In step 660, the Agent for the source device will return the virtual IP address of the destination device to the application on the source device. In step 662, the application on the source device will initiate the sending of a message/data using the virtual IP address for the destination device. In step 664, a virtual IP packet will be created. The source IP address for the virtual IP packet will be the virtual IP address for the source device. The destination IP address for the virtual packet will be the virtual IP address for the destination device. The virtual IP packet will be in the same format as a standard IP packet. In step 664, the newly created virtual IP packet will be subjected to IPsec (or another security means). In some embodiments, IPsec is not used. In step 670, the virtual IP packet is encapsulated. For example, in one embodiment, the virtual IP packet is encapsulated as described above with respect to Figs. 6A and 6B. This encapsulation will include shim 630. As described above, shim 630 will include the public IP addresses for the Route Directors for the source and destination, and the private IP addresses for the source and destination devices. If either the source or destination do not have a Route Director, the shim will not need to include that information. For example, when the source machine is M_A, there is

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no Route Director for the source. If the source machine was M_C, then the shim would include the public IP address for Network Route Director 520. If the source is M_B, the shim would include the public IP address for Private Route Director 530.

At this point, the path of the packet will depend on whether the destination is using a Private Route Director 530, Network Route Director 520 or has a public IP address. If the destination has a public IP address, the process moves to step 678 where the encapsulated packet is forwarded to the destination agent.

If the destination is in a private network that has a PRD, then in step 672 the encapsulated packet is sent to the NAT device for the destination. For example, the encapsulated packet is sent from M_A to NAT 515. In step 674, the encapsulated packet is sent from the NAT device for the LAN that includes the destination to the Route Director for the destination. For example, the encapsulated packet is sent from NAT 515 to private Route Director 530. In step 676, the Route Director which received the encapsulated packet will remove the virtual IP packet and the shim from the encapsulation. The Route Director will read the shim to learn the local IP address to send the packet to. The shim and virtual IP address will then be re-encapsulated into a new packet with the original virtual packet. The new outer packet includes a destination IP address equal to the private IP address of the destination device. The encapsulated packet received in step 674 will include a source IP address equal to the public IP address for M_A (or the source's Route Director) and a destination IP address equal to the public IP address for the Route Director of the destination (e.g., PRD 530). In step 678, the new encapsulated packet will be sent from the Route Director to the Agent for the destination device.

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If the destination agent is in a private network and is using a Network Route Director, then following encapsulation the encapsulated packet is sent to the Network Route Director for the destination agent in step 673. At step 675, the NRD will remove the virtual IP Packet and shim and re-encapsulate them in a UDP packet for transmission through a NAT device to the destination via a persistent UDP connection between the NRD and the destination. At step 677, the encapsulated packet is forwarded to the NAT device (via the persistent UDP connection) behind which the destination Agent resides, which will perform its own routing of the encapsulated packet to the destination Agent in step 678.

In step 680, the Agent will remove the shim and the virtual IP packet from the encapsulation. The virtual IP packet will be removed from IPsec (e.g. decrypted). In step 682, the information from the shim will be stored by the Agent. In step 684, the contents of the virtual packet will be presented to the application on the destination device. That is, the application on the destination device will receive the contents of the data payload, or at least a portion of the data payload

When the destination wishes to respond to the source or the source wishes to send additional information, the process of Fig. 7 can be repeated. However, when repeating the process of Fig. 7 between two machines where communication is already established, the steps of performing the DNS request do not need to be performed again. That is, when the destination wishes to respond, the destination will perform the steps in Fig. 7 starting at step 662. The Agent for the destination device will already know all the information to put in the shim. Additionally, when the source device wishes to send additional information to the destination device, the source device can start Fig. 7 at step 662. In some embodiments, however, the steps of performing the DNS request will be performed again.

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MEMBER AGENT

As noted above, devices in the VCN utilize a member agent installed on the device to communicate. One unique aspect of the system of the present invention is the integration of the agent software in a typical device.

Fig. 8 illustrates the functional flow diagram of an installed agent on a device such as a computer, server or other device. Region 810 illustrates the "user space," and region 820 represents the kernel area of the components interacting with the host device.

Applications 830 interact directly with an IP stack 835 which is built on a deterministic network extender or DNE 850. The deterministic network extender is provided by Deterministic Networks, Inc. The network extender allows one to implement any driver level functions such as IPsec, browsers, traffic redirectors, and the like, through a series of plug-ins. As shown in Fig. 8, a number of plug-ins, including a DNS plug-in 852, an IPsec plug-in 854, a virtual adapter manager 856 and a domain name router 858 (*see* U.S. Patent 6,119,171, incorporated herein by reference) interact with the deterministic network extender 850. The DNS plug-in processes DNS queries by applications via the stack. The virtual adapter manager allows for additional adapters to co-exist in the same device.

The DNE is an NDIS compliant module (in Windows environments) which appears as a network device spire to the protocol stack 835. The DNE supports the TCP/IP and UDP protocols and various adaptor types. In essence, this forms a virtual network adaptor in device installations. This means that various configurations for each virtual community can be provided for each DNE. This provides the advantage that a number of members or users can utilize the same device, with the device installing a different virtual adaptor using plug-ins for the deterministic network enhancer and each user does not need to reconfigure the

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network settings of the machine to join each community. Each plug-in is constructed in accordance with standards promulgated by the DNE provider.

As shown in Fig. 8, user applications interact directly with the IP stack of the virtual adapter. Each adapter provides its own stack to the device's applications. To the applications, each stack appears separate, and no separate routing of the application is required. For example, the IKE user application 825 can interact with the domain name plug-in, the IPsec plug-in, the virtual area management communicator 856, and the security policy manager 860. The Adapter Manager 856 allows parallel stacks for each VCN to be implemented and used on each machine. This means a user and device can belong to several VCNs without needing to re-configure IP settings to access each VCN.

VCN DEFINITION

Fig. 9 shows the steps which occur at the VCN Manager to define and establish a virtual community. At step 902, an administrator sets up a virtual community by providing information to the VCN Manager via a user interface (not shown). It will be understood that the user interface and the method of providing information to the VCN Manager is not critical to the system of the present invention. One particularly advantageous interface is implemented in a World Wide Web browser. The interface may be implemented using HTML, XML, Java Applets, Java Server, Active Server Pager or any of a number of well-known Web technologies. The particular information required to set up the community network is illustrated in Fig. 10. Next, at step 904, users who are designated by the administrator as being allowed access to the virtual community defined in step 902 are notified by any number of appropriate means. In one implementation, the users are notified by e-mail, although other

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forms of notification, such as verbal or personal notification, may be used. The e-mail may contain an invitation to join the community, community authentication information, a link to a location to download the Member Agent, and/or a link to the Group Agent. Next, at step 906, using information contained in the e-mail, users register with the VCN Manager. Registration in this context means registering a machine using a Member Agent or a Group Agent with the VCN Manager. Users may be required to install the Member Agent software. The link in the notification e-mail may provide the user with a location for downloading the Member Agent software as well as instructions for installing the software. Other information, such as system password information, is provided in the e-mail. Finally, at step 908, management of the community is handled by the VCN Manager. This includes monitoring which registered users have joined and left the system, answering DNS requests, and applying security policies, as described herein. This may include notifying new users and registering those users as the definition of the VCN changes.

Fig. 10 is a flowchart illustrating the process of setting up a virtual community which is performed by an Administrator. Initially, the Administrator sets up a virtual domain name and address domain at step 1002. This information is used by the VCN Manager and Route Directors to allow members to communicate. Next, users are defined at step 1004. In one embodiment, the users are defined by providing the domain names of each of the users who will be invited to participate in the VCN. At step 1006, default passwords are set. This is the password a user first uses to access the system. The user may be forced to change the password for security reasons at a later date. Finally, at step 1008, polices may be defined at the domain level, the user level, or for individual machines in the domain. Policies are used to allow or deny access to individual machines, services, or other users.

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MEMBER REGISTRATION

The registration process is the first step that a user and machine go through with the VCN Manager before becoming a member of a virtual community. There are two phases to member registration: a registration request and a registration file request. Registration happens outside of the IPsec tunnels because at registration time no IPsec tunnel exists for the user registering.

In one implementation, all traffic between Member Agents and the VCN Manager (with the exception of Registration and Join function traffic is encapsulated using UDP encapsulation, represented by lines 511a, 513a, 523a, 519, 521, 527a, 527c, 537, 523c, 527e, 541, 543a, 533a of Fig. 5B). This encapsulated traffic will carry management traffic between the members and the VCN Manager. A service port is reserved at the VCN Manager in the virtual network for the establishment of a TCP connection between a member and the VCN Manager. A member that joins a VCN is informed of the service port as part of the join protocol. A DNS port is also open on the virtual side of the VCN Manager. In one embodiment, the VCN Manager virtual ports are TCP Port 9001 and DNS UDP Port 53. The packets used for the initial Registration and the subsequent Join operations use TCP port 80 outside the virtual network. This is represented in Fig. 5 by the solid lines 513b, 511b, 523b and 543b.

VCN system protocol packets that are sent outside the system tunneling are HTTP wrapped and sent to the VCN Manager on TCP port 80 to facilitate NAT traversal. More information about NAT traversal will be provided below. Each packet includes a header and payload. For compatibility with firewalls, the HTTP wrapper makes the packet a SOAP-compatible XML document. Including a binary data portion after XML is consistent with Direct Internet Message Encapsulation (DIME), a proposed lightweight, binary message format that can

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be used to encapsulate one or more application-defined payloads of arbitrary type and size into a single message construct.

The format of the HTTP wrapper from the Member Agent to the VCN Manager is shown in Fig. 11. The wrapper includes an HTTP HEADER, XML HEADER and P-LENGTH fields. The HTTP header includes a POST HTTP field, an Identity field, a Content Type field, and a Content Length field. The XML header includes version information and packet type information. The Header includes error codes and explanations, as well as the content type and length.

The Registration exchange between the member agent and the VCN Manager is shown in Fig. 12A. When a Member Agent 565 attempts to register at step 1200, Member Agent 565 will send a registration request packet 1202 to the VCN Manager 510 to start registration. The packet is included in an HTTP wrapper as illustrated at 1204. The registration packet will carry the client Fully Qualified Domain Name (FQDN) and a Diffe-Hellman Key Exchange request to the VCN Manager. The packet further includes packet version information, type and length information, a user authenticator, the length of FQDN in octets, a VCN name offset, the member's FQDN in DNS format, the length of Diffe-Hellman value in octets, and the member's initial Diffe-Hellman value.

An Initial Password is passed to the user through an outside channel, such as e-mail (or other channel). In a setting where security is a concern, an alternative method such as personal communication or encrypted e-mail may be used.

The registration authenticator is computed using the first sixteen bytes of the HMAC-SHA-1 applied to the packet data with the password hash as the key. (Normally, the HMAC-SHA-1 algorithm generates a 20-byte result; in one

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embodiment of the system only the first (leftmost) 16 octets are used in the MAC.) The formulas are as follows:

$$HMAC\text{-}Key\text{-}Field = SHA\text{-}1(Initial\ Password)$$

$$Authenticator = HMAC\text{-}SHA\text{-}1_{16}(HMAC\text{-}Key\text{-}Field, Data)$$

The VCN Manager will respond in one of three ways 1206, 1208, 1212, to the registration packet 1202. VCN Manager 510 will acknowledge (ACK) the packet at step 1212 with the Registration Acknowledge (ACK) packet 1214 if the member belongs to a community but its status is "not registered." The VCN Manager also sends a phase-2 confirmation code to the member's e-mail address and changes the member status to "registering." The packet will transfer a "Time To Live" value to the member which is a timeout period in seconds for hearing back from the member with the confirmation code. Phase two of registration must be completed in this time period.

If the packet is abnormal (in size, FQDN length, bad type, etc.), the authenticator check fails, the member does not exist in the database, or the VCN server is not running, the VCN Manager drops the packet in step 1206. The packet will be not-acknowledged (NACK) 1210 if the member is already in the "registered" state, the send e-mail operation fails, the process of updating the member to the "registering" state fails, or the random generator fails in attempting to generate a confirmation code in step 208.

Upon receiving the Registration ACK 1214, the user will send Registration File Request Packet 1220 to the VCN Manager 510 to start registration. This packet will transfer the following information to the VCN Manager: a registration file User Authenticator, the length of FQDN in octets, a VCN name Offset, and the member's FQDN in DNS format.

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The registration file user Authenticator contained in the File Request packet 1220 is slightly different from the Registration Request Authenticator in packet 1202, in that the Initial Password, passed to the user through an outside channel (e-mail for example), and the Confirmation Code, a temporary code sent in the second e-mail with a timeout to the user, are used:

HMAC-Key-Field = SHA-1(Initial Password)
User Authenticator = HMAC-SHA-116 (HMAC-Key-Field, SHA-1(Confirmation Code) + Data)

The VCN Manager will send a Registration File acknowledge Packet 1230 to the member 565 in response to the Registration File Request packet 1220 in step 1228 if it is determined that the member belongs to a community. The Acknowledge Packet 1230 will transfer the following information to the member:

- *Crypto Type* — a code indicating how the rest of the packet is encrypted. This is provided in a crypto type field preceding the registration file.
- *Registration File* — a structure with a number of fields containing the information required by the member to successfully perform a join. It is sent encrypted using the key generated via the Diffie-Hellman key exchange.

A table representing the Registration File structure is shown in Fig. 12B. As shown therein, the Registration File contains an Authentication Type, a File Type, a File Length definition, a Token Key, a Key Timestamp, a Key Type, a Key Length, a High Availability (HA) Version, a HA Number, Server Information and Padding. The Token key is the shared secret with the server. The Token

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Key is identified by the Key Type, which is normally a Diffie-Hellman type in one embodiment. The VCN Manager also changes the member status to "registered."

If at step 1224, the member agent status is not set at "registering," or the timeout for phase 2 has expired, a NACK packet 1226 is sent. If the packet is abnormal (in size, FQDN length, bad type, etc.), the authenticator check fails, or the user does not exist in the database, or the VCN server is not running, the packet is dropped in step 1222. While current encrypting method for the file is to generate a key/IV pair from the combined Diffie-Hellman value using a Key Derivation Function, any number of suitable substitutes may be used.

In addition to the registration authentication described above, the system uses a packet authenticator to verify communications between the VCN Manager and Agents. The Authenticator is a cryptographically strong hash of the packet keyed by a shared secret between the source and destination. The authenticator is calculated over the entire packet using the HMAC-SHA-1 algorithm. The inputs to this Authenticator are not available until after Registration. As illustrated above, during registration an Authenticator based on the user password is used. The fields used in the calculation are a *Diffie-Hellman Key* comprising a multi-octet random string that is the result of the Diffie-Hellman key exchange protocol, and the entire packet data, with the Authentication field zeroed out.

The Authorization Key, AuthKey, described above, is derived from Diffie-Hellman using the KDF2 function, and used for general packet Authentication. AuthKey = KDF2 (Diffie-Hellman Key)MAC = HMAC-SHA-116(AuthKey, Data). The *AuthKey* need be calculated only once per registration from the KDF2 of the DH key and then stored for later use. It is known as the Authentication key and is 20 octets long.

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MEMBER JOIN/LEAVE

Once a user is registered, the user can join the VCN. Once joined, the user is a member of the VCN. Joining allows the user to let the VCN Manager and other members know that the user/member is on-line and available to communicate. The Join protocol runs between a Member Agent and the VCN Manager to establish a session key with the Manager, authenticate to the Manager, and make use of connections via the Route Directors in the community.

The Member Join process is illustrated in Fig 13. There are two phases to the Join operation: phase one is an Initialize Request and phase two is the actual Join. At join time, the IPSec tunnel for secure communication is not established, so the first few join packets are sent outside the IPSec tunnel.

Initially, at 1302, the Member Agent 565 will send an Init Request Packet 1304 to the VCN Manager 510 to start authentication. The packet will carry the following information to the VCN Manager:

- *Version Variant Mask* – used to indicate optional variations of the protocol from the member to the VCN;
- *Token Timestamp* – identifying when a Token Key was created (in seconds);
- *Member seed* – a random number to thwart so called "man-in-the-middle" attacks;
- *Member Local IP – the member's Local LAN IP address; and*
- *Client FQDN – the client's fully qualified domain name.*

Again, three responses 1306, 1308, 1312 are possible. At step 1306, if the packet is abnormal, it will be dropped. Similarly, if the member fails authentication, at step1308 a NACK packet 1310 will be sent.

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If the member passes authentication at 1312, the Manager will send an acknowledgement packet 1314 to Member 565. An AuthKey is also transmitted as part of the INIT Request Packet, and the Manager authenticates the packet by checking this against a secure key digest. The acknowledgement packet 1314 packet will transfer the following information to the member:

- *Version Variant Mask* – version information;
- *Member Seed* – from the Init Request to protect against playback attacks;
- *Manager Seed* – a unique seed used to thwart man in the middle attacks;
- *Session AH Key* – used in IPsec;
- *Session ESP* Key – used in IPsec;
- *Init ACK Time* – a time stamp used to tie this packet to the following Join Request. There is a timeout if the Join is delayed too long;
- *Authentication Method* – the method used for authentication;
- *Route Director Private IP* -- if member is in a private network, this is the private IP address of the Private Route Director. The value is zero if no Route Director is used;
- *Route Public Public IP* -- if member is in a private network, this is the public IP address of the Private Route Director. The value is zero if no Route Director is used;
- *Tunneling Port* – used for UDP encapsulation *Route Director Flags.* Only Bits 0 and 1 currently used to direct the agent to a Private Route Director, Network Route Director with UDP, or a Network Route Director with TCP.

At step 1312 of the join process, the VCN Manager will also determine whether the Member Agent attempting to join is behind a NAT device. The

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method by which this occurs is discussed below with respect to Fig. 21 and the results of this determination may force the Agent to negotiate a session with a Network Route Director which will provide a pseudo address value used as the Agent's local IP value in the Join request, discussed below. This process is discussed in depth with respect to Fig. 21.

Following receipt of the acknowledgement packet, at step 1316, the member will send Join Request Packet 1318. The packet's payload includes a manager seed, the initial ACK time, join flags, the member machine's local IP address (or pseudo address), the Route Director's private IP address, the Route Director's public IP, the member AH SPI and ESP SPI, the member listen port, a token timestamp, a GUID identifying the current client run, NetBIOS name support, a password hash, version information for high availability and security policy information.

In step 1320, the VCN Manager will drop this packet if it is abnormal. In step 1322, the VCN Manager will send a NACK packet 1324 if the member is not in the registered state, the timeout for Join from INIT ACK has expired, or updating the member to the Joined state fails.

If the join action succeeds, then in step 1326 the VCN Manager will send an acknowledge packet 1328. The acknowledge packet payload includes the RMI Port at the VCN Manager, the Tunneling Port, VCN Manager Authentication Header (AH), Security Parameters Index (SPI) for IPsec, VCN Manager Encapsulating Security Payload (ESP) SPI for IPsec, the UTC Time (in seconds) when the member joined, VCN Manager Heartbeat interval (in seconds), the Member Heartbeat interval (in seconds), the VCN Manager's Virtual IP address, the Manager Subnet Prefix Length, the VCN Member Subnet Prefix Length, the Route Director's private IP address, the Route Director's public IP address, an indication of the updates that follow, an update of the Token Key, an update of

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the Security Policies, an update of High Availability indication, and padding. The member has now joined the community at 1330. Once the member has joined, all communications can be encrypted using IPsec.

The system of the present invention also includes RADIUS authentication support. Generally, if a member attempts to authenticate using a RADIUS server, the VCN Manager will perform the same steps as when it receives the Join Request packet except for having a RADIUS server authenticate the member. The payload for this packet is similar to the Join Request packet except that it has an additional field for RADIUS password that is used by the RADIUS server to authenticate the member.

Fig. 14 shows the sequence for leaving a VCN. Initially, at step 1410 when a Member Agent is prepared to leave the community, a Leave Request Packet 1412 will be sent to the VCN Manager 510 to start the leave process. The Leave Request Packet will carry a Leave Flag, the FQDN Length, FQDN VCN Offset and Member FQDN. Unless dropped at step 1414 or a problem exists at 1416 which would generate a NACK packet 1418, the VCN Manager will send the Leave ACK Packet 1430 to the member in step 1420. This packet has no payload. At step 1440, the member has successfully left the community.

DNS/ LOOKUPS

For one member to communicate with another member, the initiating member's agent will perform a query or DNS lookup (step 654 in Fig. 7) to determine the address of the other member, and then establish a secure communication channel between them.

The Member Agent utilizes the VCN Manager to perform lookups of other virtual members in the virtual community using DNS. The DNS operation is conducted using the DNS protocol with the VCN Manager. The member

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software sends a DNS query to the VCN Manager, and the manager returns information about the target member. Besides the target member's virtual IP address, the DNS response also contains additional information about the target member. While the VCN Manager accepts all DNS requests, it will only acknowledge the DNS requests of type A, which are targeted to virtual domain names in the secure virtual communities of the VCN Manager. The VCN Manager is the authoritative name server for those virtual domain names; other requests will simply be responded to with a "Server Failure."

The DNS query and response sequence is illustrated in Fig. 15. At step 1510, a member will request a DNS lookup by sending a DNS request 1520 to port 53 of the VCN Manager. The DNS request 1520 will result in a normal DNS response 1575 unless any of a number of failure conditions are met, shown at steps 1522, 1540, 1550, and 1560.

If the Manager receives a query on port 53 that is not a DNS query, then at step 1522, it is dropped. If, at step 1524, the query is not a standard query, such as a DNS STATUS (a status lookup) or IQUERY (inverse DNS), or the class of the DNS query indicates an Internet (IN) query, or if the TYPE value of the request is a pointer (PTR) or host address (A), then, a "Not implemented" DNS response 1530 is sent over the virtual link to the Member Agent 565.

At step 1540, the VCN checks to see if the source IP address is for a member of the VCN. If the source IP address is not for a member of the VCN, the virtual IP look up fails or the type PTR query does not match, a "server failed" response 1545 is returned. At step 1550, if there is no DNS Question section or there is another type of format error with the packet, a "format error" response 1555 is sent. The VCN determines whether the member has joined the VCN, at step 1560. If not, a name error response is sent at 1565.

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If the name is a successful lookup (step 1570), then the VCN Manager will send a DNS Response Packet 1575 to the member 565. The response includes the following information: the target member FQDN; the target member virtual IP address; a source Route Director flag, the source member virtual IP address; the target member join time; the target member agent version; the target member private IP address; the target Route Director public IP address; the target member NetBIOS name; the shared key, shared by the two members; a target Ticket length; a target member Ticket encrypted for target member only and containing a Ticket issue time, Ticket expiration time, and shared key; the target member virtual IP address, the source member virtual IP address, the source member private IP address; the source Route Director public IP address, the source member FQDN; and padding (to obtain a multiple of 16 octets). The Ticket provided by the DNS request is detailed further in the description of Figure 16B.

The target member's virtual IP address will be presented using an A-type resource record in the answer section of the normal DNS response packet. All the remaining information will be transferred using a TXT-type resource record in an additional section of the DNS Response.

ENCAPSULATION

Traffic between Member Agents in the VCN is encapsulated using UDP encapsulation. Encapsulated traffic between members can carry any IP traffic from any standard IPv4 compliant application. However, one port is set aside in the virtual network at the application layer to establish a connection between two members in the community. In one embodiment, this is UDP port 500, which is set aside for Internet Key Exchange (IKE), allowing negotiation of an IPsec tunnel between the two members.

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When an application on a member device wishes to open a connection to a peer on a target member device, a protocol is followed for the establishment of the IPsec session between the two. Member Agents are configured to listen on the UDP tunneling port (which defaults to port 20202) for virtual traffic. As an accepted procedure non-IPsec traffic on the virtual IKE port 500 is accepted and passed to an IKE and Security Policy Module to allow for the possibility of initiating an IKE exchange and the establishment of an IPsec session between the two members.

IKE is fully described in RFC-2409. IKE provides a key exchange with a peer and creates a security association (SA) for the IPsec module. IKE access between peers occurs in two phases: phase 1 establishes a secure, authenticated, channel with which to communicate, and phase 2, which negotiates a Security Association on behalf of IPsec. Phase 1 is generally referred to as the ISAKMP Security Association (SA) and includes a "Main Mode" and "Aggressive Mode." In one implementation, Aggressive Mode is used for phase 1. One of the allowed phase 2 exchanges is "Quick Mode" and in one implementation, Quick Mode is used in the system for phase 2.

Fig. 16B shows the aggressive mode IKE phase one exchange utilized in the present invention. Fig. 16A shows the standard aggressive mode IKE phase one exchange for comparison. In these figures, in accordance with standard IKE parlance, one device is considered an exchange "initiator" and the other a "responder".

In general, in phase one of the IKE exchange, peers are authenticated, an IKE Security Association (SA) policy between peers is established, a Diffie-Hellman exchange is performed to produce matching shared secret keys and a secure tunnel to negotiate IKE phase two parameters is established.

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In Fig. 16A, an initiator exchanges a header (HDR), SA negotiation payload, Key Exchange (KE), nonce payload (Ni, where "i" indicates an "initiator" payload) and identity of the party (IDii). The key exchange payload contains the public information exchanged in a Diffie-Hellman exchange. The responder returns the HDR, SA, KE, a responder nonce payload (Nr), its identity (IDir) and the HASH responder (HASH_R) payload, which is generally a hash of the ID payload and is used to authenticate the exchange. The initiator returns the HDR and HASH initiator (HASH_I) payload, and the initial secure tunnel is established.

In accordance with the present invention, Fig. 16B illustrates the use of an extension to aggressive mode exchange. This is performed by adding a ticket payload (TKT*) to distribute a shared-key to remote peers.

The Ticket is the means by which one Agent can identify whether another Agent is a trusted member of the virtual community. Essentially, the Ticket includes information identifying the initiating member to the receiving member.

The ticket is issued by the VCN Manager and encrypted for the receiving member with a member-server shared secret; only the receiving member can open it. The ticket contains a time-stamp, a sequence number and a shared-secret used for IPSEC between the two members. To communicate with the receiving member, the initiating member obtains the ticket from the VCN Manager (through, for example, the DNS sequence, described above) and passes it to the receiving member in a payload that can ride on an IKE packet. The receiving member receives the Ticket, decrypts the Ticket using the member-server shared secret, and uses the information in the Ticket to establish secure communication with the initiating member.

This payload, TKT, is formatted as shown in Fig. 17. The packet 1700 contains an IP header 1710, UDP header 1720, System shim 1730, and Virtual

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IKE Phase 1 UDP/IP packet 1740. Fig. 18 illustrates the structure and data of an exemplary first packet 1740. The IKE Ticket Payload in the first IKE packet contains information on the payload and the payload data, including the type of payload following next and the ticket payload data 1756. The payload data 1750 includes the size, number and item list 1766. The item list 1760 includes type, size and item information. The IKE ticket payload data 1740 contains the item types

The item types 1770 are shown in the last table of Fig. 18: "My FQDN" -- a null terminated FQDN in label dot format. (For example, a human readable FQDN "bob.system.com" is encoded as "bob.system.com\0x00.") My Ticket data which includes a Manager Current Time (UTC of Manager as known by initiator); and an Initiator Virtual IP (Obtained at Join time) Target Virtual IP (Obtained from Manager) and Padding. The Peer FQDN Format is a null terminated FQDN in label dot format. For example, a human readable FQDN "bob.system.com" is encoded as "bob.system.com\0x00". Finally, the Peer Ticket data includes: a Ticket Issue Time (UTC (seconds) on VCN Manager); a Ticket Expiration (UTC (seconds) for ticket expiration); a Shared Key used by the two Members for IKE; a Target Virtual IP Address; the Initiator NAT Port; the Initiator Subnet; the Initiator Virtual IP Address; Initiator Private IP Address, the Initiator Public IP Address, the Initiator FQDN and padding.

The Diffie-Hellman key exchange protocol is utilized in the Internet Key Exchange (IKE) protocol that precedes IPsec. The prime and generator value are taken from a well-known Internet Draft entitled, "More Diffie-Hellman groups for IKE," Kivinen et al., IP Security Protocol Working Group (IPSE) Internal Draft, Dec. 13, 2001, for proposed use within the Internet Key Exchange (IKE) protocol.

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ADMINISTRATIVE FUNCTIONS

The system can simulate pings to any of the Route Directors (NRD or PRD). This ping is sent inside a packet generated from an application used to trouble-shoot the virtual network by touching the Route Directors and insuring that they are alive.

An exemplary ping process is illustrated in Fig. 19. As shown therein a pinging application 1902 at step 1904 sends a ping request packet 1906 to the Route Director 560. The Route Director receives the ping at 1910 and generates a response at step 1912. The ping response packet 1914 is returned to the application 902 at step 1916.

The ping request packet is sent and returned on the default tunneling UDP port (which in Fig. 5B is UDP Port 20202). The Ping Request 1906 packet is formatted as shown in Fig. 19, with the content of the shim and the ping packets exploded in further detail. In the shim 1930, the source and destination Route Director public IP addresses (gIP) and private IP addresses (pIP) are all set to 0. In the system ping field 1960, the ping type field may be a ping request or a ping response. The Sequence field in the response is set to the same value as the Sequence field in the request packet.

Another function which may be performed is an Agent Query. Fig. 20 illustrates a query request from a Member Agent requiring system/status information of another member. The first Member Agent 565 at step 1802 will send a Query Request Packet 1810 to the VCN Manager 510. The Packet contains definitions for the Maximum Number of Records to return, a status Mask indicating whether the members are registered and/or joined, a platform Mask, indicating the platform (desktop, server, laptop, mail server, etc) of the member, the FQDN Length, FQDN VCN Offset, Search String Length, Member

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FQDN and a Search String for pattern matching. This packet is sent over the IPsec tunnel between the VCN Manager and the Member Agent.

If the packet is abnormal it is dropped at step 2012 if there is an error in the query authentication file or the member is not joined, NACK 2016 is sent in step 2014. If the packet is not abnormal, no error is present, the member passes authentication and was joined, then the VCN Manager sends a query acknowledgement Packet 2030 to the member. The packet payload includes a number of records with the following fields: the status of the member, the platform type of the member, and the member's FQDN String. Note that the FQDN is null-terminated and consistent with the FQDN in DNS format definitions. Here, a human readable FQDN "www.abcdefg.com" is encoded as "www.abcdefg.com\0x00".

Each joined member will periodically send a heartbeat packet to the VCN Manager so that the VCN Manager can determine if the member is alive. In addition, the member's heartbeat packet is used to determine how long the member is actually joined. This information can be used to allow a provider of the infrastructure for the system to generate revenue from users on a per-use time basis. Conversely, the VCN Manager periodically sends its heartbeat packet to joined members so that the joined members can know if the Manager is alive. This can be used by the member to determine if it should switch to a backup VCN Manager. Heartbeat packets are sent inside the system tunnel on the default tunneling port (UDP port 20202) and are IPsec protected.

ROUTE DIRECTORS

Route directors allow communication to a member that is in a private network. The PRD resides within a private network, behind the NAT device. The NRD resides on the public side of the NAT device. The NAT device can be

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a Network Address Port Translation (NAPT) NAT device or a basic NAT where only addresses are translated.

Note that devices with public addresses do not require Route Directors (RDs). In the context of Fig. 5B, devices M_A and M_E do not require either a PRD or NRD, since they reside in the public address space. Likewise, M_X does not require the PRD for its domain 540, since it has a public address (or is statically mapped to a public address at the NAT device 515).

The NRD implements a NAT traversal architecture which allows System packets to enter and exit a private network. The NRD maintains persistent connections/sessions with members that are behind NAT devices. Member Agents initiate a TCP or UDP persistent connection/session with the NRD and use keep-alive messages to ensure that the NAT device does not drop the member's connection/session. The use of TCP or UDP is based on a bit set by the VCN Manager in the INIT ACK packet of the Join Protocol. Communication to a member using a NRD tunnels between the NRD and the Member Agent through the persistent connection/session. More information about a suitable NAT traversal architecture is found in U.S. Patent Applications 10/233,289, "Accessing an Entity Inside a Private Network,: and 10/233,288, "Communicating With An Entity Inside a Private Network Using an Existing Connection to Initiate Communication," both of which are incorporated herein by reference.

When a member behind NAT attempts to join a virtual network by contacting the VCN Manager as discussed above, the VCN Manager will detect the presence of the NAT device, direct the member to a specific NRD and indicate the use of TCP or UDP. The presence of the NAT device must be detected during the initialize Init message portion of the join sequence so the

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VCN Manager can inform the member that it needs to setup a session with the assigned NRD prior to the Join message sequence.

In one embodiment, the NRD uses a pseudo address. The pseudo address is different than the virtual address and is used solely for NRD routing. The pseudo address assigned by the NRD will allow the NRD to map a packet to the member's post-NAT IP address and UDP port.

The process for establishing a session with a NRD and obtaining an address therefrom is shown in Fig 21. Initially (as described in Fig. 13), a member behind a firewall will send an init request 1304 to VCN Manager 510. In addition to the functions performed with respect to step 1306, 1308, and 1311 (of Fig. 13), the VCN Manager will detect that the member is behind a NAT device and whether it is served by a PRD in step 2120.

The detection of a NAT device is accomplished using a field with the member's local IP address in the Init packet sent to the VCN Manager. The VCN Manager detects the fact that Agent 565 is behind a NAT device by comparing the member's private IP address in the INIT message payload with the source address in the TCP/IP headers. If the addresses differ, then a NAT device is present. At step 2120, the VCN Manager must next check if the member's NAT device is associated with a known PRD (Premises Route Director). If no PRD is found, then the VCN Manager will check if the member can use a known NRD. If an NRD is found then the INIT ACK 1314' will indicate that the member must establish a session with the NRD prior to joining the VCN. If the NRD can support TCP tunneling, the INIT ACK will also indicate to the member to start a TCP connection rather than a UDP connection. If neither a PRD nor an NRD is found for the private member, an Init NACK will be returned. The VCN Manager will find an available NRD and send an INIT ACK 1314' with

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the NRD info data contained therein. The contents of an INIT ACK packet 1314 are discussed above with respect to Fig. 13.

At step 2132, the member will seek to establish a session with the NRD and will send address request 2130 to the NRD. The member sends the Address Request Packet 2130 to the NRD. The packet includes an IP Header, UDP Header or TCP header, and Shim. In this case, the shim includes the NRD's public address. At step 2135, the NRD assigns the member a pseudo address. This is used as the member's private address in the Shim when external members send packets to the NRD for forwarding to the private member. The NRD will store the association of the pseudo address with the Member's NAT device public address and port number. When other members of the VCN perform a DNS request on the member behind the NRD, as part of the DNS response, they will receive the public address of the NRD and they will receive the pseudo address as the private address for the member behind the NRD. When sending a communication to the member behind the NRD, the outer packet will be addressed to the public address of the NRD. The NRD will access the shim to identify the pseudo address. The NRD uses the pseudo address as a handle to the persistent connection/session when sending packets through a NAT to the member. Once identifying the appropriate persistent connection/session, the shim and virtual packet are encapsulated and sent to the destination, via the NAT device, using the identified persistent connection/session. When the NAT device receives the message, it will do the address and port translation, and forward the message to the member agent's real local address and port on the private network.

In one aspect, the pseudo address comprises portions of the public IP address space in IP version 4 that had been reserved for special purposes. This ensures that no machine within a private realm will have the same pseudo IP

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address as the private address of a machine in any separate and distinct private realm. In order to prevent this from happening, the system of the present invention uses addresses that are otherwise not used or reserved. Examples include the 0.0.0.0, the 10.0.0.0, 14.0.0.0, 127.0.0.0, 169.2454.0.0, 172.16.0.0 and the like.

The NRD provides the pseudo address to the Agent 565 in a NAT Traversal Address Response Packet 2140. The packet includes a shim having an indicator that the response is a pseudo address response, as well as the source Route Director public IP address and Destination Route Director public IP address, (which is set equal to the NRD address), the Source member private IP address (0) and the Destination member private IP address, which is the Virtual IP. Hence all communications for the Member Agent will be routed to the NRD 520. After acquiring the pseudo address from the NRD, the member designates that pseudo address to the VCN Manager as its local address in Join packet 1318.

Note that there is an extra packet exchange 2145, 2150 when establishing a TCP connection that is not required when establishing a UDP connection with the NRD. This packet is the NRD Init Request Packet 2145. The previous TCP session for the Address Request and Address Response must be closed and a new TCP session opened which will remain open for the duration of the tunnel session. The member sends the Init Request message to the NRD as the first message in this TCP session. This message only has a TCP header and System Shim preamble, and has no data following the Shim.

After receiving the pseudo address, the join process completes with the join request packet 1318, and join ack packets 1328. After the join processing is complete, TCP/UDP encapsulated traffic flows between the member and the

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NRD through the NAT. The member is now ready to establish connections with other members.

When outbound System traffic from a member behind a NAT device to the NRD is not frequent enough to keep the NAT device's mappings active, the member may to send keep alive messages to the NRD's TCP port 80 or UDP encapsulation port to ensure that the NAT device does not drop the TCP/UDP encapsulation session. The member sends this message to the NRD to ensure that the NAT device does not drop the TCP/UDP port mapping. The keep-alive messages do not need to be sent when other messages were sent out during the keep-alive interval.

The member sends this NAT Traversal Leave Packet message to the NRD to release the session and pseudo address when the member is leaving the VCN. The NAT traversal switch will verify that the receive-from socket address this message came from matches the lookup table entry before deleting the member's address.

GROUP AGENT

For some devices, member client software cannot be installed on the device or it is not desirable to install member client software on the device. For example, a printer or other networked devices may not be able to load software. For various reasons, some entities may not desire to add network software onto their machines. Additionally, some devices may use operating systems that do not support running the member agent software. For those devices that cannot or choose not to use member agent software, a Group Agent can be used. The Group Agent acts as a proxy for one or more members of a VCN without requiring installation of member agent software on the client devices. Thus, a

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device can become a member of a VCN without changing any of the software on the device by using the Group Agent.

Fig. 22 is a block diagram depicting various components of the present invention utilizing a Group Agent. Note that some of the members of a VCN can use a Group Agent while other members do not use a Group Agent. Fig. 22 shows ten devices $M_1 - M_{10}$. Devices M_1, M_2, M_3, $M_4$and M_{10} are devices that are participating in the VCN without using member agent software. Rather, they will use a Group Agent. Devices M_5, M_6, M_7, M_8 and M_9 are devices which include member agent software and, therefore, do not need to use a Group Agent. Fig. 22 shows some of the many varieties of permutations of using Group Agents, Network Route Directors and Private Route Directors. Other permutations can also be used with the present invention. Also note that Fig. 22 is more of a structural view of additional components of the present invention, as compared to Fig. 5B which is more of a symbolic/logical view.

Fig. 22 includes a first private network which connects to the Internet (or other network) via NAT device 2202. In addition to NAT 2202, the private network includes device $M_{1,}$, device M_2 and Group Agent 2204. In one embodiment, the Group Agent runs on the same machine as a Private Route Director. Devices M_1 and M_2 do not include agent software. Rather, they participate in the VCN using Group Agent 2204.

A second private network allows devices to communicate to the Internet (or other network) via NAT device 2210. That private network also includes Group Agent 2212, device M_3 and device M_4. Note that Group Agent 2212 does not include a Private Route Director. Thus, for devices M_3 and M_4 to be reached by other members of the VCN, communication is performed via Network Route Director 520. In one embodiment, each of the private networks are different physical address realms. That is each uses a different set of private IP

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addresses. The present invention will also work if the private networks have overlapping addresses. That is, one or more private IP addresses are used by more than one private network involved in a VCN.

A third private network, which includes devices M_5 and M_6, provides for communication on the Internet via NAT device 2220. A fourth private network, which includes devices M_7 and M_8, allows its components to communicate on the Internet (or other network) via NAT device 2230. This fourth private network includes Private Route Director 2232. Because devices M_7 and M_8 include member agent software, there is no need for a Group Agent on this network. Device M_9 has a public IP address and includes member agent software; therefore, it communicates and participates in the VCN as described above. Device M_{10} has a public IP address; however, device M_{10} does not include member agent software. For device M_{10} to participate in the VCN, it must make use of Group Agent 2234, which has a public IP address.

In one embodiment, a Group Agent includes software running on a computing device, including (but not limited to) a server, router, personal computer, minicomputer, mainframe, mobile computing device, or other suitable computing device. In other embodiments, the Group Agent, or any other of the software components described above, can be performed by its special purpose computing device.

A Group Agent acts as a proxy for one or more members which do not have member agent software. For example, Group Agent 2204 is a proxy for devices M_1 and M_2; and Group Agent 2212 is a proxy for devices M_3 and M_4. Group Agent 2234 is a proxy for device M_{10}. Although Fig. 22 shows the Group Agents being proxies for one or two members, a Group Agent can be a proxy for more than two members.

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Communication between two members of a VCN can pass through two NAT devices, one NAT device for each member. For example, communication between device M_1 and device M_4 will pass through NAT device 2202 and NAT device 2210. Additionally, communication between device M_1 and another entity in a private network configured like the private network of device M_1 will require communication to pass through two NAT devices.

Note that a single Group Agent can participate in more than one VCN. For example, Group Agent 2204 can be used to allow device M_1 participate in a first VCN and concurrently (for all or part of the time) allow device M_2 to participate in a second VCN. Because there can be multiple virtual community networks, the VCN Manager is able to create and maintain, the multiple virtual community networks. As described herein, the VCN Manager identifies which entities can communicate on each VCN by maintaining a list of domain names for each VCN. For example, one list may include the domain names for devices $M_1 - M_{10}$.

The Group Agent requires initialization so it may know which members it is a proxy for. Group Agent initialization cannot occur until after the Group Agent has joined the VCN Manager as a member. The join prior to Group Agent initialization is for a pseudo-member so the proxy initialization messages can use virtual IP addresses and the tunneling protocols described above to travel on an IPsec tunnel between VCN Manager 510 and the particular Group Agent. Separate member specific tunnels will be created when the Group Agent later joins for the proxied members. The Group Agent join will require the Group Agent to be registered with the VCN Manager. In one embodiment, this registration will be done during the installation of the Group Agent.

Fig. 23 provides a flowchart describing one embodiment of the process for Group Agent initialization. In step 2302, the Group Agent joins as a pseudo-

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member. This process of step 2302 is performed as described above. In step 2304, the Group Agent will send an initialization request to the VCN Manager. The initialization request is a packet that includes the fully qualified domain name for the Group Agent, a packet version indication, a packet type indicating that it is an initialization request, a packet length, and an authentication code. If the received initialization request is abnormal (step 2306), then the initialization request is dropped in step 2308. If the packet was normal but authentication failed (step 2312), then the VCN Manager sends a NACK to the Group Agent in step 2314. If authentication was successful and the initialization request was normal, then the VCN Manager sends an acknowledgement to the Group Agent in step 2320.

After completion of step 2320, the Group Agent is initialized and now must join each of the members it is proxying. To do so, the Group Agent will perform a loop where each iteration will include joining for one of the members that is being proxied. In step 2322, it is determined whether there are any more members being proxied that have to be joined. If there are more members to join, then the Group Agent will join for one member being proxied in step 2324 and the method will loop back to step 2322. When there are no more proxied members to be joined, the process of Fig. 23 is complete (step 2330). The process of joining for a proxy member is the same as the process of joining described above; however, the process is performed for the member by the Group Agent rather than by the member agent. The virtual IP address received by the Group Agent is for the member being proxied. The Group Agent stores that virtual IP address in a data structure for the member. In one embodiment, there is a separate data structure for each member being proxied. In another embodiment, there is one data structure which has separate records for each member being proxied. This data stored will include the member's virtual IP

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address and private address in the local LAN, as well as other information that will be described below.

The acknowledgement sent from the VCN Manager to the Group Agent in step 2320 contains all of the member information required so the Group Agent can send the appropriate join requests for each member being proxied. The following information is in the acknowledgement sent from the VCN Manager to the Group Agent: packet version indicating the version of the header, packet type indicating that it is a acknowledgement, packet length, authentication code, subnet IP address, subnet prefix, public IP address of the Private Route Director (when the Group Agent also includes a Private Route Director), Private Route Director ping flag (1 if PRD responds to pings), the number of members being proxied, the number of permanent connections from proxied members to other members that the proxy must make, the member record list and the connect record list. The member record list is a set of records for each member being proxied. The following information is stored in each record: member password (password SHA1 digest), member's local private IP address, the length of the member's fully qualified domain name, the member's fully qualified domain name, offset to the VCN name, authentication type (0=preshared 1=certificate), time stamp indicating when the token key was created, token length in bytes, token key (member shared secret with VCN Manager), HA version number, number of HA records, HA record list and authentication key (generated by server for the proxy). Each HA record in the HA record list includes a VCN Manager IP address for the next VCN Manager, a join port for the next VCN Manager and a service port for the next VCN Manager in case the current VCN Manager goes down. The connect record list includes the following three fields: proxy member index (zero based index into member list), DNS request length and a DNS request.

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Once the Group Agent joins for all of its members, then any of its members can receive communication from other members of the VCN or can initiate communication to other members in the VCN. Members that are being proxied by a Group Agent can communicate with other members being proxied by the Group Agent, with other members proxied by a different Group Agent (regardless of whether they are in a private network or available on the public Internet), and members that do not use a Group Agent (regardless of whether those other members are in a private network or available on the Internet with a public IP address), as long as they are all members of the same VCN. From the point of view of an application on a member being proxied by the Group Agent, the VCN appears as a local subnet (or LAN) and all of the members of the VCN appear to be on the local subnet (or LAN). However, the VCN is not a local subnet (or LAN); rather it is a virtual subnet (or LAN). Each of the members of the VCN will have a Virtual IP Address on the virtual subnet.

Because members of a VCN register with the VCN Manager, the VCN Manager will know how to find the members (e.g. it will know its public and private addresses). Thus, a Group Agent acting as a proxy for a first member will be able to act as an intermediary for that first member when talking to a second member of a VCN even if the second member moves to a different or new private network and/or changes its IP address. That is, when the second member makes the move or change, the second member will so inform the VCN Manager. The VCN Manager will inform the Group Agent of the change so that the Group Agent can continue to act as an intermediary between the first member and the group member. More information about communicating with mobile entities can be found in U.S. Patent Application No. 10/233,289, "Accessing An Entity Inside a Private Network," filed on August 30, 2002; U.S. Patent Application No. 10/161,573, "Creating A Public Identity For An Entity On

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A Network," filed on June 3, 2002; and U.S. Patent Application No. 10/233,288, "Communicating With An Entity Inside A Private Network Using An Existing Connection To Initiate Communication," filed on August 30, 2002, all three applications are incorporated herein by reference in their entirety.

Fig. 24 is a flowchart describing one embodiment of a process for initiating communication with a member that is being proxied by a Group Agent. In Fig. 24, the communication is being initiated by a member that is not being proxied by a Group Agent. That is, the member initiating communication is a member that has agent software loaded on it. That member is initiating communication with a member that does not have agent software. Prior to the process of Fig. 24 being performed, the Group Agent has joined the member into the VCN and the member initiating communication has already joined the VCN. For example purposes, looking at Fig. 22, the process of Fig. 24 can be performed by M_5, M_6, M_7, M_8 or M_9 initiating communication with any of devices M_1, M_2, M_3, M_4 or M_{10}. Assume, for example purposes, that device M_9 is initiating communication with device M_1. The destination device is also assumed to be served by a Private Route Director.

In step 2402, an application on the source device (e.g., device M_9) is intending to send a message to an application on the destination device (e.g., device M_1). In step 2404, the application on the source device sends a DNS request to the VCN Manager using the domain name of the destination. For example, the application on M_9 will send a DNS request using the domain name for M_1. In step 2406, the VCN Manager returns a response to the DNS request. This response includes the public IP address for private Route Director 2204, the private IP address for member M_1 and the virtual IP address for member M_1. In some embodiments, the DNS response also includes a token key (as described above). The Agent on the source device (e.g., M_9) stores the

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information it received from the VCN Manager. In step 2410, the Agent on the source device returns the virtual IP address for the destination to the application which initiated the DNS request. In step 2412, the application on the source device initiates the sending of a message to M_1 using the virtual IP address. That is, a virtual IP packet is created where the source address is the virtual IP address for the source machine (M_9) and the destination address in the virtual IP packet is the virtual IP address for the destination device (device M_1). The virtual IP packet is created in step 2414 and subject to IPsec (or other security means). In step 2416, the virtual IP packet is encapsulated. Encapsulation includes adding a shim, a UDP header and an IP header, all as described above. The shim includes the public IP address for the Private Route Director associated with the destination member (e.g., PRD 2204) and the private IP address for destination (e.g. member M_1). If the source, the member initiating communication was in a private network, then the shim would also include the public IP address for the Route Director associated with the source and the private IP address for the source. In step 2418, the encapsulated packet is sent to the NAT for the destination's private network. That is, in the example above, the newly created packet is sent to NAT 2202 via the Internet (or other network). In step 2420, the encapsulated packet is sent from the NAT (e.g., NAT 2202) to the Route Director for the destination (e.g., PRD 2204).

In step 2422 of Fig. 24, the Route Director removes the virtual IP packet and the shim from the encapsulation and presents both the virtual IP address and the shim to the Group Agent (e.g., Group Agent 2204). The Group Agent stores the information from the shim, as described above with respect to the member agent software. In one embodiment, the Group Agent includes the necessary logic to received the communication so that no route director is necessary. In step 2426, the Group Agent extracts the virtual IP packet from

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IPsec. In step 2428, the Group Agent chooses a private IP address for the source entity. In the above example, the source entity is device M_9. Group Agent 2204 will pick a private IP address that is routable in the private network associated with device M_1 and NAT 2202. This private address will be used by device M_1 to identify M_9. In step 2430, the Group Agent will change the source address in the virtual packet. That is, the virtual packet originally had a source address equal to the virtual IP address for the source device (e.g., M_9) and a destination address equal to the virtual IP address for the destination device (e.g., M_1). In step 2430, the source address in the virtual IP packet is changed to be equal to the private IP address chosen by the Group Agent for M_9 in step 2428. In step 2432, the Group Agent changes the destination address in the virtual IP packet to be equal to the private IP address in the local LAN for M_1. In step 2434, the packet is sent by the Group Agent to the destination machine (e.g., sent to M_1).

The above discussion of Fig. 24 was made with respect to the example that the communication has been initiated by device M_9 which is a member having a public IP address and member agent software. The process of Fig. 24 can also be performed by a member which does not have a public IP address, including members using a Private Route Director and/or a Network Route Director. When the process of Fig. 24 is being performed by members using Route Directors, the shim that is added to the encapsulated packet in step 2416 includes the private IP address for the member and the public IP address for the Route Director. The example used in discussing Fig. 24 also assumes that the destination was a device in a private network where the private network included a Group Agent and a Private Route Director. The process of Fig. 24 can also be adapted to work with a member using a Group Agent where the member has a

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public IP address and/or a member in a private network that uses a Network Route Director.

When sending communication to an entity with a public IP address that uses a Group Agent, the shim will include the public IP address for the Group Agent and the public IP address for the member in step 2416. The packet will not be sent to a NAT or to a Route Director. Rather, the packet will be sent directly to the Group Agent. The Group Agent will access the virtual IP packet in step 2426. Rather than choosing a private IP address to identify the source, the Group Agent will choose a public IP address for the destination to use to refer to the source. The virtual IP packet will be changed so that the source address is equal to the public IP address chosen by the Group Agent to represent the source and the destination address will become the public IP address for the destination. The virtual IP packet (which is no longer virtual) will be sent to the destination.

If the destination member participates in a VCN using a Network Route Director (e.g., device M_3 using NRD 520), then the encapsulated packet is sent to the Network Route Director in step 2418. The Network Route Director will communicate the shim and virtual IP packet to the Group Agent (e.g., Group Agent 2212) via a persistent connection as described above in Fig. 7, steps 673-675, 677, except that the packet is forwarded to the Group Agent rather than the NAT device. The Group Agent will then perform steps 2424 – 2434, as described above.

Fig. 25 is a flowchart describing one embodiment of a process for the destination device responding to the initiation of communication from the source device. In the example discussed above, this process would include device M_1 responding to device M_9. In step 2502, the application on device M_1 attempts to send a communication. A packet is then created using the private addresses.

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The packet would include a source address equal to the private IP address in the LAN for device M_1. The destination address would be equal to the private IP address in the LAN that is used to identify device M_9. That packet is sent to the Group Agent in step 2504. In step 2506, the Group Agent changes the packet by replacing the private addresses with virtual addresses. The source address is replaced with the virtual IP address in the VCN used to identify device M_1. The destination address in the packet is replaced with the virtual IP address in the VCN used to identify device M_9. In step 2508, this packet is subject to IPsec, and encapsulated as described above.

In step 2512 of Fig. 25, the Group Agent sends the packet. In the example above, the Group Agent would send the encapsulated packet to device M_9 using the public IP address for device M_9. If the Group Agent is sending the packet to a member that is in a private network, then the encapsulated packet would be sent to the Group Agent/Private Route Director for the member or to the Network Route Director for that member. If the responding device (e.g. M_1) is using a Network Route Director, then the Group Agent can still send the reply packet directly to the original source without going through the Network Route Director. If the replying device (e.g. M_1) has a public IP address, then the packet sent to the Group Agent would include the public IP addresses for the responding device and the public IP address that the Group Agent told the replying device to use to identify the original source device. In one embodiment, when the member using the Group Agent has a public IP address, an IPsec tunnel can be created between the Group Agent and the member device.

Fig. 24 contemplates communication being initiated by a device that has member software loaded on it. Fig. 26, on the other hand, describes a process that is performed when communication is initiated by a device that does not have member software and, therefore, uses Group Agent software. In step

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2602, the application on the initiating member will send a DNS request. This DNS request will be sent to the Group Agent. The Group Agent receives the DNS request in step 2604. In step 2606, the Group Agent sends its own DNS request for the same domain name to the VCN Manager. In step 2608, the Group Agent receives a response from the VCN Manager. This response will include the virtual IP address for the target, the public IP address of the Route Director for the target (if any) and the private IP address for the target (if any). If the target has a public IP address, then the public IP address will be returned. In step 2610, the Group Agent will choose a private IP address in the local LAN to be used to identify the target. The virtual IP address returned from the DNS request will be mapped to this private IP address in the local LAN. In step 2612, the Group Agent will return that chosen private IP address to the application as a response to the application's DNS response. In step 2614, the application will initiate the communication. In one embodiment, the process of 2614 includes performing the steps of Fig. 25. Note that if the member who is initiating the communication in the process of Fig. 26 has a public IP address, rather than being in a private network, then in step 2610 the Group Agent will map the virtual IP address to a public IP address that the Group Agent and member will use to identify the target. It is this mapped public IP address that is returned to the application in response to the DNS request. The mapped public IP address is routable to the Group Agent.

Although the Group Agent is described above with respect to use with a VCN, the technology of the Group Agent is broader than a VCN. Thus, the Group Agent can be used to allow entities to participate in other types of networks, communities, groups, organizations, communications, etc.

Note that in one embodiment, the member being serviced by the Group Agent must be in the same physical address realm as the Group Agent. In this

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manner, the Group Agent is used to bridge that physical address realm with the virtual space. The Group Agent contains the functionality to allow the member to participate in the virtual community; however, all the protocols of the virtual community terminate at the Group Agent. This way, the member receives a normal IP packet. From the point of view of the member, the Group Agent works like a router which connects the member to the subnet of virtual nodes.

The foregoing detailed description of the invention has been presented for purposes of illustration and description. It is not intended to be exhaustive or to limit the invention to the precise form disclosed. Many modifications and variations are possible in light of the above teaching. For example, any number of VCN Managers may be used. Any combination of NRDs and PRDs may be used to improve network efficiency. Any combination of Member Agents and Group Agents may be used, and the Virtual Community may be of any size. Additionally, while the above description provided an example using the protocols and addressing currently used on the Internet, the present invention can be used with other protocols and addressing schemes. The described embodiments were chosen in order to best explain the principles of the invention and its practical application to thereby enable others skilled in the art to best utilize the invention in various embodiments and with various modifications as are suited to the particular use contemplated. It is intended that the scope of the invention be defined by the claims appended hereto.

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CLAIMS

We claim:

1. A virtual community network system, comprising:

a virtual network manager including at least one virtual community definition comprising at least a domain name and a user set; and

at least one route director capable of communicating with users in the user set.

2. The system of claim 1 wherein each user communicates with the virtual network manager and other users in the user set via at least one agent.

3. The system of claim 2 wherein the agent is installed on a processing device.

4. The system of claim 2 wherein the agent is installed on a proxy device.

5. The system of claim 2 wherein the virtual network manager includes a NAT device detector for agents installed on a processing device behind a NAT device.

6. The system of claim 1 wherein the manager comprises a device coupled to a public network and having a public network address.

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7. The system of claim 1 wherein the user set includes at least a first user and a second user, said first user accesses other users in the community using at least a first processing device, said second user accesses other users in the community using at least a second processing device.

8. The system of claim 7 wherein each said device includes at least one virtual address in the community and at least one physical address.

9. The system of claim 8 wherein the physical address is dynamic.

10. The system of claim 8 wherein the physical address is static.

11. The system of claim 8 wherein the physical address is private.

12. The system of claim 8 wherein at least one of said first device or second device is coupled to a first private network and accesses a public network via a NAT device.

13. The system of claim 12 wherein the physical address is dynamic.

14. The system of claim 12 wherein the physical address is static.

15. The system of claim 12 wherein said first device is coupled to said first private network, and said second device is coupled to a second private network and accesses the public network via a second NAT device.

16. The system of claim 15 wherein said second device includes at least one virtual address in the realm and at least one private physical address.

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17. The system of claim 15 wherein the physical address is dynamic.

18. The system of claim 15 wherein the physical address is static.

19. The system of claim 15 wherein said at least first private network and said at least second private network share at least one network address.

20. The system of claim 1 wherein the route director includes a pseudo address assignment for at least one user in the user set.

21. The system of claim 1 wherein the route director includes a translator for virtual address information for a virtual user in a private network realm.

22. The system of claim 1 wherein the virtual community manager is coupled to a public network and includes a public network address.

23. The system of claim 22 wherein the route director is coupled to said public network and includes a public network address.

24. The system of claim 22 wherein the route director is coupled to a first private network and said route director includes a private network address.

25. The system of claim 1 wherein communications between users in the user set are encapsulated.

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26. The system of claim 1 wherein communications between users in the user set are encrypted.

27. The system of claim 26 wherein said encryption uses IPSEC.

28. The system of claim 26 wherein said encryption uses DES.

29. The system of claim 26 wherein said encryption uses triple DES.

30. The system of claim 1 wherein the manager includes at least a second virtual domain definition.

31. The system of claim 1 further including at least a first public route director and a second private route director.

32. A system, comprising:

a management device including network interface coupled to a public address realm and having a public address;

a virtual community network traffic router; and

router data including at least one association of a logical identifier with public routing information for a member.

33. The system of claim 32 wherein the network traffic router includes a network interface accessible by a public address in the public address realm.

34. The system of claim 32 wherein the management device includes a UDP port capable of receiving virtual community network traffic.

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35. The system of claim 32 wherein the management device includes a TCP port capable of communicating virtual community network traffic.

36. The system of claim 32 wherein a member accesses a physical network via a processing device and the system further includes at least one agent installed on the processing device.

37. The system of claim 36 wherein the processing device is coupled to a private physical network behind a NAT device, and the network traffic router includes a transposer for routing information in a packet destined for the agent to direct the packet to the NAT device for the agent.

38. The system of claim 32 further including at least one proxy agent on a private physical network communicating with a member and the network traffic router.

39. The system of claim 38 wherein the member accesses other members using a device coupled to a private physical network.

40. The system of claim 32 wherein the manager includes a member register module.

41. The system of claim 40 wherein the manager includes a member join module.

42. The system of claim 41 wherein the join module provides a virtual address to a registered member.

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43. The system of claim 41 wherein the manager maintains data on an association between at least one virtual address with at least one member.

44. The system of claim 40 wherein the manager includes a DNS server for the virtual community.

45. The system of claim 32 further including a virtual community network communication agent for a device, comprising a virtual network adapter interfacing with the device and applications on the device to route traffic to members of the virtual community via their virtual address.

46. The system of claim 45 wherein the agent includes a domain name routing plugin.

47. The system of claim 45 wherein the agent includes a separate IP stack for each user in the user set accessing the device.

48. The system of claim 45 wherein the adapter is a deterministic network enhancer.

49. The system of claim 45 wherein the adapter includes a DNS plugin.

50. The system of claim 45 wherein the adapter includes an IPSEC plugin.

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51. The system of claim 45 wherein the adapter includes a domain name routing plugin.

52. The system of claim 45 wherein the agent includes a community registration module.

53. A virtual community network system, comprising:

a virtual community network manager;

a route director;

at least a first virtual community agent associated with a first community member; and

at least a second virtual community agent associated with at least a second community member.

54. The system of claim 53 wherein the route director is a network route director, and includes a public network interface and public address.

55. The system of claim 53 wherein the route director is a private route director, and includes a private physical network address interface and a private physical network address.

56. The system of claim 53 wherein the first or second virtual community network agent is installed on a device used by a member to access a network.

57. The system of claim 56 wherein the device is in a private physical network.

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58. The system of claim 56 wherein the device is coupled to a public physical network.

59. The system of claim 53 wherein the first or second virtual community network agent is a proxy agent.

60. The system of claim 53 wherein the first and second members access the virtual community via devices coupled to separate private address physical realms.

61. The system of claim 53 wherein the virtual community network manager includes at least a first community definition and a second community definition.

62. The system of claim 53 wherein the community network manager includes a member authenticator.

63. The system of claim 62 wherein the community network manager includes a DNS server providing authorative responses for DNS queries in the virtual community.

64. A method for providing a secure virtual network, comprising:

providing a virtual network manager coupled to a public network;

defining a member set of users entitled to communicate in the virtual network;

registering members with the manager;

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assigning members a virtual address; and

routing network traffic between the members in the virtual community.

65. The method of claim 64 further including the step of providing users in said member set with a communication agent.

66. The method of claim 65 wherein said step of providing users with a communication agent includes providing a proxy agent.

67. The method of claim 65 wherein said step of providing users with a communication agent includes providing an agent installed on a device used by the member to couple to a network.

68. The method of claim 65 wherein the step of registering comprises authenticating members with the member set.

69. The method of claim 64 wherein the step of defining a member set includes the step of assigning a domain name for the community.

70. The method of claim 64 wherein the step of defining a member set includes defining at least two member sets having at least one different member.

71. The method of claim 64 wherein the step of assigning a virtual address includes assigning an IPV4 compliant address.

72. The method of claim 71 wherein the step of assigning a virtual address includes assigning a non-routable IPV4 compliant address.

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73. The method of claim 64 wherein the step of routing network traffic includes routing traffic from a first member accessing the public network on a first device having a public address with a second member accessing the public network on a second device having a different public address.

74. The method of claim 64 wherein the step of routing network traffic includes routing traffic from a first member accessing the public network on a first device in a private physical network having a private address with a second member accessing the public network on a second device having a public address.

75. The method of claim 64 wherein the step of routing network traffic includes routing traffic from a first member accessing the public network on a device in a private physical network having a first private physical address with a second member accessing the public network on a device in a private physical network having a second private physical address.

76. The method of claim 75 wherein the first private physical address and the second private physical address are identical.

77. The method of claim 64 further including the step of responding to DNS requests for members in the virtual network.

78. The method of claim 64 further including the step of responding to joined status requests for registered members in the virtual network.

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79. The method of claim 64 further including applying a group policy to members of the virtual community.

80. One or more processor readable storage devices having processor readable code embodied on said processor readable storage devices, said processor readable code for programming one or more processors to perform a method comprising the steps of:

managing a virtual community network realm;

defining a member set of users entitled to communicate in the virtual community;

registering users with the virtual community;

assigning each user a virtual address; and

routing network traffic between the users in the virtual community.

81. One or more processor readable storage devices as defined in claim 80 further including code for programming one or more processors to perform a step of providing users in said member set with a communication agent.

82. One or more processor readable storage devices as defined in claim 81 wherein said step of providing users with a communication agent includes providing a proxy agent.

83 One or more processor readable storage devices as defined in claim 80 wherein the step of defining a member set includes the step of assigning a domain name for the community.

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84. One or more processor readable storage devices as defined in claim 80 wherein the step of assigning a virtual address includes a non-routable IPV4 compliant address.

85. One or more processor readable storage devices as defined in claim 80 wherein the step of routing network traffic includes routing traffic from a first member accessing the public address realm on a first device having a public address with a second member accessing the public address realm on a second device having a different public address.

86. One or more processor readable storage devices as defined in claim 80 wherein the step of routing network traffic includes routing traffic from a first member accessing the public address realm on a first device in a private physical network having a private address with a second member accessing the public address realm on a second device having a public address.

87. One or more processor readable storage devices as defined in claim 80 wherein the step of routing network traffic includes routing traffic from a first member accessing the public address realm on a device in a private physical network having a first private physical address with a second member accessing the public address realm on a device in a private physical network having a second private physical address.

88. One or more processor readable storage devices as defined in claim 87 wherein the step of routing network traffic includes routing traffic to the first or second member via a NAT device.

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89. One or more processor readable storage devices as defined in claim 87 wherein the first private physical address and the second private physical address are identical.

90. One or more processor readable storage devices as defined in claim 80 wherein the step of routing includes routing encapsulated traffic.

91. One or more processor readable storage devices as defined in claim 80 wherein the step of routing includes routing encrypted traffic.

92. One or more processor readable storage devices as defined in claim 80 further including applying a group policy to members of the virtual community.

93. A virtual community network system, comprising:

a virtual network manager having a network interface coupled to a network, the manager including at least one virtual community definition comprising at least a domain name and a user set, the network being assessable by users in the user set and users outside the user set, the manager exchanging virtual community network information with users in the user set.

94. The system of claim 93 wherein the virtual network manager includes a member register module.

95. The system of claim 93 wherein the virtual network manager includes a member join module.

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96. The system of claim 95 wherein the join module provides a virtual address to a registered member.

97. The system of claim 93 wherein the virtual network manager maintains data on an association between at least one virtual address with at least one member.

98. The system of claim 93 wherein the virtual network manager includes a DNS server for the virtual community.

99. The system of claim 93 wherein the virtual network manager includes a NAT device detector for users connecting with the virtual network manager using a processing device behind a NAT device.

100. The system of claim 93 wherein the virtual network manager includes at least a second virtual domain definition.

101. The system of claim 93 wherein the virtual network manager includes at least a first virtual community definition and a second virtual community definition.

102. The system of claim 93 wherein the virtual network manager includes a member authenticator.

103. The system of claim 93 wherein the virtual network manager includes a DNS server providing authorative responses for DNS queries form users in the virtual community.

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104. The system of claim 93 wherein the system further includes at least one route director capable of communicating with users in the user set.

105. The system of claim 93 wherein each user communicates with the virtual network manager and other users in the user set via at least one agent.

106. The system of claim 93 wherein the user set includes at least a first user and a second user, said first user accesses other users in the community using at least a first processing device, said second user accesses other users in the community using at least a second processing device, wherein at least one of said first device or second device is coupled to a first private network and accesses a public network via a NAT device.

107. The system of claim 106 wherein said first device is coupled to said first private network, and said second device is coupled to a second private network and accesses the public network via a second NAT device.

108. The system of claim 93 wherein communications between users in the user set are encrypted.

109. The system of claim 108 wherein the virtual network manager provides a shared secret to users in the user set to establish encrypted communications.

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American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

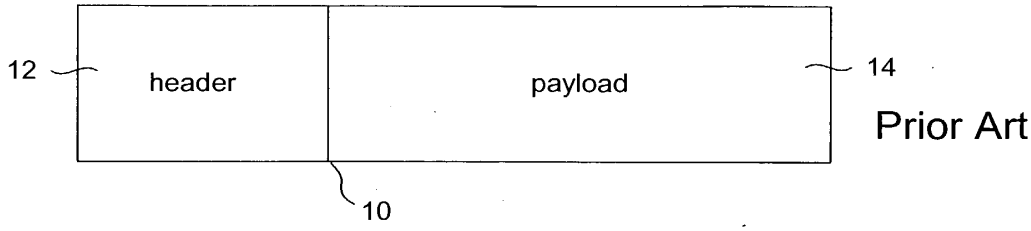
ABSTRACT

A private virtual dynamic network is provided for computing devices coupled to public networks or private networks. This enables computing devices anywhere in the world to join into private enterprise intranets and communicate with each other. In one embodiment, the present invention provides a separate private virtual address realm, seen to each user as a private network, while seamlessly crossing public and private network boundaries. One implementation of the present invention uses an agent to enable an entity to participate in the network without requiring the member to add new hardware or software.

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American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

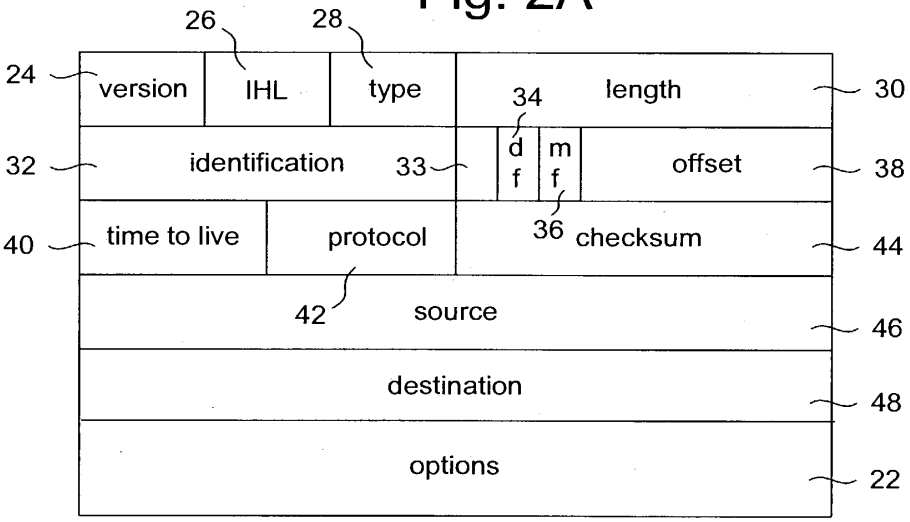
Title: SECURE VIRTUAL COMMUNITY NETWORK SYST[redacted]
Applican[redacted]lasan S. Alkhatib et al. Docket: TTCC-01021U[redacted]
Appl. No.: [redacted]Unknown Atty: Burt Magen, Esq.
Filing Date: March 31, 2003 Phone: (415) 369-9660
Express Mail No.: EV 251 363 937 US

Fig. 1



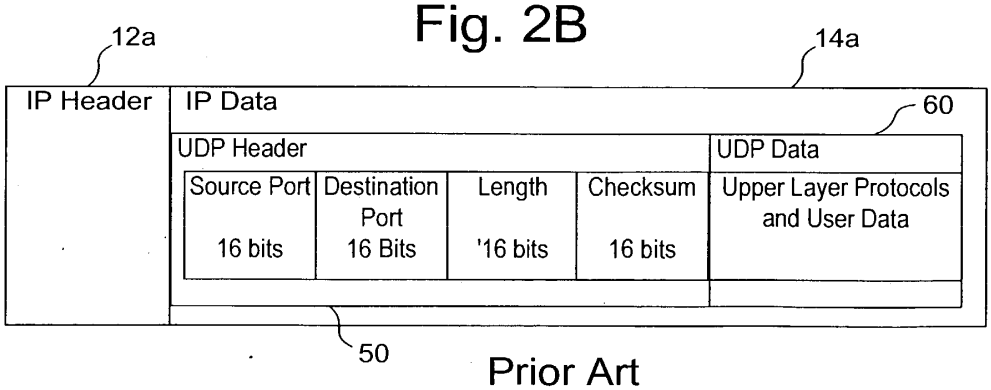
Prior Art

Fig. 2A



Prior Art

Fig. 2B



Prior Art

Title: SECURE VIRTUAL COMMUNITY NETWORK SYSTE
Applicant: [redacted]asan S. Alkhatib et al. Docket: TTCC-01021US
Appl. No.: Unknown Atty: Burt Magen, Esq.
Filing Date: March 31, 2003 Phone: (415) 369-9660
Express Mail No.: EV 251 363 937 US

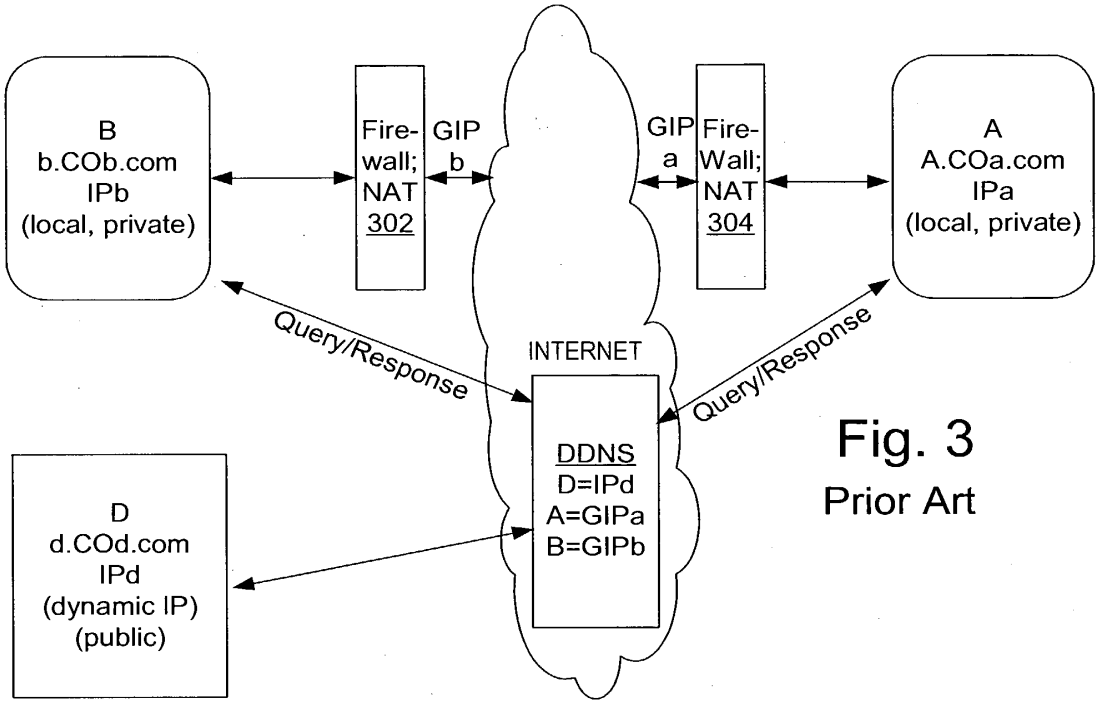
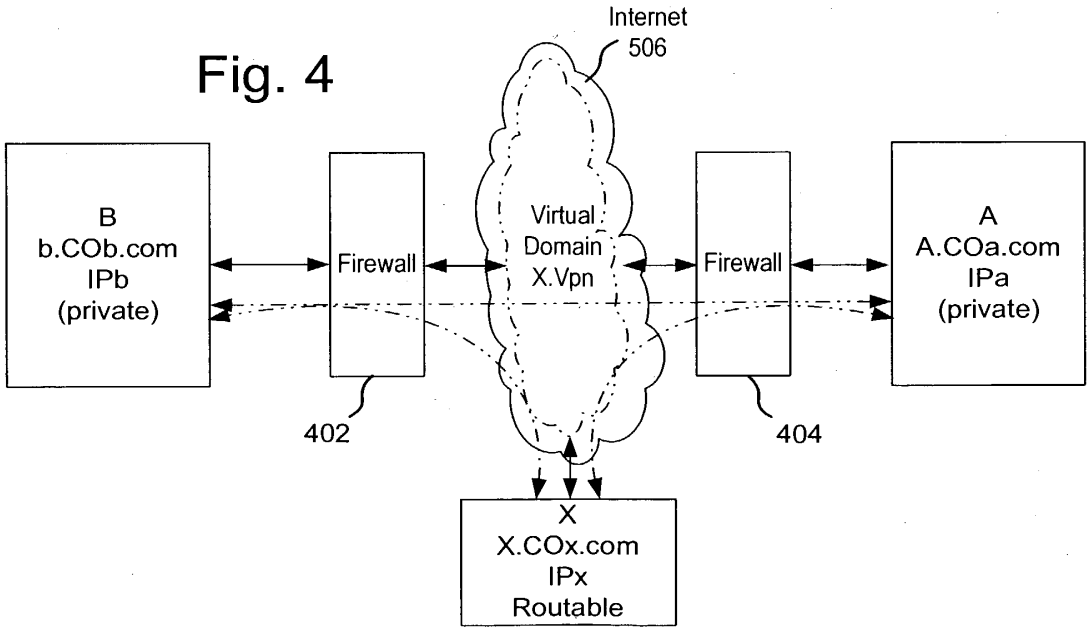


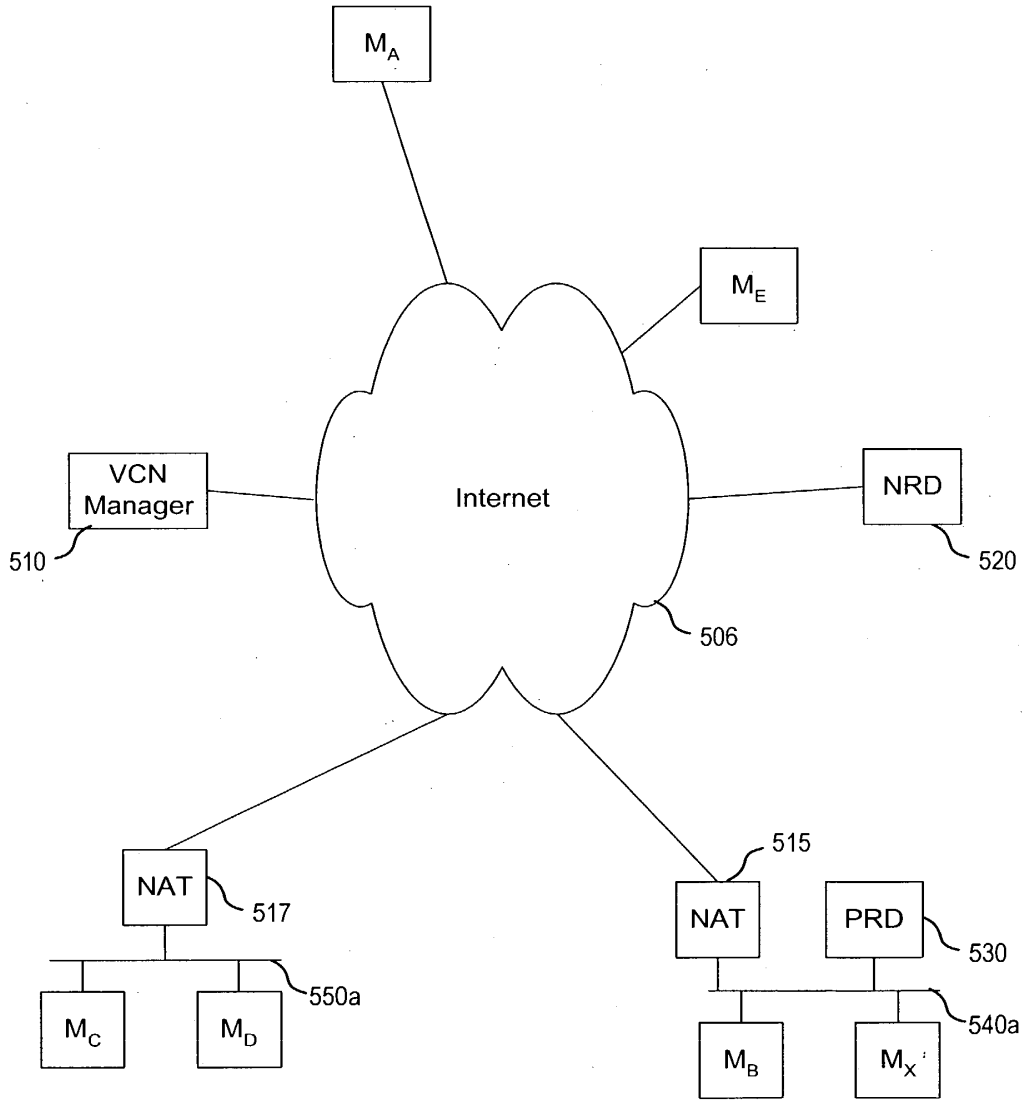
Fig. 3
Prior Art

Fig. 4



Title: SECURE VIRTUAL COMMUNITY NETWORK SYSTE
Applicant: [redacted]asan S. Alkhatib et al. Docket: TTCC-01021US
Appl. No.: Unknown Atty: Burt Magen, Esq.
Filing Date: March 31, 2003 Phone: (415) 369-9660
Express Mail No.: EV 251 363 937 US

Fig. 5a



Title: SECURE VIRTUAL COMMUNITY NETWORK SYSTEM
Applicants: [redacted]an S. Alkhatib et al. Docket: TTCC-01021US0
Appl. No.: Unknown Atty: Burt Magen, Esq.
Filing Date: March 31, 2003 Phone: (415) 369-9660
Express Mail No.: EV 251 363 937 US

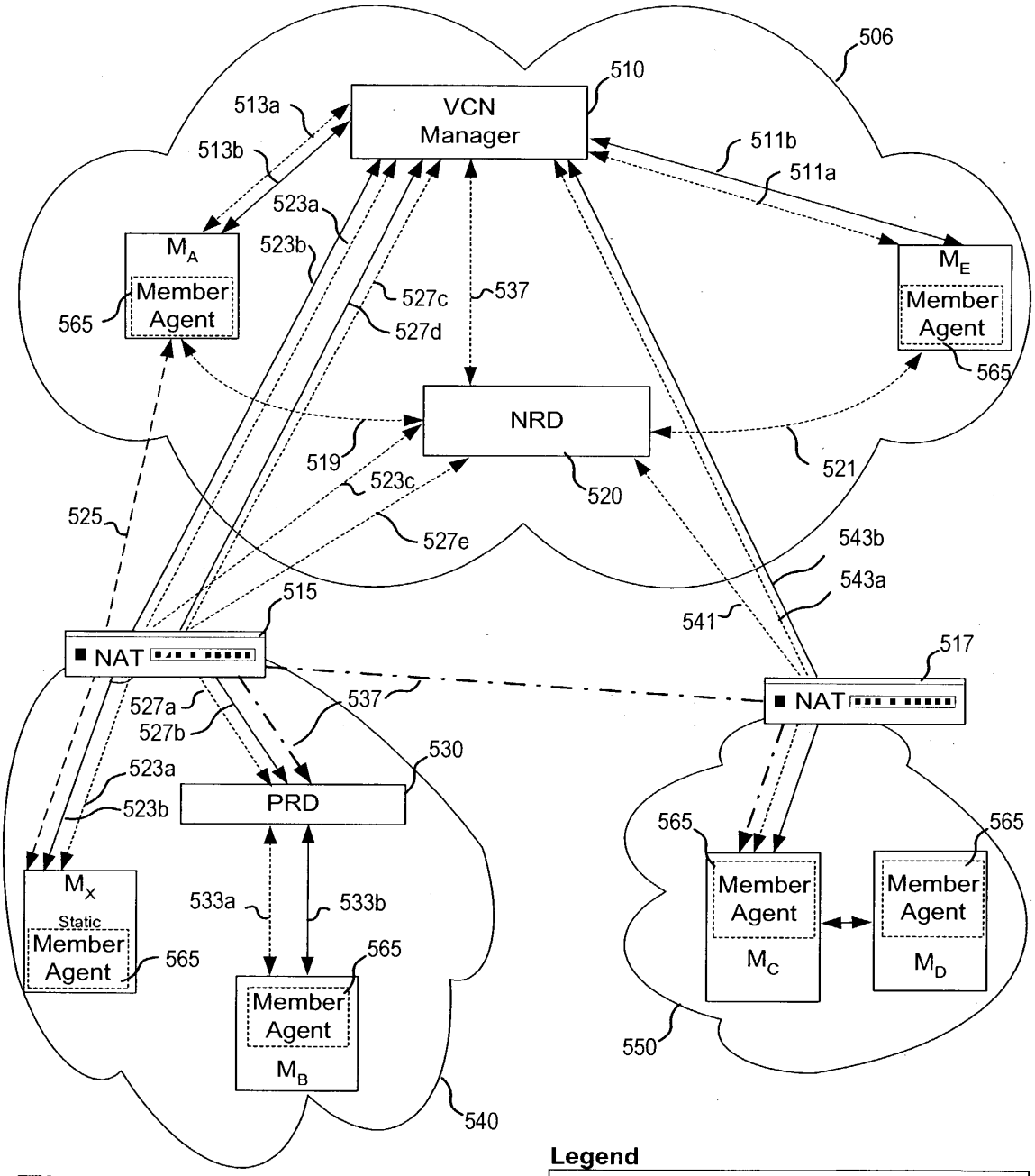


Fig. 5b

Title: SECURE VIRTUAL COMMUNITY NETWORK SYST[redacted]
Applican[redacted] Hasan S. Alkhatib et al. Docket: TTCC-01021U[redacted]
Appl. No.: Unknown Atty: Burt Magen, Esq.
Filing Date: March 31, 2003 Phone: (415) 369-9660
Express Mail No.: EV 251 363 937 US

10403818.033103

Fig. 6A

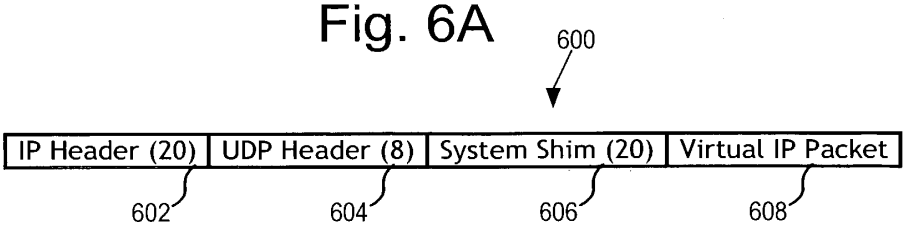


Fig. 6B

606

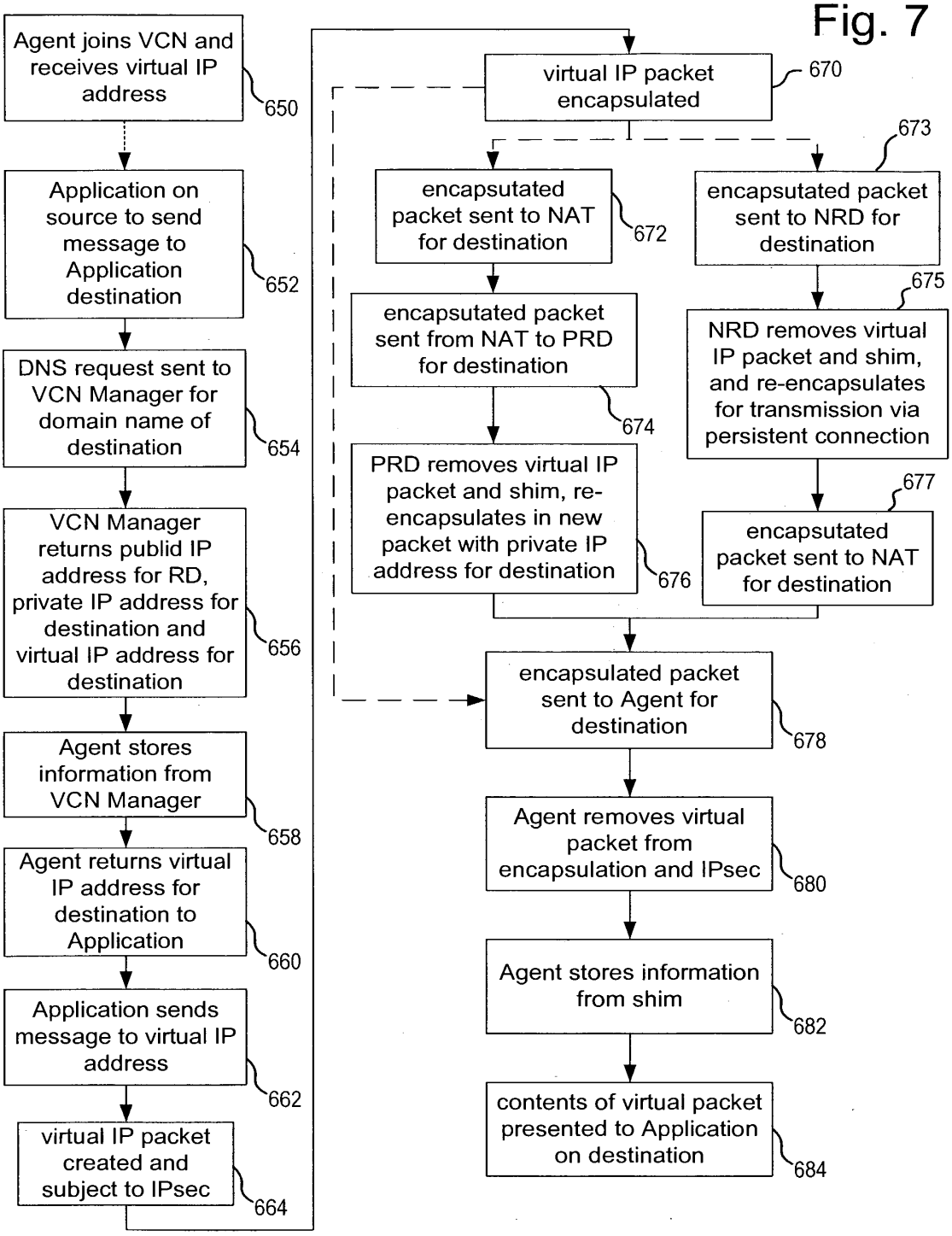
Field Name	Description
Protocol Version	Version information
Data Type	Type of data following Shim
Header Option Flags	Option Flag Information
Source RD Public IP	Source Route Director gIP
Dest RD Public IP	Destination Route Director gIP
Source Member pIP	Source Member Private IP
Dest Member pIP	Destination Member Private IP

[redacted]

Title: SECURE VIRTUAL COMMUNITY NETWORK SYSTEM
Applicants: [redacted]san S. Alkhatib et al. Docket: TTCC-01021US[redacted]
Appl. No.: [redacted]known Atty: Burt Magen, Esq.
Filing Date: March 31, 2003 Phone: (415) 369-9660
Express Mail No.: EV 251 363 937 US

10403819 .033103

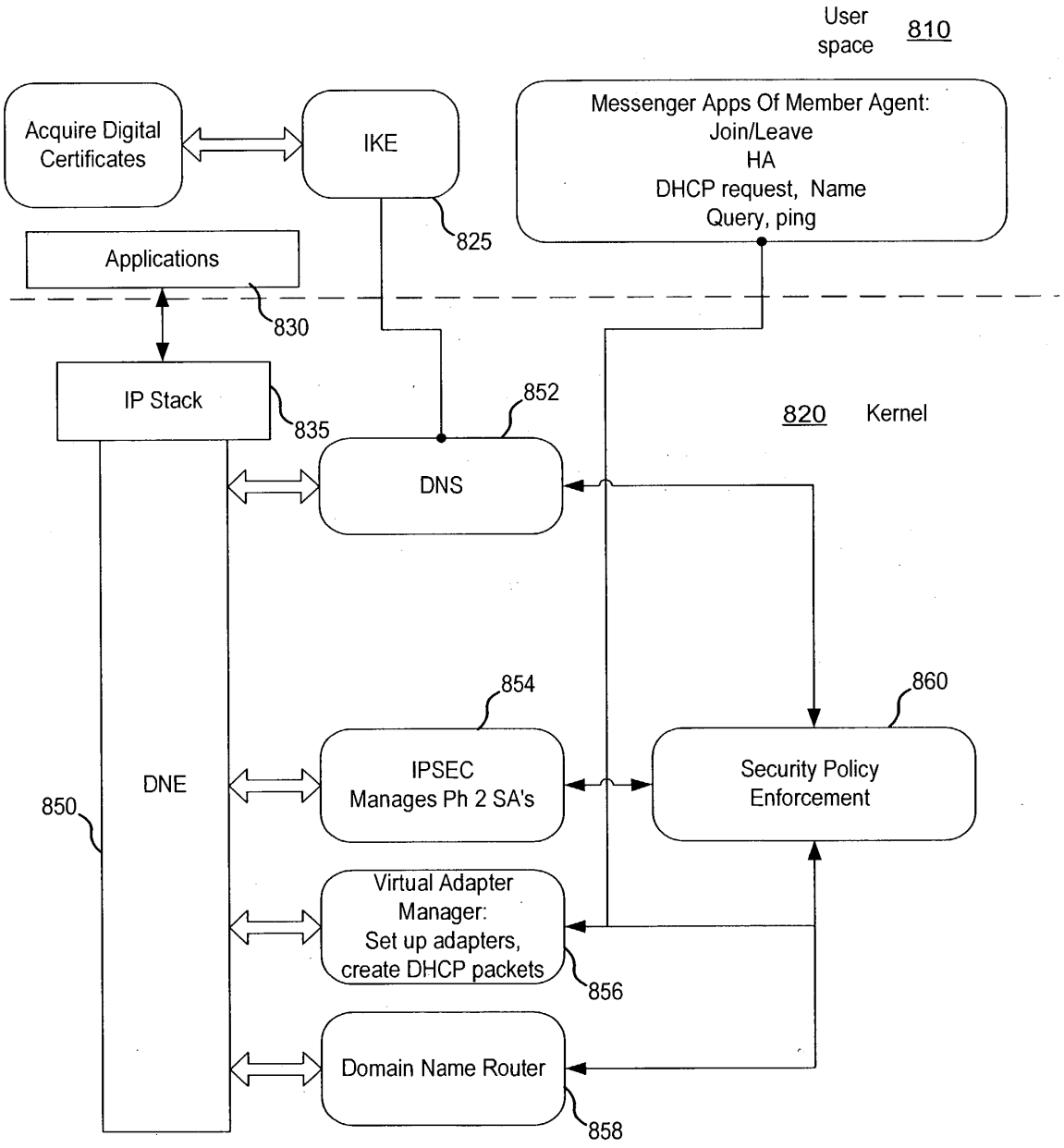
Fig. 7



Title: SECURE VIRTUAL COMMUNITY NETWORK SYSTE
Applicants: [redacted]san S. Alkhatib et al. Docket: TTCC-01021US
Appl. No.: [redacted]nknown Atty: Burt Magen, Esq.
Filing Date: March 31, 2003 Phone: (415) 369-9660
Express Mail No.: EV 251 363 937 US

10403818.033102

Fig. 8



Title: SECURE VIRTUAL COMMUNITY NETWORK SYST[redacted]
Applicant: Hasan S. Alkhatib et al. Docket: TTCC-01021U[redacted]
Appl. No.: Unknown Atty: Burt Magen, Esq.
Filing Date: March 31, 2003 Phone: (415) 369-9660
Express Mail No.: EV 251 363 937 US

10403918 .033103

Fig. 9

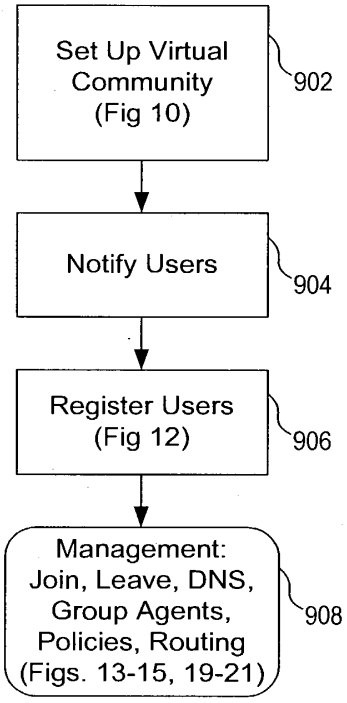
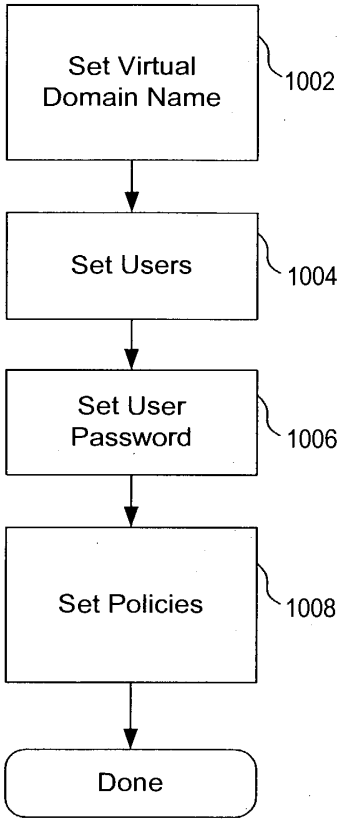


Fig. 10



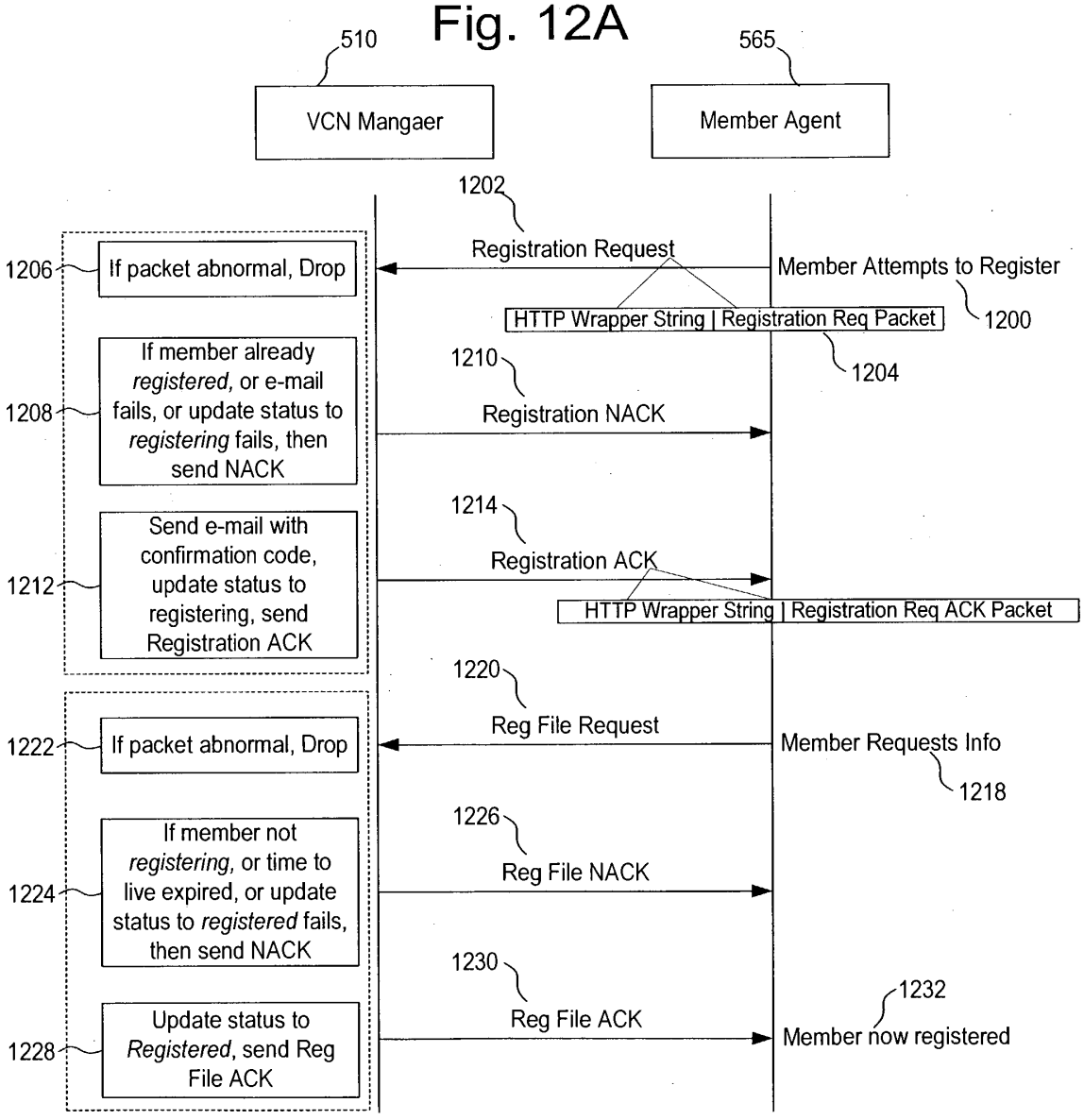
Title: SECURE VIRTUAL COMMUNITY NETWORK SYS[redacted]
Applica[redacted] Hasan S. Alkhatib et al. Docket: TTCC-01021[redacted]
Appl. No.[redacted] Unknown Atty: Burt Magen, Esq.
Filing Date: March 31, 2003 Phone: (415) 369-9660
Express Mail No.: EV 251 363 937 US

10403818.033103

Fig. 11

<HTTP Header><XML Header><P-Length>

Fig. 12A



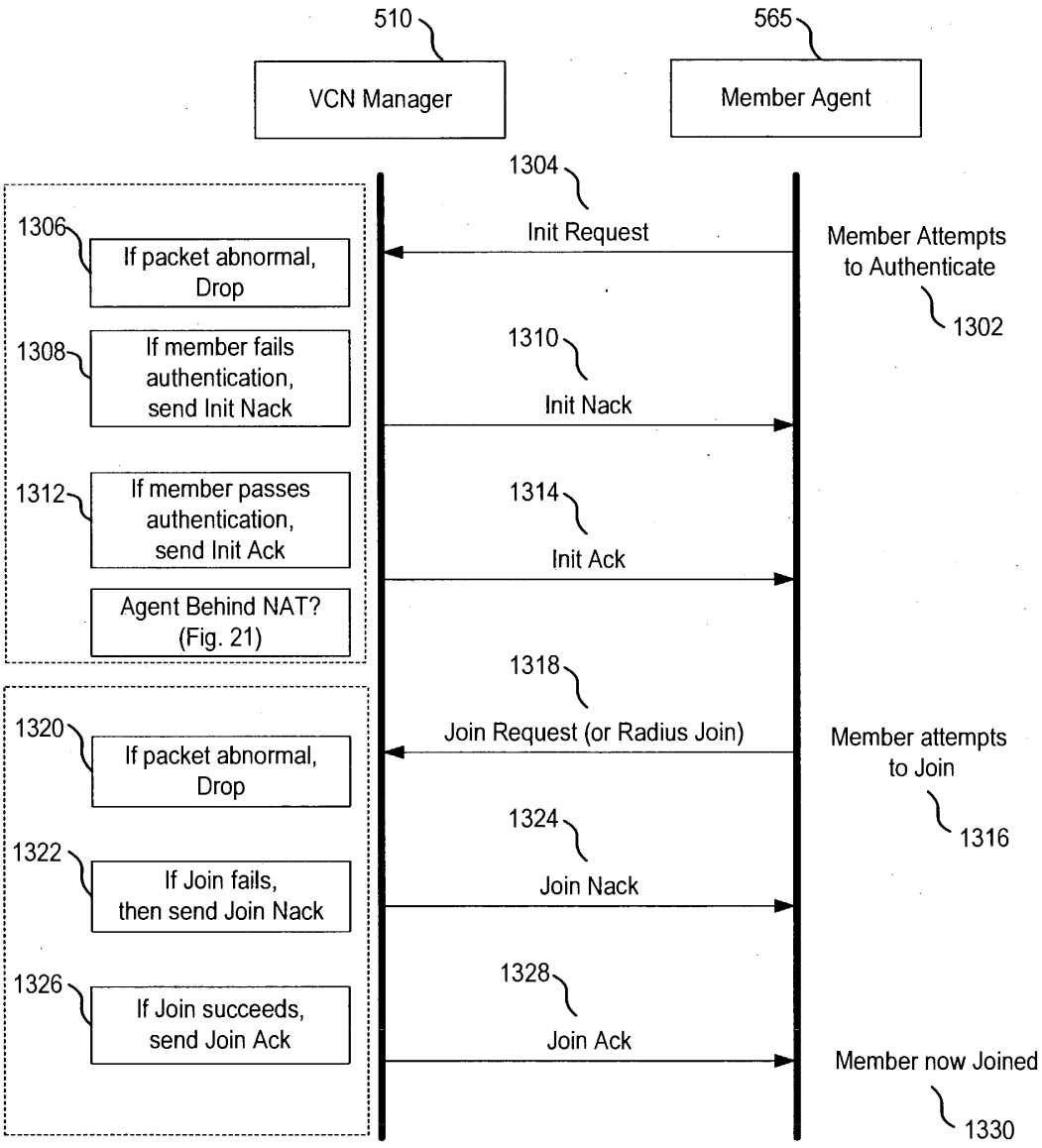
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Title: SECURE VIRTUAL COMMUNITY NETWORK SYSTEM
Appl. No.: Hasan S. Alkhatib et al. Docket: TTCC-01[redacted]0
Appl. No.: Unknown Atty: Burt Magen, Esq.
Filing Date: March 31, 2003 Phone: (415) 369-9660
Express Mail No.: EV 251 363 937 US

Fig. 12B

Field Name	Type	Description
Manager Seed	Array (32)	From Init Ack
Init Ack Time	Uint (8)	From Init Ack
Join Flags	Uint (2)	Indicates if rejoin and/or Group
Member Local IP	Uint (4)	The machine's local IP address
RD Local IP	Uint (4)	The Route Director local IP address
RD Global IP	Uint (4)	The Route Director Global IP
<Unused>	Uint (4)	
Member AH SPI	Uint (4)	For IPsec
Member ESP SPI	Uint (4)	For IPsec
Member Listen Port	Uint (2)	For Heartbeat Protocol
Token Timestamp	Uint (8)	The UTC time Token Key was created
Member Run ID	Array (16)	GUID Identifying current client run
Member Netbios Name	Array (16)	Microsoft NetBios support
SP Version	Uint (4)	Security Policy version
HA Version	Uint (4)	High availability version
Password Hash	Uint (20)	SHA1 of the user password string
Padding	Uint (.)	End on a multiple of 16 octets

Title: SECURE VIRTUAL COMMUNITY NETWORK SYS
Applica Hasan S. Alkhatib et al. Docket: TTCC-01021
Appl. No. Unknown Atty: Burt Magen, Esq.
Filing Date: March 31, 2003 Phone: (415) 369-9660
Express Mail No.: EV 251 363 937 US

Fig. 13



Title: SECURE VIRTUAL COMMUNITY NETWORK SYS
Applica Hasan S. Alkhatib et al. Docket: TTCC-01021
Appl. No. Unknown Atty: Burt Magen, Esq.
Filing Date: March 31, 2003 Phone: (415) 369-9660
Express Mail No.: EV 251 363 937 US

Fig. 14

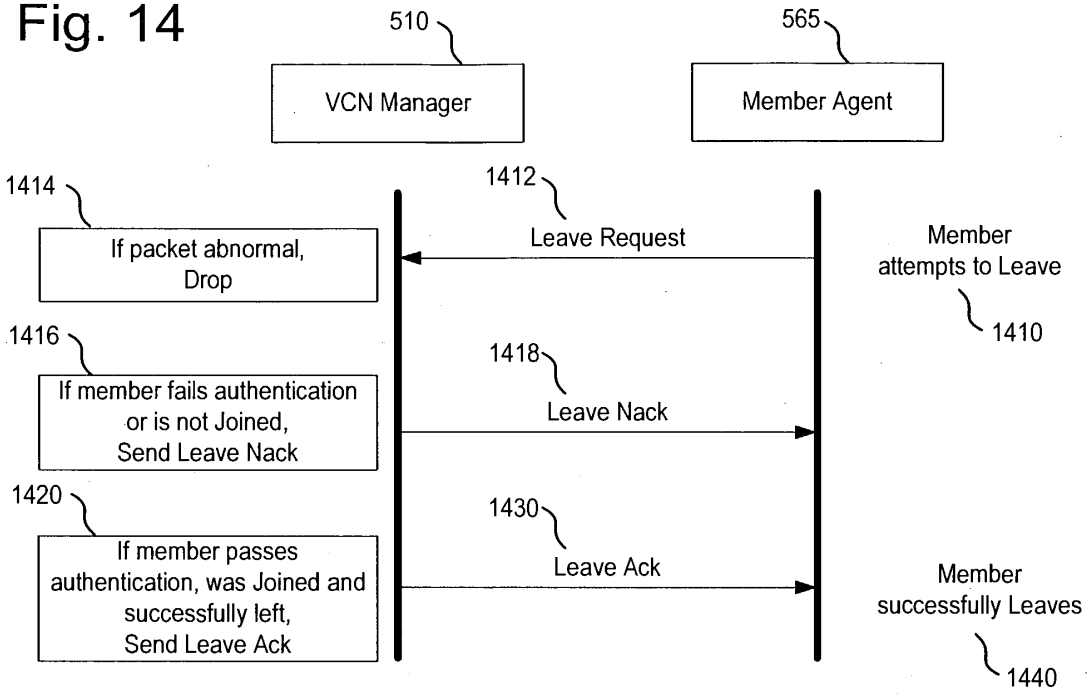
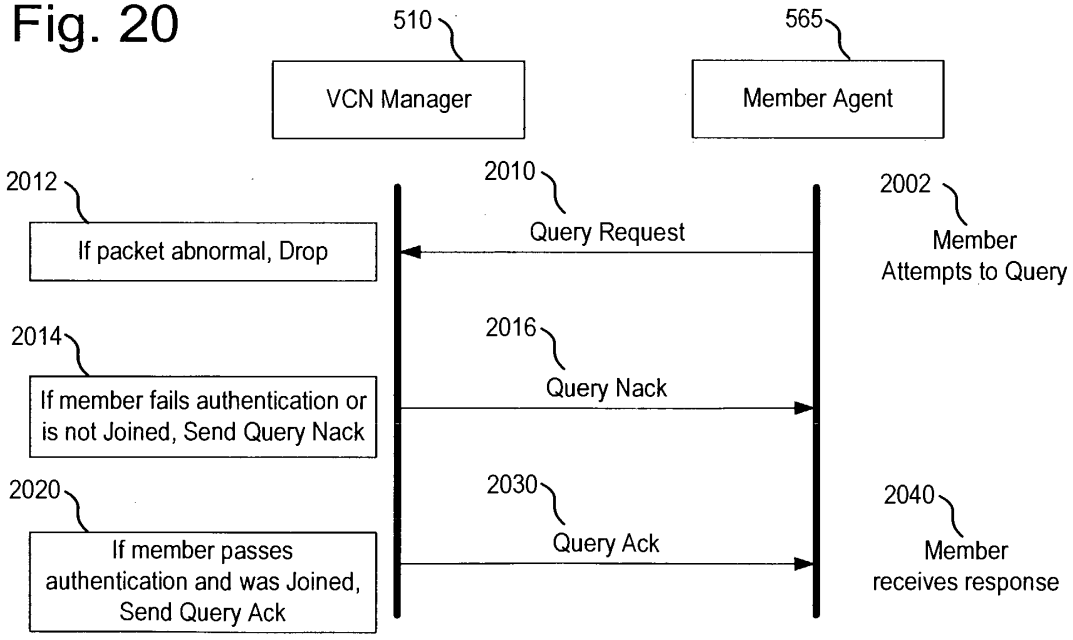
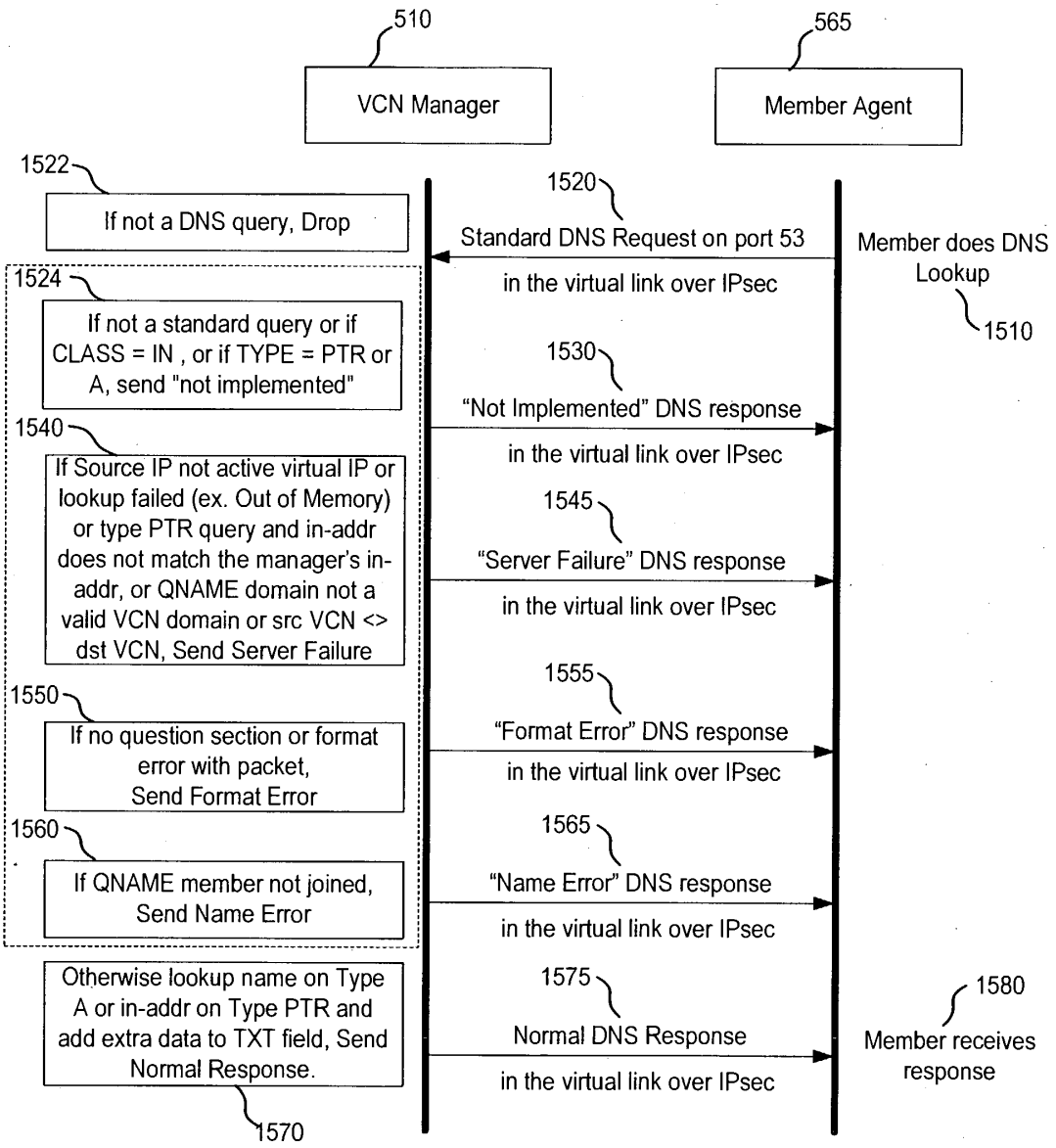


Fig. 20



Title: SECURE VIRTUAL COMMUNITY NETWORK SYST
Applican Jasan S. Alkhatib et al. Docket: TTCC-01021U
Appl. No.: Unknown Atty: Burt Magen, Esq.
Filing Date: March 31, 2003 Phone: (415) 369-9660
Express Mail No.: EV 251 363 937 US

Fig. 15



Title: SECURE VIRTUAL COMMUNITY NETWORK SY[redacted]
Applic[redacted] Hasan S. Alkhatib et al. Docket: TTCC-0102[redacted]
Appl. No.: Unknown Atty: Burt Magen, Esq.
Filing Date: March 31, 2003 Phone: (415) 369-9660
Express Mail No.: EV 251 363 937 US

10403818.033102

Fig. 16A

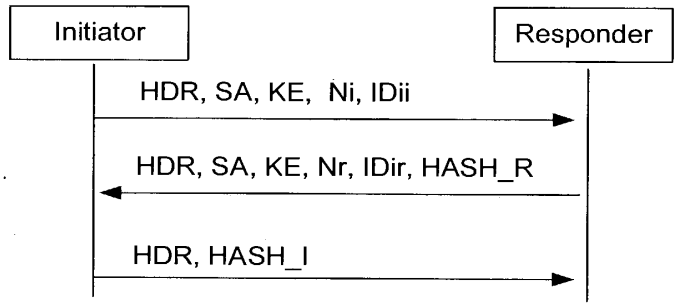
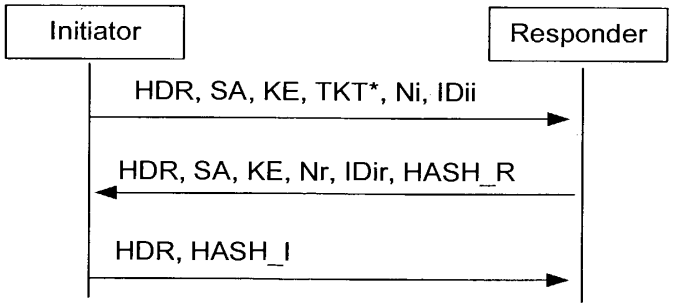


Fig. 16B



10403818.033103

Title: SECURE VIRTUAL COMMUNITY NETWORK SYSTEM
Appl[redacted] Hasan S. Alkhatib et al. Docket: TTCC-010[redacted]
Appl. [redacted] Unknown Atty: Burt Magen, Esq.
Filing Date: March 31, 2003 Phone: (415) 369-9660
Express Mail No.: EV 251 363 937 US

Fig. 17

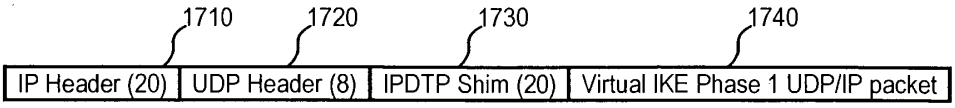


Fig. 18

IKE Ticket Payload in first IKE packet — 1740

Field Name	Field Type (Octets)	Description
Next Payload	Uint (1)	Type of payload following ours[1]
Reserved	Uint (1)	= 0, Part of ISAKMP
Payload Length (x)	Uint (2)	In octets
Payload Data	Array (x)	Payload in Network Byte Order

IKE Ticket Payload Data — 1750

Field Name	Field Type (Octets)	Description
Total Size	Uint (2)	Size of Payload
Number of Payload Items (x)	Uint (2)	Number of Items in the Item List
Item List	Array (.) * x	List of items in payload

IKE Ticket Item (one of Item List in Payload Data)

Field Name	Field Type (Octets)	Description
Item Type	Uint (2)	One of the types shown below
Item Size (x)	Uint (2)	Size of this item in octets
Item	Array (x)	Item in packed network byte order

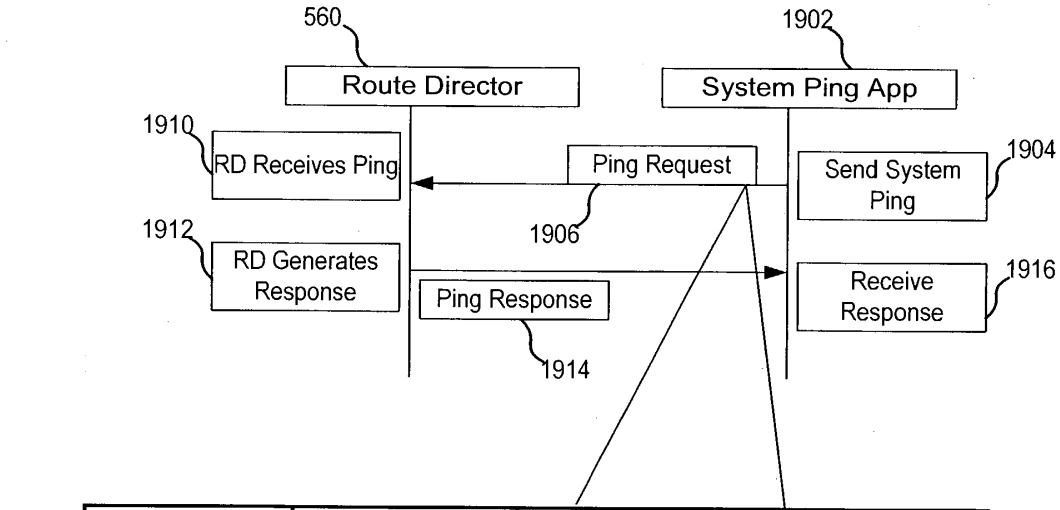
1760

IKE Ticket Payload Item Types

Item Name	Description
My FQDN	The Initiator's FQDN
My Ticket	A Ticket created by Initiator for Target
Peer FQDN	The Target's FQDN
Peer Ticket	A Ticket created by Manager for Target

1770

Fig. 19



IP Header (20)	UDP Header (8)	System Shim (20)	System Ping (4)

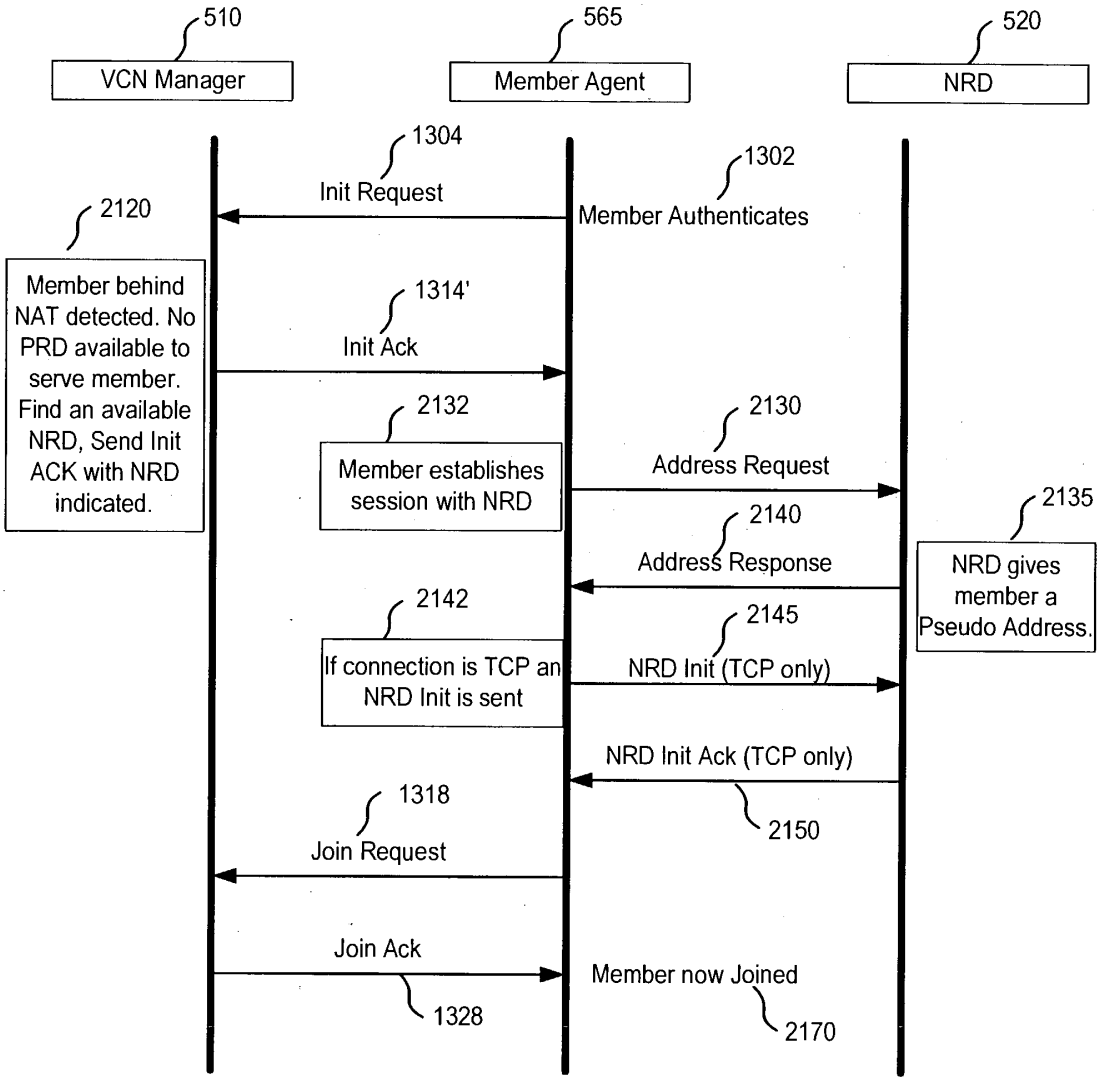
Field Name	Description
Protocol Version	Version
Data Type	= 1 for Information Ping to RD
Header Option Flags	None
Source RD Public IP	Source Route Director gIP = 0
Dest RD Public IP	Destination RD gIP = 0
Source member pIP	Source member private IP = 0
Dest member pIP	Destination member private IP = 0

Field Name	Description
Type	IPDTP Ping Type
Sequence	Arbitrary Sequence Number

Title: SECURE VIRTUAL COMMUNITY NETWORK SYS
Applica Hasan S. Alkhatib et al. Docket: TTCC-01021
Appl. No. Unknown Atty: Burt Magen, Esq.
Filing Date: March 31, 2003 Phone: (415) 369-9660
Express Mail No.: EV 251 363 937 US

10403818 .033103

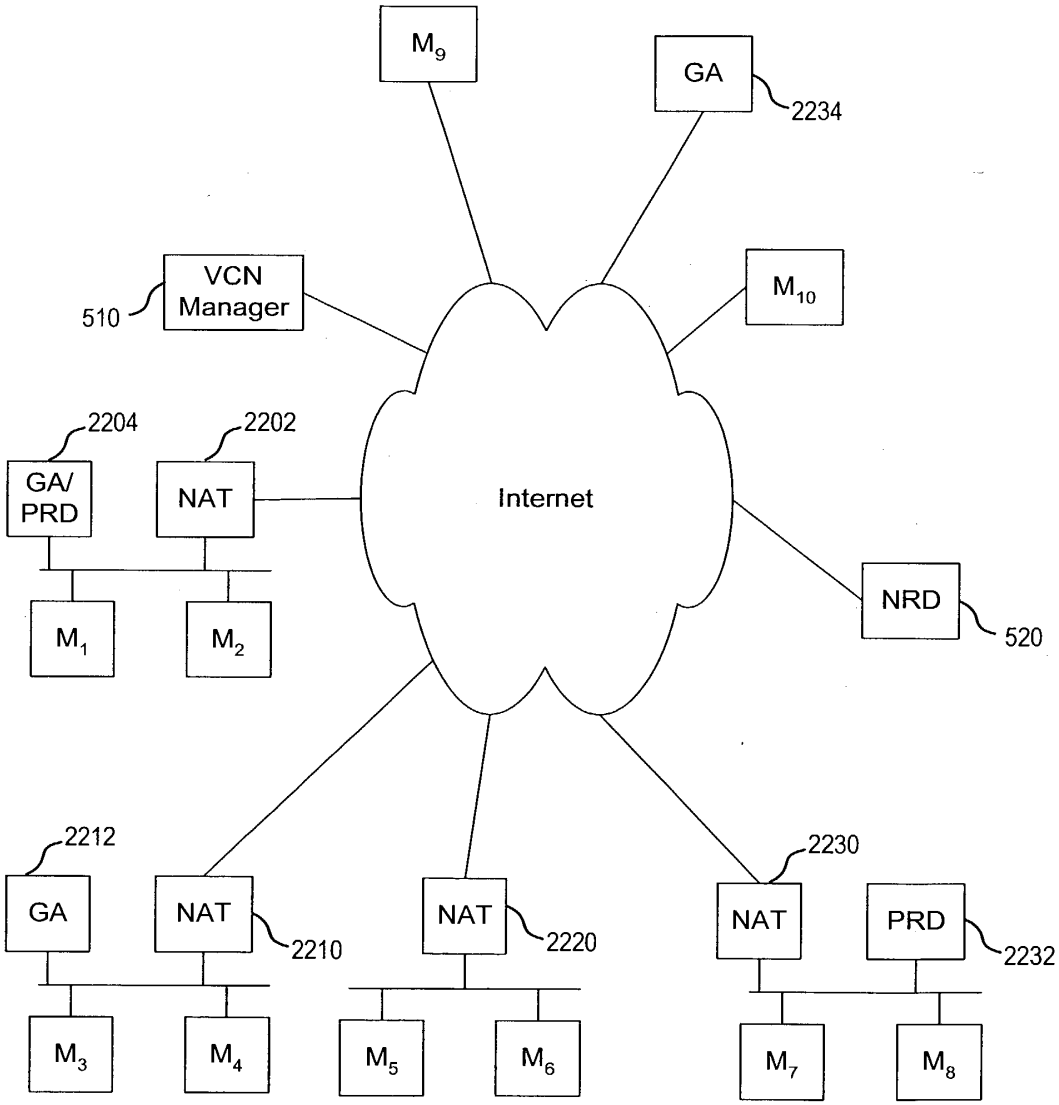
Fig. 21



Title: [redacted]ECURE VIRTUAL COMMUNITY NETWORK SYST[redacted]
Applicant[redacted] asan S. Alkhatib et al. Docket: TTCC-01021US[redacted]
Appl. No.: Unknown Atty: Burt Magen, Esq.
Filing Date: March 31, 2003 Phone: (415) 369-9660
Express Mail No.: EV 251 363 937 US

10403618.033103

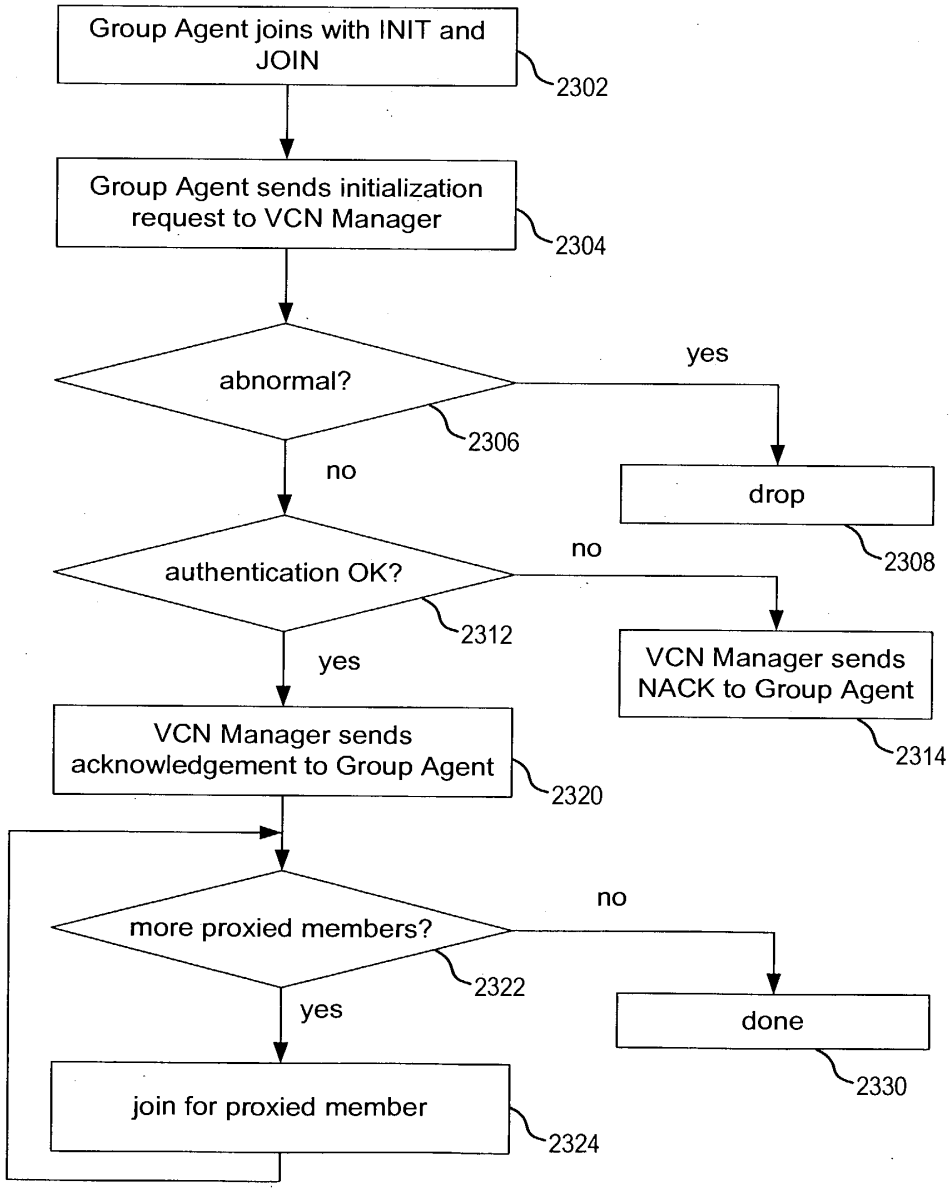
Fig. 22



Title: SECURE VIRTUAL COMMUNITY NETWORK SYSTEM
Applicants: [redacted]an S. Alkhatib et al. Docket: TTCC-01021US0
Appl. No.: Unknown Atty: Burt Magen, Esq.
Filing Date: March 31, 2003 Phone: (415) 369-9660
Express Mail No.: EV 251 363 937 US

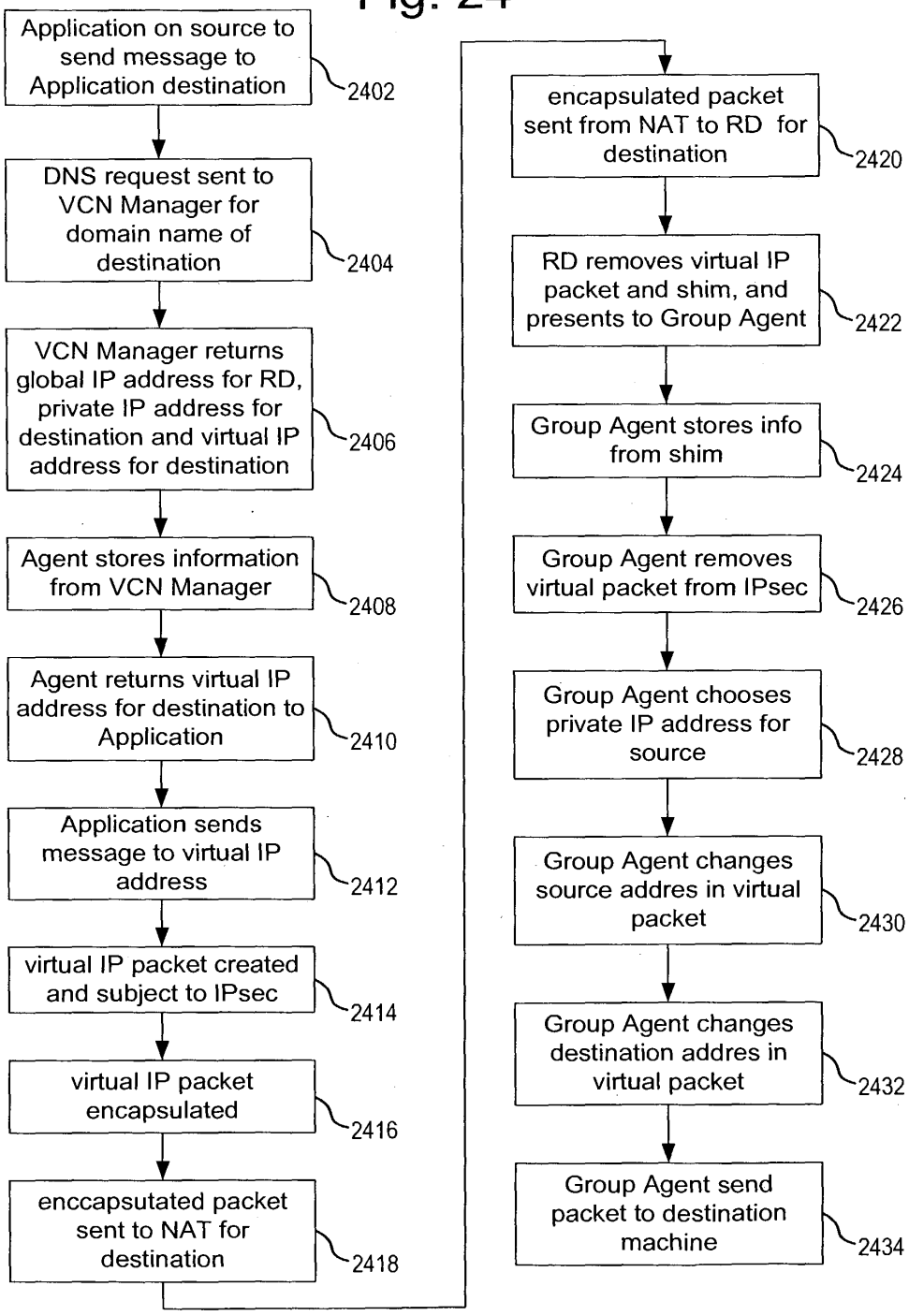
10403818.033103

Fig. 23



Title: SECURE VIRTUAL COMMUNITY NETWORK SYST
Applicant: Hasan S. Alkhatib et al. Docket: TTCC-01021U
Appl. No.: Unknown Atty: Burt Magen, Esq.
Filing Date: March 31, 2003 Phone: (415) 369-9660
Express Mail No.: EV 251 363 937 US

Fig. 24



10403818.033103
Title: SECURE VIRTUAL COMMUNITY NETWORK SYSTE
Applicants: san S. Alkhatib et al. Docket: TTCC-01021US
Appl. No.: nknown Atty: Burt Magen, Esq.
Filing Date: March 31, 2003 Phone: (415) 369-9660
Express Mail No.: EV 251 363 937 US

Fig. 25

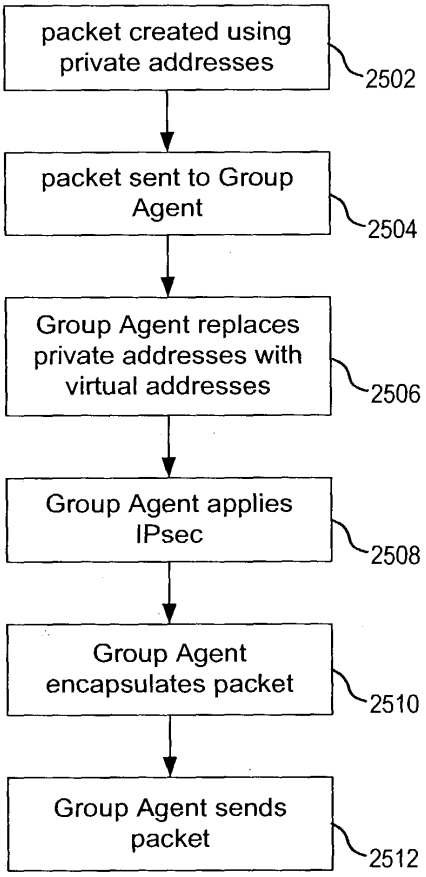
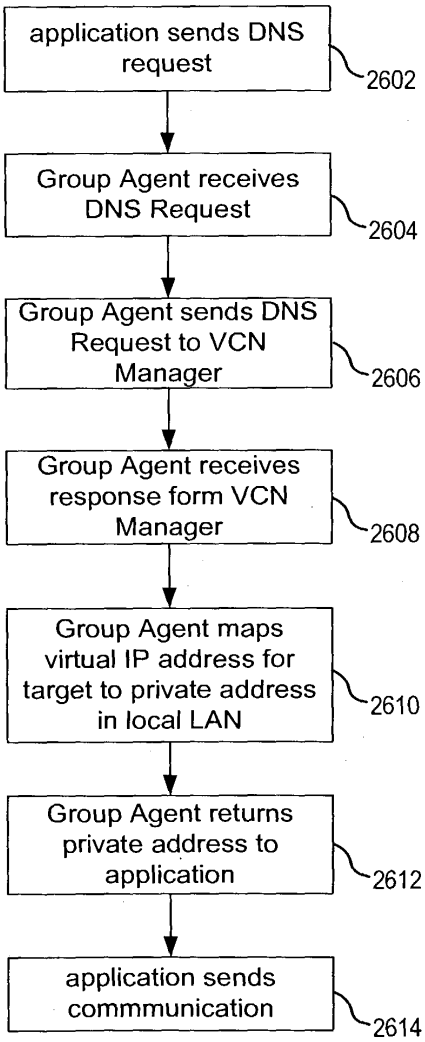


Fig. 26



PATENT APPLICATION FEE DETERMINATION RECORD
Effective January 1, 2003

Application or Docket Number

CLAIMS AS FILED - PART I

	(Column 1)	(Column 2)
TOTAL CLAIMS	109	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	109 minus 20=	* 89
INDEPENDENT CLAIMS	6 minus 3 =	* 3
MULTIPLE DEPENDENT CLAIM PRESENT	☐	

* If the difference in column 1 is less than zero, enter "0" in column 2

SMALL ENTITY TYPE ☐		OR	OTHER THAN SMALL ENTITY	
RATE	FEE		RATE	FEE
BASIC FEE	375.00	OR	BASIC FEE	750.00
X$ 9=		OR	X$18=	1602
X42=		OR	X84=	252
+140=		OR	+280=	
TOTAL		OR	TOTAL	2604

CLAIMS AS AMENDED - PART II

AMENDMENT A	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM	☐			

1, 32, 63, 64, 80, 93,

SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT B	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM	☐			

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT C	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM	☐			

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X42=		OR	X84=	
+140=		OR	+280=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."
***If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

FORM PTO-875 (Rev. 12/02) *U.S. Government Printing Office: 2003 — 498-278/69151 Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE

UNITED STATES PATENT AND TRADEMARK OFFICE

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United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING/RECEIPT DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NUMBER
10/403,818	03/31/2003	Hasan S. Alkhatib	TTCC-01021US0

CONFIRMATION NO. 2698

28554
VIERRA MAGEN MARCUS HARMON & DENIRO LLP
685 MARKET STREET, SUITE 540
SAN FRANCISCO, CA 94105

FORMALITIES LETTER

OC000000010381185

Date Mailed: 07/03/2003

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items and pay any fees required below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The statutory basic filing fee is missing.
  Applicant must submit $ **750** *to complete the basic filing fee for a non-small entity. If appropriate, applicant may make a written assertion of entitlement to small entity status and pay the small entity filing fee (37 CFR 1.27).*
- The oath or declaration is missing.
  A properly signed oath or declaration in compliance with 37 CFR 1.63, identifying the application by the above Application Number and Filing Date, is required.
- To avoid abandonment, a late filing fee or oath or declaration surcharge as set forth in 37 CFR 1.16(e) of $130 for a non-small entity, must be submitted with the missing items identified in this letter.

Items Required To Avoid Processing Delays:

The item(s) indicated below are also required and should be submitted with any reply to this notice to avoid further processing delays.

- Additional claim fees of **$1854** as a non-small entity, including any required multiple dependent claim fee, are required. Applicant must submit the additional claim fees or cancel the additional claims for which fees are due.

SUMMARY OF FEES DUE:

Total additional fee(s) required for this application is **$2734** for a Large Entity

- **$750** Statutory basic filing fee.

- **$130** Late oath or declaration Surcharge.
- Total additional claim fee(s) for this application is **$1854**
  - **$1602** for **89** total claims over 20 .
  - **$252** for **3** independent claims over 3 .

A copy of this notice MUST be returned with the reply.

Margaret

Customer Service Center
Initial Patent Examination Division (703) 308-1202
PART 3 - OFFICE COPY

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AUG 0 4 2003
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#7

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application		PATENT APPLICATION
Inventors:	Alkhatib, et al.	
Application No.:	10/403,818	
Filed:	March 31, 2003	
Title:	SECURE VIRTUAL COMMUNITY NETWORK SYSTEM	**Customer No. 28554**

DECLARATION FOR PATENT APPLICATION

As a below named inventor, I hereby declare that my residence, post office address and citizenship are as stated below next to my name; I believe that I am the first and joint inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled:

SECURE VIRTUAL COMMUNITY NETWORK SYSTEM

the specification of which (check applicable ones):

_____ is filed herewith;

__X__ was filed with the above-identified "Filed" date and "Application No."

_____ was amended on (or amended through) ____.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment(s) referred to above. I acknowledge the duty to disclose information which is material to the examination of the application in accordance with Title 37, Code of Federal Regulations, §1.56.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Attorney Docket No.: TTCC-01021US0
ttcc/1021/1021.decl-001

AA/SWA Ex. 1002, p.110 of 833
American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

(1) Full name of sole or first inventor: Hasan S. Alkhatib

(1) Residence: 15725 Apollo Heights Court
Saratoga, California 95070

(1) Post Office Address: same

(1) Citizenship: United States

(1) Inventor's signature: Hasan S. Alkhatib

(1) Date: 7/13/2003

****

(2) Full name of second joint inventor: Fouad A. Tobagi

(2) Residence: 1183 Laureles Drive
Los Altos, California 94022

(2) Post Office Address: same

(2) Citizenship: United States

(2) Inventor's signature: F. Tobagi

(2) Date: 7/14/2003

****

(3) Full name of third joint inventor: Farid F. Elwailly

(3) Residence: 1691 Tupolo Drive
San Jose, California 95124

(3) Post Office Address: same

(3) Citizenship: United States

(3) Inventor's signature: Farid F Elwailly

(3) Date: 7/29/03

****

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American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

****

Title 37, Code of Federal Regulations, §1.56

SECTION 1.56. DUTY TO DISCLOSE INFORMATION MATERIAL TO PATENTABILITY

(a) A patent by its very nature is affected with a public interest. The public interest is best served, and the most effective patent examination occurs when, at the time an application is being examined, the Office is aware of and evaluates the teachings of all information material to patentability. Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section. The duty to disclose information exists with respect to each pending claim until the claim is cancelled or withdrawn from consideration, or the application becomes abandoned. Information material to the patentability of a claim that is cancelled or withdrawn from consideration need not be submitted if the information is not material to the patentability of any claim remaining under consideration in the application. There is no duty to submit information which is not material to the patentability of any existing claim. The duty to disclose all information known to be material to patentability is deemed to be satisfied if all information known to be material to patentability of any claim issued in a patent was cited by the Office or submitted to the Office in the manner prescribed by §§1.97(b)-(d) and 1.98.* However, no patent will be granted on an application in connection with which fraud on the Office was practiced or attempted or the duty of disclosure was violated through bad faith or intentional misconduct. The Office encourages applicants to carefully examine:

(1) prior art cited in search reports of a foreign patent office in a counterpart application, and

(2) the closest information over which individuals associated with the filing or prosecution of a patent application believe any pending claim patentably defines, to make sure that any material information contained therein is disclosed to the Office.

(b) Under this section, information is material to patentability when it is not cumulative to information already of record or being made of record in the application, and

(1) It establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim; or

(2) It refutes, or is inconsistent with, a position the applicant takes in:

(i) Opposing an argument of unpatentability relied on by the Office; or

(ii) Asserting an argument of patentability.

A prima facie case of unpatentability is established when the information compels a conclusion that a claim is unpatentable under the preponderance of evidence, burden-of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability.

(c) Individuals associated with the filing or prosecution of a patent application within the meaning of this section are:

(1) Each inventor named in the application;

(2) Each attorney or agent who prepares or prosecutes the application; and

(3) Every other person who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, with the assignee or with anyone to whom there is an obligation to assign the application.

(d) Individuals other than the attorney, agent or inventor may comply with this section by disclosing information to the attorney, agent, or inventor.

* §§1.97(b)-(d) and 1.98 relate to the timing and manner in which information is to be submitted to the Office.

****

Attorney Docket No.: TTCC-01021US0
ttcc/1021/1021.decl-001

AA/SWA Ex. 1002, p.112 of 833
American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

OIPE JC16
FEB 06 2004
PATENT & TRADEMARK OFFICE

IFW/2157

Electronic Filing System (EFS) Data

Electronic Patent Application Submission

USPTO Use Only

EFS ID:	55006
Application ID:	10403818
Title of Invention:	SECURE VIRTUAL COMMUNITY NETWORK SYSTEM
First Named Inventor:	HASAN ALKHATIB
Domestic/Foreign Application:	Domestic Application
Filing Date:	2004-02-06
Effective Receipt Date:	2004-02-06
Submission Type:	Information Disclosure Statement
Filing Type:	
Confirmation number:	2698
Attorney Docket Number:	TTCC-01021US0

Total Fees Authorized:

Digital Certificate Holder: cn=Burt Magen,ou=Registered Attorneys,ou=Patent and Trademark Office,ou=Department of Commerce,o=U.S. Government,c=US
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AA/SWA Ex. 1002, p.113 of 833
American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

OIPE JC19 FEB 06 2004 PATENT & TRADEMARK OFFICE

TRANSMITTAL

Electronic Version v1.1
Stylesheet Version v1.1.0

Title of Invention	SECURE VIRTUAL COMMUNITY NETWORK SYSTEM

Application Number: 10/403818
Date: 2004-02-06
First Named Applicant: HASAN S. ALKHATIB

Confirmation Number: 2698
Attorney Docket Number: TTCC-01021US0

I hereby certify that the use of this system is for OFFICIAL correspondence between patent applicants or their representatives and the USPTO. Fraudulent or other use besides the filing of official correspondence by authorized parties is strictly prohibited, and subject to a fine and/or imprisonment under applicable law.

I, the undersigned, certify that I have viewed a display of document(s) being electronically submitted to the United States Patent and Trademark Office, using either the USPTO provided style sheet or software, and that this is the document(s) I intend for initiation or further prosecution of a patent application noted in the submission. This document(s) will become part of the official electronic record at the USPTO.

Submitted by:	Elec. Sign.	Sign. Capacity
BURT MAGEN Registered Number: 37,175	/BURT MAGEN/	Attorney

Documents being submitted	Files
us-ids	1021.ids-001-usidst.xml
	us-ids.dtd
	us-ids.xsl

Comments

AA/SWA Ex. 1002, p.114 of 833
American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

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ELECTRONIC INFORMATION DISCLOSURE STATEMENT

Electronic Version v18
Stylesheet Version v18.0

Title of Invention	SECURE VIRTUAL COMMUNITY NETWORK SYSTEM

Application Number: 10/403818
Confirmation Number: 2698
First Named Applicant: HASAN ALKHATIB
Attorney Docket Number: TTCC-01021US0
Art Unit: 2157
Search string: (5361256 or 5623605 or 5717687 or 5751961 or 5777989 or 5781550 or 5790548 or 5805818 or 5805820 or 5856974 or 5867667 or 5884246 or 5889953 or 5913210 or 5937162 or 5937163 or 6003084 or 6055575 or 5793763 or 6119171 or 6061738 or 6047325 or 6032196 or 5815664 or 5764906 or 6006272 or 6557037 or 6591306 or 5734651 or 5701427 or 5563878).pn.

US Patent Documents

Note: Applicant is not required to submit a paper copy of cited US Patent Documents

init	Cite.No.	Patent No.	Date	Patentee	Kind	Class	Subclass
	1	5361256	1994-11-01	Doeringer			
	2	5623605	1997-04-22	Keshav			
	3	5717687	1998-02-10	Minot			
	4	5751961	1998-05-12	Smyk			
	5	5777989	1998-07-07	McGarvey			
	6	5781550	1998-07-14	Templin			
	7	5790548	1998-08-04	Sistainizadeh			
	8	5805818	1998-09-08	Perlman			
	9	5805820	1998-09-08	Bellovin			
	10	5856974	1999-01-05	Gervais			
	11	5867667	1999-02-02	Butman			
	12	5884246	1999-03-16	Boucher			
	13	5889953	1999-03-30	Thebaut			

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American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

	14	5913210	1999-06-15	Call
	15	5937162	1999-04-10	Funk
	16	5937163	1999-04-10	Lee
	17	6003084	1999-12-14	Green
	18	6055575	2000-04-25	Paulsen
	19	5793763	1998-08-11	Mayes
	20	6119171	2000-09-12	Alkhatib
	21	6061738	2000-05-09	Osaku
	22	6047325	2000-04-04	Jain
	23	6032196	2000-02-29	Monier
	24	5815664	1998-09-29	Asano
	25	5764906	1998-06-09	Edelstein.
	26	6006272	1999-12-21	Aravamudan
	27	6557037	2003-04-29	Provino
	28	6591306	2003-07-08	Redlich
	29	5734651	1998-03-31	Blakeley
	30	5701427	1997-12-23	Lathrop
	31	5563878	1996-10-08	Blakeley

Signature

Examiner Name	Date

AA/SWA Ex. 1002, p.116 of 833
American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

OIPE JC48
FEB 0 9 2004
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2157

PTO/SB/21 (08-03)
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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number	10/403,818
Filing Date	March 31, 2003
First Named Inventor	Alkhatib
Art Unit	2157
Examiner Name	
Attorney Docket Number	TTCC-01021US0

Total Number of Pages in This Submission

ENCLOSURES *(Check all that apply)*

- ☐ Fee Transmittal Form
  - ☐ Fee Attached
- ☐ Amendment/Reply
  - ☐ After Final
  - ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☑ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Response to Missing Parts/ Incomplete Application
  - ☐ Response to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition
- ☐ Petition to Convert to a Provisional Application
- ☐ Power of Attorney, Revocation Change of Correspondence Address
- ☐ Terminal Disclaimer
- ☐ Request for Refund
- ☐ CD, Number of CD(s) _____
- ☐ After Allowance communication to Group
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☐ Appeal Communication to Group **(Appeal Notice, Brief, Reply Brief)**
- ☐ Proprietary Information
- ☐ Status Letter
- ☑ Other Enclosure(s) (please Identify below):

10 references for IDS

Remarks

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FEB 13 2004

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	Burt Magen, Vierra Magen Marcus Harmon & DeNiro LLP
Signature	Burt Magen
Date	Feb 6, 2004

CERTIFICATE OF TRANSMISSION/MAILING

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below.

Typed or printed name	Burt Magen, Reg. No. 37,175		
Signature	Burt Magen	Date	Feb 6, 2004

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: **Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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OIPE JC48 FEB 0 9 2004 PATENT & TRADEMARK OFFICE

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Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 1

Complete if Known	
Application Number	10/403,818
Filing Date	March 31, 2003
First Named Inventor	Alkhatib
Art Unit	2157
Examiner Name	
Attorney Docket Number	TTCC-01021US0

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NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
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Image 2157

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application	)	PATENT APPLICATION
Inventors: Alkhatib, et al.	)	
Application No.: 10/403,818	)	
Filed Date: March 31, 2003	)	
Title: SECURE VIRTUAL COMMUNITY NETWORK SYSTEM	)	Customer No.: 28554

POWER OF ATTORNEY

Commissioner for Patents
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Alexandria, VA 22313-1450

Sir:

I hereby revoke all previous powers of attorney or authorizations of agents given in the above-identified application.

I hereby appoint CROMER, David E. (Reg. No. 54,768), DeNIRO, Kirk J. (Reg. No. 35,854), MAGEN, Burt (Reg. No. 37,175), MARCUS, Brian I. (Reg. No. 34,511), and VIERRA, Larry E. (Reg. No. 33,809), as our attorneys or agents to prosecute the application identified above, and to transact all business in the United States Patent and Trademark Office connected therewith.

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Please direct any telephone calls to Burt Magen at (415) 369-9660.

IP Dynamics, Inc. is the assignee of the entire right, title and interest in the above-identified patent application. I, the undersigned, declare that I have reviewed copies of the documentary evidence establishing chain of title to the patent application identified above from the inventors to the assignee which was recorded at Reel 014340, Frames 0968-0972.

The undersigned is authorized to sign this document on behalf of the assignee.

Signature: Hasan S. Al Khatib

Date: 3/23/2004

Name: Hasan S. Alkhatib

Title: Chief Executive Officer

Attorney Docket No.: TTCC-01021US0
ttcc/1021/1021.power

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APPLICATION NUMBER	FILING OR 371 (c) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/403,818	03/31/2003	Hasan S. Alkhatib	TTCC-01021US0

CONFIRMATION NO. 2698

OC000000012589397

OC000000012589397

28554
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Date Mailed: 05/11/2004

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 04/05/2004.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

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SUSAN K FORD
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OC000000012589438

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Application Number	10/403,818
Filing Date	March 31, 2003
First Named Inventor	Alkhatib
Art Unit	2157
Examiner Name	
Attorney Docket Number	TTCC-01021US0

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Sheet 1 of 1

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Application Number	10/403,818
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First Named Inventor	Alkhatib
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Examiner Name	
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U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
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FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]
		EP 0 817 444 A2	01/07/1998	Sun Microsystems, Inc.		

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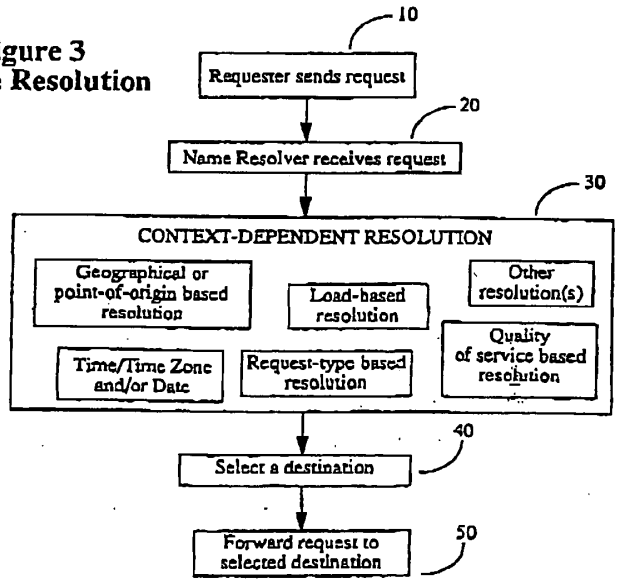
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(54) System for context-dependent name resolution

(57) A context-dependent, multiply binding name resolution system. A name resolver is provided, connected to either a requester's system or a receiver's system, or both. Requests to a given service or domain name are resolved to the appropriate IP address. The intended recipient of the request is resolved based upon a combination of one or more predetermined criteria, including: information about the sender (e.g. geographical location, specific requester identity, etc.); information about the intended recipient (e.g. load balance at the receiver, type of service, etc.); information contained within the request itself (e.g. type of service requested); or other information (time of day, date, random selection of recipient, e.g.). The system is implemented in hardware and/or software, and the resolution criteria can be made interdependent or independent.

Figure 3
Service Resolution



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Description

This invention relates to systems for context-dependent name resolution.

In a network (either Intranet or Internet) system, when a host wants to communicate with another host or locate a service or another host on the network, the address is typically resolved in an absolute manner; that is, the naming service of the network resolves a given name to a single IP (Internet Protocol) address. For instance, a domain name service (DNS) call resolves a name to a single IP address or host name on the Internet.

When there are many connections to a given host or service, the resulting congestion degrades the overall performance. The service provider may upgrade the service, e.g. to increase its capacity. In this case, in order to keep the modification of the service transparent to requesting hosts, a demultiplexer may be used, as illustrated by way of example in Figures 1-2. For instance, in Figure 1 a call to Service 3 will be uniquely resolved to that service's IP address and transmitted there accordingly, because there is only a single binding in the DNS name resolver to the host of Service 3. In general, in a conventional system such as that illustrated in Figures 1, 2 and 2A, there will be a single binding between a name and an IP address.

Yet another alternative is for a special type of demultiplexer, which may monitor the traffic, and from the different IP addresses can collect statistics such as response time and/or the load on the corresponding IP hosts, and use this information for load balancing by binding a requested name to an IP address for a host which is less heavily loaded.

If Service 3 is upgraded to include Services 3.1 through 3.Y, then the demultiplexer is added (see Figure 2); the requesting or DNS resolving host resolves the request as usual and sends it out over the (Inter- or Intra-)network, but the demultiplexer is interposed between the network and the service(s), to route the incoming requests to one of the services. Note that in this case, there is still a single binding between the DNS and the demultiplexer.

A problem with this approach is that the demultiplexer acts as a limiting factor on throughput, and additionally represents a single source of failure for all of the services that it serves. A mechanism is needed whereby such a critical point and bottleneck can be avoided, while still providing access to the services for remote users.

An alternative approach to decreasing congestion is through DNS spoofing, where the name resolver is fooled into giving out a different name binding, by keeping the name resolver updated frequently with a new name resolution binding based on some criteria such as load distribution on target servers. An example of DNS spoofing is shown in Figure 2A, in which a requester 2 issues a request using the name "sun.com", and a DNS lookup 4 looks it up. The host (1, 2 or 3) to which the names is bound will depend upon criteria employed at the destination domain, as determined by DNS spoofing service 6. Such criteria may include load on the hosts, their availability, etc. The DNS spoofing service 6 polls the hosts 1-3 periodically or at demand, and binds one of them at a time to the DNS lookup name resolver for the name "sun.com".

In a spoofing service, the criteria used to achieve the binding are not related to the context of the requester; they rely only upon information at the destination. Thus, much information that could be important in making a binding is not utilized. In none of the known systems is caller context used.

It would accordingly be advantageous to have a system which takes into account the context of the requester in the process of name resolution.

Various respective aspects and features of the invention are defined in the appended claims.

A context-dependent name resolution system is presented, which implements predetermined criteria for static or dynamic binding of a "name" to any one of several "objects" of the same type. Which "object" is selected for the binding is determined by a "name resolver" using context information that is explicitly specified by the requestor in a name resolution lookup call to the "name resolver". The "name resolver", which is implemented as a server program, stores a lookup table comprising bindings of a "name" to several different instances of an object, along with "policy" information which defines the criteria for selecting an instance of the object. For instance, the name may be an internet URL of the form "www.sun.com", and the resolved to object may be an IP address of the type 192.146.85.82. Thus the "name resolver" will store the tuple: <www.sun.com> <IP_address_1> <IP_address_2>..., and will store policies on which IP address to bind to www.sun.com when a lookup request specifying "www.sun.com" is received by it.

By enabling multiple binding support in the "name resolver", several advantages are realized. First, the system enables new resources to be added transparently to the caller. When a new server is added to distribute the load for one or more hosts corresponding to the name "sun.com", for instance, the IP address for the new server is simply added to the tuple in the name resolver, along with any desired policy criteria, e.g. to use only between 9 a.m. and 5 p.m.

Secondly, the fundamental limit to scaling which is inherent in today's single binding systems is removed, by enabling multiple destination servers providing the same service to be referenced by the same "name" handle by the caller (for example "sun.com"), and the name to be resolved by the name resolver to different physical computers servers, depending upon caller context. Many instances of the name resolver may be running on different physical computers, and many instances of the services may be running, and the requester will ac-

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cess the name resolver closest to him; and the resolved object that is closest to the requester or that can best serve the request (based upon some selected or predetermined criteria) will be bound to the request, all transparently to the requester. Another advantage of the system of the invention is that it allows resources to be easily replicated transparently to the user, eliminating any single point of failure in the network or at the service end point. If one valid destination fails, is not responding or is overloaded, the name resolver is already capable of binding a "name" to multiple destinations, and the unavailable destination can be disabled in the name resolver's internal tables, using administrative means.

The context that may be used as a basis for the binding is variable; it may include information about the requester (e.g. requester IP address, domain name or inferred geographical region), about the destination (with similar alternatives), about the request itself (e.g. type or quality of service requested), or about independent information (e.g. time of day or time zone of the point of origin of the request).

The system may be implemented (eg as part of a computer apparatus) using hardware, software, or combinations thereof.

The invention will now be described by way of example with reference to the accompanying drawings, throughout which like parts are referred to by like references, and in which:

Figures 1-2A are diagrams of present network systems used for destination addresses for requests.

Figure 3 is a flow chart illustrating a method according to an embodiment of the present invention.

Figures 4 and 5 are diagrams of network systems incorporating features of embodiments of the present invention.

Figure 6 in an illustration of the operation of an embodiment of the invention using geography-based resolution criteria.

Figure 7 is a diagram depicting zones in which domain name service resolvers and service location resolvers of the invention may be located.

A method according to the invention is illustrated in Figure 3, and Figures 4-5 shows a suitable systems implementable on the Internet or WorldWide Web, the Internet or an Intranet,, incorporating features of the name resolution system.

Name resolution can include any kind of name resolution lookup for binding one object to another. This includes binding the name of a service to a host computer (or its IP address) that provides that service, and binding the type of service to the name of a service providing that type of service. It also includes resolving a name in one domain to another name in the same domain, and to another name in a different domain. For the purposes of this invention, the terms "service" and "host" can be considered synonymous, as can "service location" and "host location".

The system includes three fundamental features that can be implemented singly or in any combination with one another: multiple binding of destination addresses to names; caller context name resolution in connection with such multiple binding; and name resolution policy considerations, i.e. independent criteria upon which such resolution is based.

Name Resolution : An Example

An example of name resolution occurs, for instance, when a user wishes to view video, e.g.a movie, on his or her computer. An application running on the computer is used to make a procedure call to the name resolver to determine which server can serve a movie, e.g.

service_handle = name_service_lookup("movie")

where the string "movie" is passed to a server, which then returns the name of the service providing that movie (or it may return a linked list of services providing movie services, from which the user may be prompted to select one).

The server may, by way of example, return a single service name (e.g. "quicktime") in the variable called "service_handle". Next, the application must determine which server host can provide this service to this client; to do this, it makes another name resolution call:

host_handle = name_hostname_lookup (service_handle)

and passes it the variable "service_handle" returned by the previous call. This call returns it the name of a server which is listed as offering this service.

The network location of this server must now be determined, so that the user's computer or workstation can connect to it to get the movie service, and so it makes the call:

host_IP_address = nome_hostaddress_lookup (host_handle)

and finally obtains an IP address of an appropriate host that can provide the movie service to the user.

Further calls to this quicktime server may determine a list of movies that are available. Alternatively, a design may be had in which the caller simply specifies the name of the movie he wants to see, and the name lookup returns to the caller the IP address of a host that is currently able to serve the requested movie to the caller.

All of or some of the above steps may be combined in more integrated calls to the name resolver.

In the present invention, in addition to the above, an additional parameter is passed to the name_hostaddress_lookup() function above (or to all the functions above); this parameter may be called the caller_context. This caller_context is used by the name resolver to help it decide which IP address to use. Thus, the calls would look like:

host_IP_address = name_hostaddress_lookup (host_handle, caller_context). Caller_context is a cookie (or structure) that may include information such as the caller's IP address, its point of origin, the quality of the requested service, or any other context that might be

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relevant. These contexts must be well specified and their format(s) standardized, so that many different name resolvers can interoperate properly. The particular caller_context formats and contents selected are not themselves crucial.

The present embodiment uses requester context-dependent intelligence to determine which of several destination hosts should be utilized, or in other words, which of several IP addresses should be used to resolve a given "name" request. The context-dependent intelligence, implemented as hardware or software or a combination of both, allows the "name" resolution to be based upon some context information from the requestor, and/or upon the "name" being resolved in a context-free manner, but optionally dependent upon criteria such as load balancing on the destination.

As shown in Figure 4, a requesters 100-120, of which there may be an arbitrary number, each comprise computers or workstations on a local network, served by a server 150. The requesters will typically be conventional workstations, personal computers, or any networkable computing device, with local processors (130, etc.), memory (140, etc.), mass storage (not shown) and network connections. The server 150 also includes a conventional processor 160, memory 170, mass storage and necessary connections and control hardware and software.

A name resolver 180 forms part of the server 150, or may be a separate unit. It may be implemented entirely in software, i.e. as program modules stored in mass storage and/or the memory 170, or it may be a stand-alone device, with its own logic or processor and memory, as desired.

The server 150 is connected to a broader network 170, such as the Internet, an Intranet or WAN (wide-area network), or the WorldWide Web, via a network connection (e.g. a T-line) 260. On this network 170 is optionally another name resolver 200, which may be implemented in the same fashion or differently from the name resolver 180. Name resolvers 180 and 200 may both be used, or either may be used by itself. (See discussion of Figure 7, below.)

Destination hosts 210-230 may also be conventional computers or workstations with processors (such as 240), memory (such as 250), mass storage (not shown), network connections, etc., as needed to implement conventional network functions in addition to the features of the present invention.

Referring to the flow chart of Figure 3, when a requester (such as 100-120) sends a name resolution request to a name resolver 180, instead of the single binding of conventional systems, the name resolver 180 includes multiple binding tables and/or functions (implemented by appropriate logic or program modules) to resolve the request to an appropriate IP address for a destination host (such as 210-230 in Figure 4).

An example of such a multiple binding would be the binding of multiple, geographically disparate destinations to a single domain name. If, for instance, a user in Germany wishes to access www.sun.com (the WWW server for Sun Microsystems, Inc.), he or she can simply use the Uniform Resource Locator (URL) "http://www.sun.com". Thus, the user sends the request from requester 310 (see Figure 6), and the name resolver 320 determines that the requester is in Germany. (See step 20 in Figure 3). The selected destination may either be in the United States or elsewhere in Europe, since Sun Microsystems in this example has two "sun.com" locations. Since there is a valid European local destination 330, the name resolver 320 resolves the destination address to sun.com (Europe), as indicated at box 30 of Figure 3. This resolved destination is then selected for the request packet(s) (box 40 of Figure 3), and the request is forwarded to sun.com (Europe) (box 50 of Figure 3).

Following are lists of context-dependent resolution criteria applicable to the invention and usable at box 30 of Figure 3, where resolution may be based upon requester information, destination information, request contents, or other information:

A. Resolution Based Upon Requester Information

Examples of manners in which the resolution dependent upon requester information may be carried out include:

1. resolution based upon the domain name of the sender;
2. resolution based upon the inferred (looked-up) actual geographic region of the sender;
3. resolution based upon other geography-related information of the sender:

4. either directly ascertainable from the request (city/country info, e.g.); and/or
5. indirectly ascertainable (area code, address, etc.);

6. resolution based upon quality of service desired by the requester; and
7. resolution based upon requester's time of day or time zone.

B. Resolution Based Upon Destination Information

Examples of manners in which the resolution dependent upon a specified or intended destination or receiver information may be carried out include:

1. resolution based upon the load at the receiver;
2. resolution based upon the inferred (looked-up) actual geographic region of the receiver;
3. resolution based upon other geography-related information of the receiver:

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4. either directly ascertainable from the request (city/country info, e.g.); and/or
5. indirectly ascertainable (area code, address, etc.).

Criterion B.1 can be resolved either based upon information as perceived at the sender end or based upon information as it exists at the receiver end, and resolved at the sender end. For example, the sender might frequently send requests to a particular server, service, geographical region or organization. In this case, it may be advantageous to regularly poll one or more often-used destinations to determine their level(s) of activity. Alternatively, such polling could automatically be carried out for any destinations for which the sender determines that its number of requests exceeds a certain threshold, or for a top predetermined percentage of requests sent by the requester (e.g. all destinations for which the number of requests exceeds N1%, or the top N2 destinations to which the sender makes requests, where N1 and N2 are appropriate predetermined numbers). Polling can be implemented as program modules integral to the name resolver(s), either entirely in one or in more than one location (e.g. partially in a local name resolver and partially in the destination server).

Alternatively or in addition, criterion B.1 may be based upon information at the receive end at the time of sending the request, and resolved at the receiver.

C. Resolution Based Upon Request Contents

1. type of service requested;
2. specific information (or type of information) requested;
3. any other implicit information inferred from the request; and/or
4. any other explicit information obtained from the request.

D. Resolution Dependent Upon Other Factors

1. randomly generated selection of destination based upon qualified list; and/or
2. other independently developed information.

These resolution criteria can be used singly or in any desired combination with one another, as specified by the requester or the administrator of the destination (e.g. server owner or service provider). For instance, in the example of Figure 6 the resolution of the destination address to sun.com (Europe) could be modified if the load of sun.com (Europe) is larger by some predetermined threshold amount than the load at sun.com (USA) -- in which case the sun.com (USA) resolution could override the default sun.com (Europe) resolution for requesters in Europe, either at all times or only during peak European hours, which correspond to off-peak hours in the United States.

An extension of this system is in the resolution of services provided at the receiver network of a request. For instance, a given organization may have many database servers, and request for access to given information may in conventional systems be routed to the same server, because of the single binding nature of destination resolution. With multiple address resolution binding, multiple database servers (or other destination hosts) such as 210, 270, 280, etc. (see Figure 5) may be made available under a single name, in which case a local service resolution server, such as server 300 in Figure 5, is provided. The server 300 includes tables, program modules or the like as desired to resolve a request to any one of several to many IP addresses. The selection of a given server to receive a request can depend upon, for example, load at each of the servers.

In general, the resolution systems or subsystems will be in one of three "zones" (see Figure 7): the sender's zone 1 (up to, e.g., the sender's firewall or Internet server); the name resolver system's zone 2 (which may be at a server on the Internet, or any place outside zone 1 which is not in the receiver's system; and the receiver's zone 3. Service location name resolvers may be in any of zones 1-3; typically, destination lookup name resolvers, which may comprise multiple-binding domain name services (DNS's), will be in either zone 1 or zone 2. It will be understood that zones, for the purpose of this application, are administrative boundaries, and need not correlate to actual network boundaries.

The present embodiment can interact with existing systems in a number of ways. For instance, in secure systems where the source address is stripped from the request by a firewall (and only, e.g., the domain name remains), then the entire source address would not be used to resolve the destination; the name resolver is provided with the program instructions or circuitry to implement this. Note also that the DNS name resolution may be a distinct operation from service location, and thus the destination can be selected due to a combination of considerations including source address, requested destination address, and request contents, including the type of request made or service requested.

The multiple binding feature of the invention allows a single name, Internet address (e.g. URL address such as http://www.sun.com) or the like to represent as many actual servers (or services) as desired. This has a distinct advantage of allowing modifications, upgrades or replications to be made to the destination server(s) without modification of the destination address or service name as used by the requester. Such modifications may include adding servers or services, or establishing a mirror site at a location geographically near a large source of requests, etc.

There may be security and consistency implications of multiple bindings, with concomitant solutions. If a destination address can be multiply bound, a name resolver may be configured to bind to an incorrect address, either deliberately or otherwise. While this may also be a prob-

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lem with existing single binding, multiple binding may complicate detection of the problem. Thus, the system of the invention may be combined with programs and tables for verification that a given binding is valid. Very secure systems may wish to limit their multiple binding to a predetermined, fixed number of resolution possibilities, or even maintain the current system of single binding as far as Internet or Web transmission is concerned, and implement multiple binding only behind a firewall. Alternatively or in addition, encryption and digital signatures may be used to ensure validity of bindings, and of modifications or additions to the bindings.

Variations may be had by designating a given name resolution as a default resolution, and utilizing alternative resolutions only upon the request meeting predetermined criteria (such as load imbalance, geographical distance, specific sources of the request, etc.).

Additional bindings (i.e. additional addresses to which a request may resolve) may be added without the requester being aware of it, and indeed substitutions may be made at any time, again transparently to the requester.

F. Service Selection Based Upon Caller Context

The system of the invention may be applied more generally to the use of caller context for name resolution. Context about the requesting user (e.g. in a variable called "caller_context") can be passed to appropriate functions, such as:

service_handle = name_service_lookup("movie", caller_context)

host_handle = name_hostname_lookup (service_handle, caller_context)

Here, the function service_handle executes a service name lookup based upon the input "movie", as well as the information in the variable caller_context, outputting the value service_handle. Given this output as input, along with (again) caller_context, the function host_handle then returns an appropriate host name.

An example of a possible such situation could result when a user desires an encryption service, and several encryption policies are available. The service_handle function can be configured to return different encryption algorithm services based upon the specified destination (which is specified in caller_context), or there may be an effective override in the caller_context by which the user can select a higher level of security.

In general, as noted above, the invention may be implemented at the sender's system or at the destination system, or indeed at points in between (e.g. at proxy servers). Note that single points of failure and bottlenecks are removed using the present system, and a truly distributed, multiply binding name resolution system is achieved.

Particular and preferred aspects of the invention are set out in the accompanying independent and dependent claims. Features of the dependent claims may be combined with those of the independent claims as appropriate and in combinations other than those explicitly set out in the claims.

Claims

1. A system for name resolution of at least one request directed to a destination name of a receiver and issued from a requester system, including:
   a name resolver connected to the requester service and including
   predetermined information correlating a plurality of destination addresses with said destination name;
   a criteria selection subsystem configured to provide a selection of at least one said destination address based upon at least one predetermined criterion; and
   a destination address binder configured to bind said destination name with said selected destination address.

2. The system of claim 1, wherein said at least one predetermined criterion includes a criterion based upon information explicitly contained within said request.

3. The system of claim 2, wherein said information includes an address of said requester.

4. The system of claim 2, wherein said information is based upon at least a portion of contents of said request.

5. The system of claim 4, wherein said portion of said contents includes at least one of:
   a type of service requested by said request; and
   a quality of service requested by said request.

6. The system of claim 1, wherein said at least one predetermined criterion includes a criterion based upon information not explicitly contained within said request.

7. The system of claim 6, wherein said information pertains to a geographical region of said requester.

8. The system of claim 6, wherein said information pertains to a geographical region of said receiver.

9. The system of claim 6, wherein said information includes load information relating to said receiver.

10. The system of claim 6, wherein said information includes at least one of time and date information.

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11. The system of claim 1, wherein said binding is to a port at said destination address.

12. The system of claim 1, wherein said binding is based at least in part upon a random selection of one said destination address.

13. A method for context-dependent binding of a destination name to a destination address in a name resolver having a predetermined set of binding criteria and predetermined correlations of destination names with destination addresses, wherein at least one said correlation is a multiple correlation correlating a plurality of said destination addresses with a single destination name, including the steps of:

(1) receiving said request at said name resolver; and
(2) based upon said multiple correlation, retrieving at least one said destination address from said plurality of destination addresses.

14. The method of claim 13, further including after step 2, the step of:
(3) binding said retrieved destination address to said destination name.

15. The method of claim 14, further including after step 3, the step of:
(4) transmitting said request with said destination address.

16. The method of claim 13, wherein said multiple correlation is based upon information explicitly contained within said request.

17. The system of claim 13, wherein said multiple correlation is based upon at least a portion of contents of said request.

18. The system of claim 13, wherein said multiple correlation is based upon at least one of:

an address of said requester; and
a type of service requested by said request; and
a quality of service requested by said requeet.

19. The system of claim 1, wherein said multiple correlation is based upon information not explicitly contained within said request.

20. The system of claim 19, wherein said multiple correlation is based upon at least one of:

a geographical region of said receiver;
load information relating to said receiver;
time information;
date information; and
a random factor generated by said name resolver.

21. A system for name resolution of at least one request directed to a destination name of a receiver and issued from a requester system, the request information relating to caller context, the system including:
a name resolver connected to the requester service and including

predetermined information correlating a plurality of service names with said caller context;
a service selection subsystem configured to provide a selection of at least one said service name based upon said caller context; and
a host name selection subsystem configured to return a host name based corresponding to said selected service name.

22. The system of claim 1, wherein said at least one predetermined criterion includes:

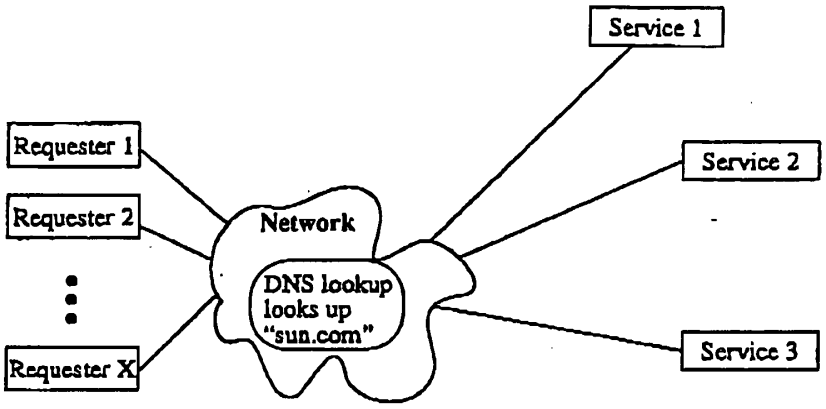
a first criterion based upon information explicitly contained within said request; and
a second criterion based upon information not explicitly contained within said request.

23. The system of claim 22, wherein said second criterion corresponds to a predetermined policy used by said name resolver.

24. The system of claim 23, wherein said first criterion corresponds to information relating specifically to said requester system.

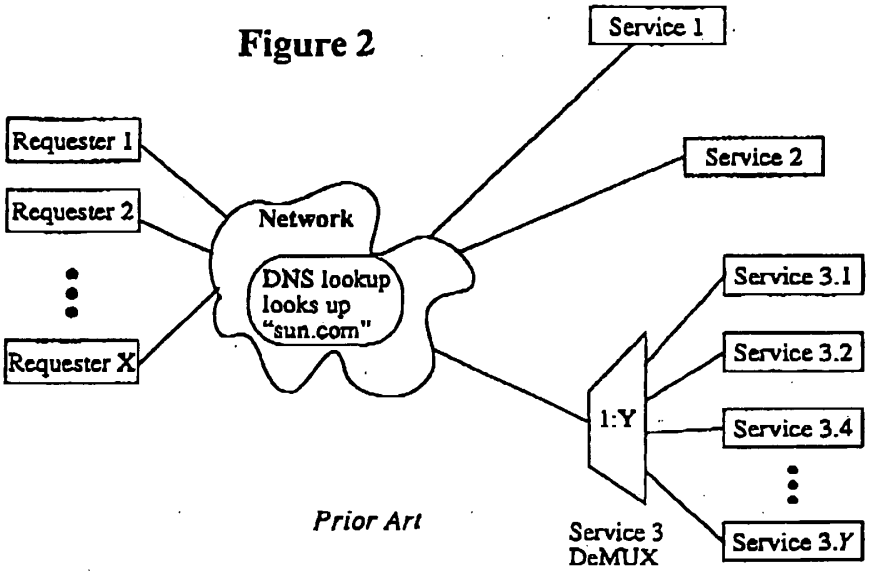
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Figure 1



Prior Art

Figure 2



Prior Art

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Figure 2A

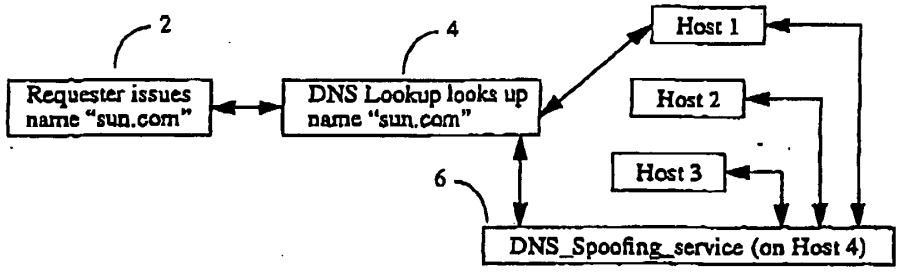
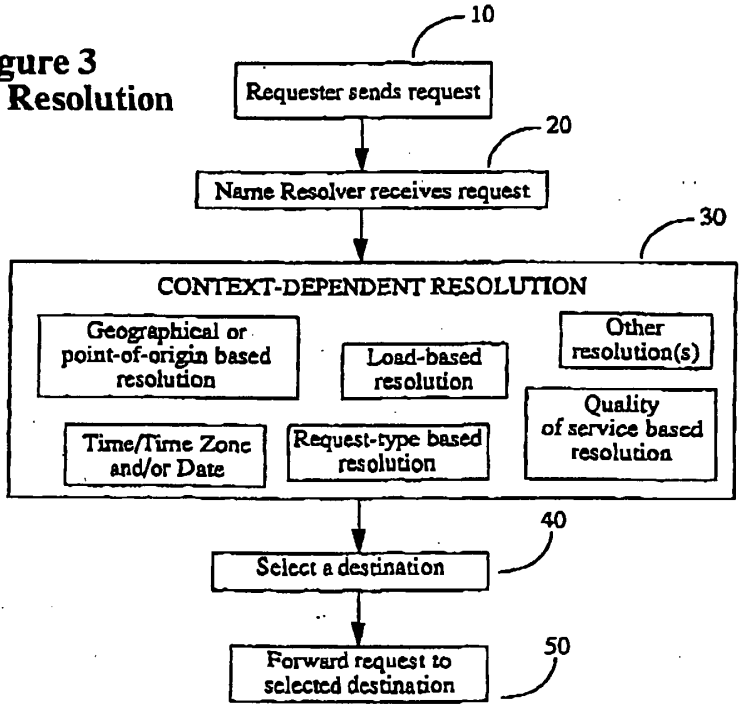
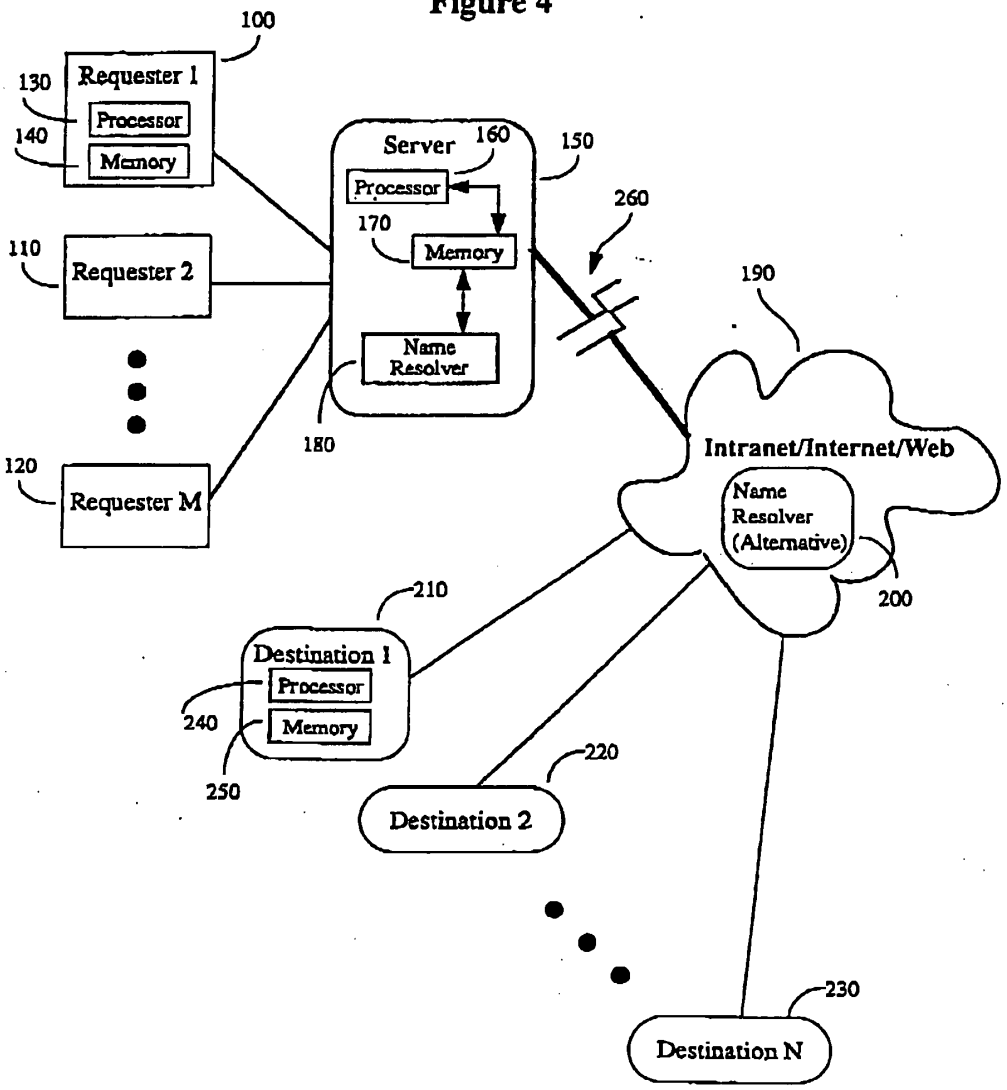


Figure 3
Service Resolution



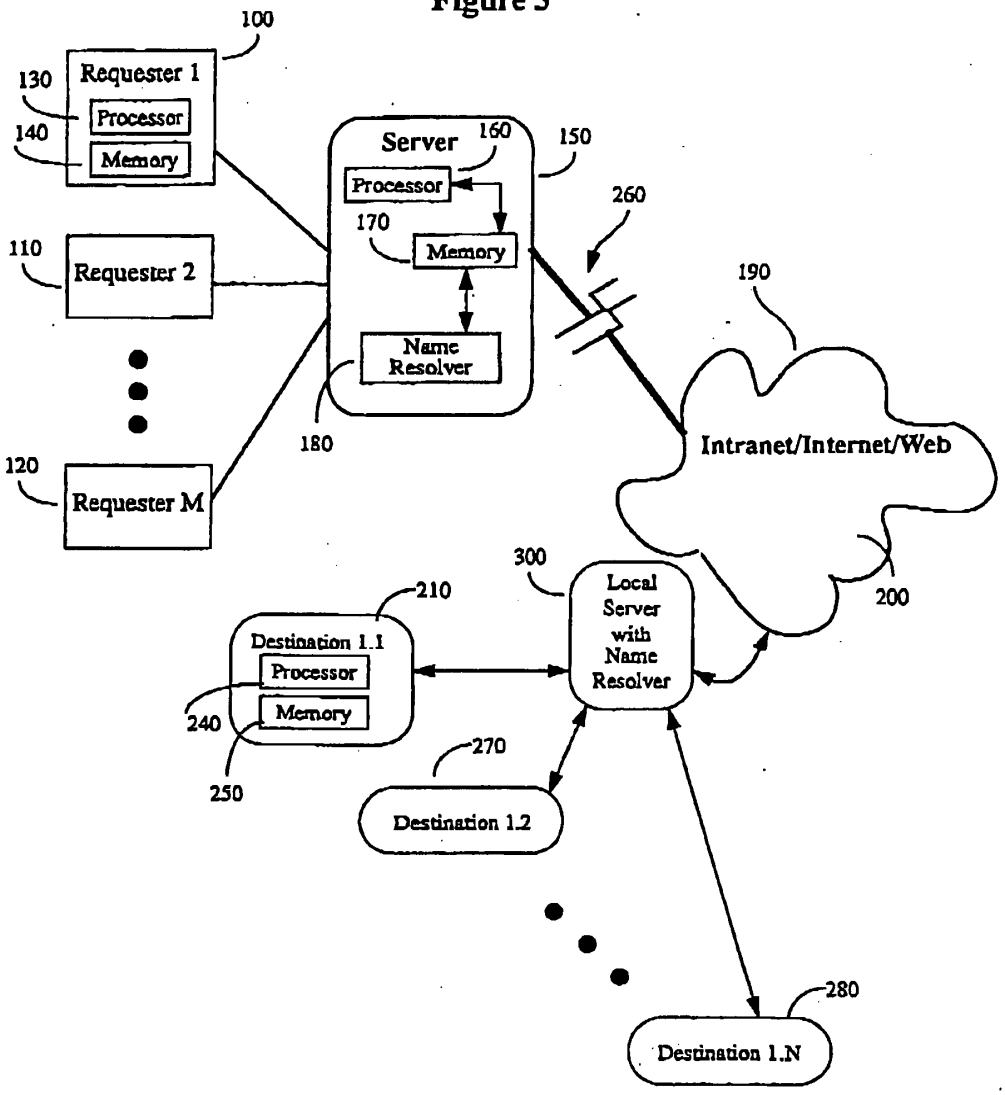
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Figure 4



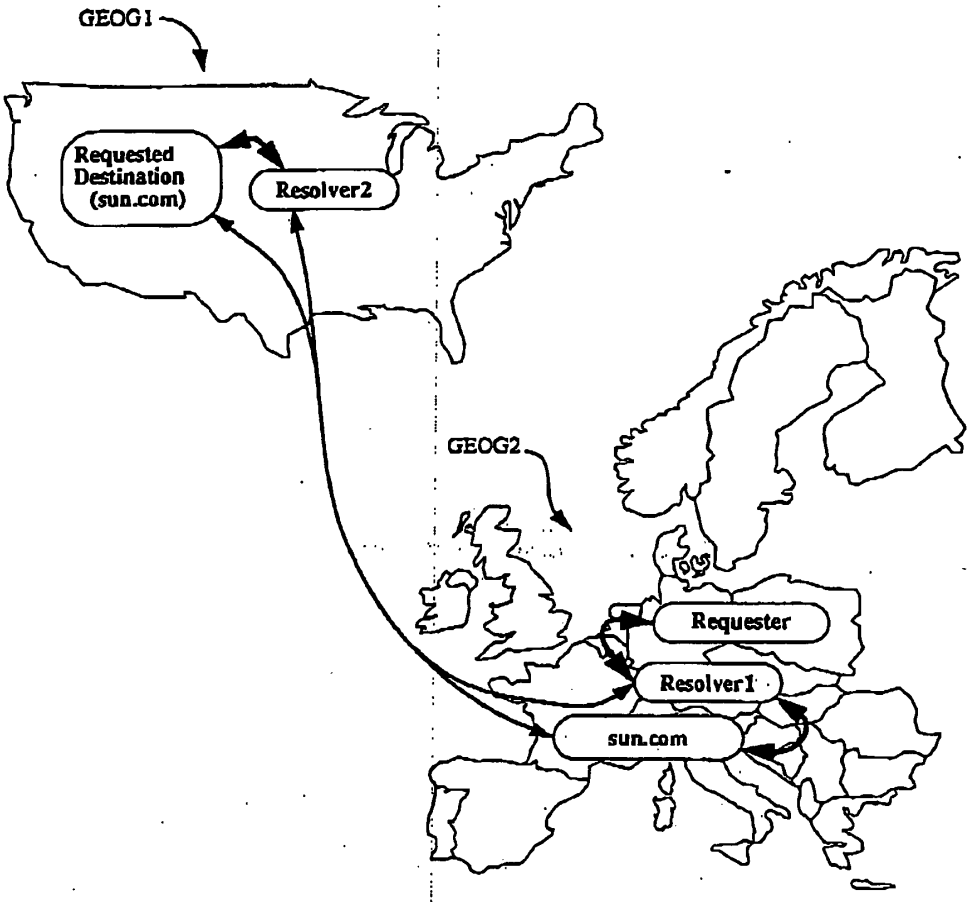
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Figure 5



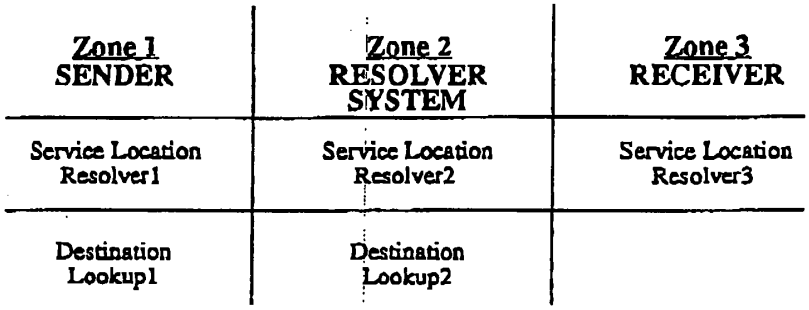
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Figure 6



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Figure 7



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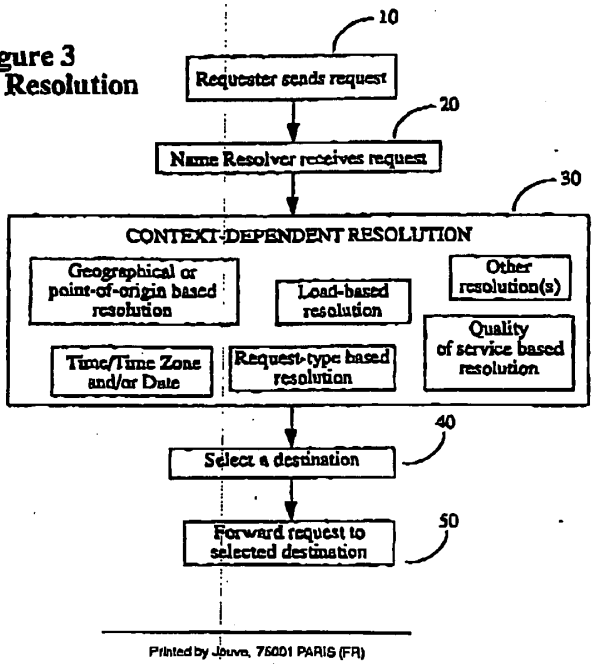
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(54) System for context-dependent name resolution

(57) A context-dependent, multiply binding name resolution system. A name resolver is provided, connected to either a requester's system or a receiver's system, or both. Requests to a given service or domain name are resolved to the appropriate IP address. The intended recipient of the request is resolved based upon a combination of one or more predetermined criteria, including: information about the sender (e.g. geographical location, specific requester identity, etc.); information about the intended recipient (e.g. load balance at the receiver, type of service, etc.); information contained within the request itself (e.g. type of service requested); or other information (time of day, date, random selection of recipient, e.g.). The system is implemented in hardware and/or software, and the resolution criteria can be made interdependent or independent.

Figure 3
Service Resolution



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EP 0 817 444 A3

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 97 30 4697

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	US 5 136 716 A (HARPER JOHN ET AL) 4 August 1992 (1992-08-04) * abstract *	1,6,13, 14,16,17	H04L29/06 H04L29/12
A	* column 2, line 22 - line 53 * * column 3, line 4 - line 40 * * column 3, line 63 - column 5, line 24 * * claims 1,4 *	15,21	

TECHNICAL FIELDS SEARCHED (Int.Cl.6)

H04L

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	7 November 2000	Kesting, V

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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L : document cited for other reasons

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EPO FORM 1503 03.82 (P04C01)

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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 97 30 4697

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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07-11-2000

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5136716 A	04-08-1992	CA 1312144 A	29-12-1992
		DE 3876617 A	21-01-1993
		DE 3876617 D	21-01-1993
		DE 3876617 T	08-04-1993
		EP 0329779 A	30-08-1989
		JP 1502861 T	28-09-1989
		WO 8902129 A	09-03-1989

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

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S1	33	"virtual community" near2 network$2	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/13 20:03
S2	19	S1 and @ad<"20030331"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/14 10:09
S3	5	S2 and ((private or public) with address)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/13 20:00
S4	45	((virtual near (community or network)) and (private near address$3) and (public near address$3) and (IP near address$2))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/13 20:04
S5	27	S4 and @ad<"20030331"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/13 20:04
S6	53	("6226751").URPN.	USPAT	OR	OFF	2006/09/13 20:30
S7	1	"20040249911".pn.	US-PGPUB; USPAT	OR	OFF	2006/09/14 09:59
S8	139	("domain name" or DNS) with (VPN)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/14 10:08
S9	74	S8 and @ad<"20030331"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/14 10:09
S10	22	S9 and (NAT with (public or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/14 11:02

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EAST Search History

S11	1801	709/245.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/14 11:02

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/403,818	03/31/2003	Hasan S. Alkhatib	TTCC-01021US0	2698

28554 7590 09/22/2006

VIERRA MAGEN MARCUS & DENIRO LLP
575 MARKET STREET SUITE 2500
SAN FRANCISCO, CA 94105

EXAMINER	
BLAIR, DOUGLAS B	

ART UNIT	PAPER NUMBER
2142	

DATE MAILED: 09/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	10/403,818	ALKHATIB ET AL.	
	Examiner	Art Unit	
	Douglas B. Blair	2142	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 March 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-109* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-109* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *2/9/04, 11/12/04*. and 2/6/04
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

AA/SWA Ex. 1002, p.144 of 833
American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-109 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Application Publication Number 2003/0041136 by Cheline et al.

As to claim 1, Cheline teaches a virtual community network system, comprising: a virtual network manager including at least one virtual community definition comprising at least a domain name **(paragraphs 87-89, an infrastructure for dealing with domain names is clearly defined)** and a user set **(paragraph 43, the users registered with the authentication server are a user set)**; and at least one route director capable of communicating with users in the user set **(paragraphs 62-64, the modem is considered a route director)**.

As to claim 2, Cheline teaches the system of claim 1 wherein each user communicates with the virtual network manager and other users in the user set via at least one agent **(paragraph 51, the user's home client program is an agent)**.

As to claim 3, Cheline teaches the system of claim 2 wherein the agent is installed on a processing device **(the home computer)**.

As to claim 4, Cheline teaches the system of claim 2 wherein the agent is installed on a proxy device **(the home computer)**.

As to claim 5, Cheline teaches the system of claim 2 wherein the virtual network manager includes a NAT device detector for agents installed on a processing device behind a NAT device **(Figure 2, the modem is NAT device, the VPN provider detects communication from the modem)**.

As to claim 6, Cheline teaches the system of claim 1 wherein the manager comprises a device coupled to a public network and having a public network address **(paragraph 59)**.

As to claim 7, Cheline teaches the system of claim 1 wherein the user set includes at least a first user and a second user, said first user accesses other users in the community using at least a first processing device, said second user accesses other users in the community using at least a second processing device **(paragraph 51)**.

As to claim 8, Cheline teaches the system of claim 7 wherein each said device includes at least one virtual address in the community and at least one physical address **(paragraph 51-54)**.

As to claim 9, Cheline teaches the system of claim 8 wherein the physical address is dynamic **(paragraph 51-54)**.

As to claim 10, Cheline teaches the system of claim 8 wherein the physical address is static **(paragraph 51-54)**.

As to claim 11, Cheline teaches the system of claim 8 wherein the physical address is private **(paragraph 51)**.

As to claim 12, Cheline teaches the system of claim 8 wherein at least one of said first device or second device is coupled to a first private network and accesses a public network via a NAT device **(paragraph 51-54)**.

As to claim 13, Cheline teaches the system of claim 12 wherein the physical address is dynamic **(paragraph 51-54)**.

As to claim 14, Cheline teaches the system of claim 12 Wherein the physical address is static **(paragraph 51-54)**.

As to claim 15, Cheline teaches the system of claim 12 wherein said first, device is coupled to said first private network, and said second device is coupled to a second private network and accesses the public network via a second NAT device **(paragraph 51-54)**.

As to claim 16, Cheline teaches the system of claim 15 wherein said second device includes at least one virtual address in the realm and at least one private physical address **(paragraph 51-54)**.

As to claim 17, Cheline teaches the system of claim 15 wherein the physical address is dynamic **(paragraph 51-54)**.

As to claim 18, Cheline teaches the system of claim 15 wherein the physical address is static **(paragraph 51-54)**.

As to claim 19, Cheline teaches the system of claim 15 wherein said at least first private network and said at least second private network share at least one network address **(paragraph 51-54)**.

As to claim 20, Cheline teaches the system of claim 1 wherein the route director includes a pseudo address assignment for at least one user in the user set **(paragraph 51-54)**.

As to claim 21, Cheline teaches the system of claim 1 wherein the route director includes a translator for virtual address information for a virtual user in a private network realm **(paragraph 51-54)**.

As to claim 22, Cheline teaches the system of claim 1 wherein the virtual community manager is coupled to a public network and includes a public network address **(paragraph 51-54)**.

As to claim 23, Cheline teaches the system of claim 22 wherein the route director is coupled to said public network and includes a public network address **(paragraph 51-54)**.

As to claim 24, Cheline teaches the system of claim 22 wherein the route director is coupled to a first private network and said route director includes a private network address **(paragraph 51-54)**.

As to claim 25, Cheline teaches the system of claim 1 wherein communications between users in the user set are encapsulated **(paragraph 71)**.

As to claim 26, Cheline teaches the system of claim 1 wherein communications between users in the user set are encrypted **(paragraph 68)**.

As to claim 27, Cheline teaches the system of claim 26 wherein said encryption uses IPSEC **(paragraph 68)**.

As to claims 28 and 29, Cheline teaches the use of DES and triple DES **(paragraph 42)**.

As to claim 30, Cheline teaches the system of claim 1 wherein the manager includes at least a second virtual domain definition **(paragraph 86)**.

As to claim 31, Cheline teaches the system of claim 1 further including at least a first public route director **(router 132 in Figure 1)** and a second private route director **(modem 106 in Figure 1)**.

As to claim 32, Cheline teaches a system, comprising: a management device including network interface coupled to a public address realm and having a public address **(client device on network in Figure 1)**; a virtual community network traffic router **(Figure 1, number 146)**; and router data including at least one association of a logical identifier with public routing information for a member **(The VPN is router data and the radius packet is a logical identifier)**.

As to claim 33, Cheline teaches the system of claim 32 wherein the network traffic router includes a network interface accessible by a public address in the public address realm **(paragraphs 51-54)**.

As to claim 34, Cheline teaches the system of claim 32 wherein the management device includes a UDP port capable of receiving virtual community network traffic **(paragraph 51, ICQ uses UDP)**.

As to claim 35, Cheline teaches the system of claim 32 wherein the management device includes a TCP port capable of communicating virtual community network traffic **(paragraphs 51-54)**.

As to claim 36, Cheline teaches the system of claim 32 wherein a member accesses a physical network via a processing device and the system further includes at least one agent installed on the processing device **(Figure 1)**.

As to claim 37, Cheline teaches the system of claim 36 wherein the processing device is coupled to a private physical network behind a NAT device, and the network traffic router includes a transposer for routing information in a packet destined for the agent to direct the packet to the NAT device for the agent **(paragraphs 51-54)**.

As to claim 38, Cheline teaches the system of claim 32 further including at least one proxy agent on a private physical network communicating with a member and the network traffic router **(paragraphs 51-54)**.

As to claim 39, Cheline teaches the system of claim 38 wherein the member accesses other members using a device coupled to a private physical network **(paragraphs 51-54)**.

As to claim 40, Cheline teaches the system of claim 32 wherein the manager includes a member register module **(paragraph 67)**.

As to claim 41, Cheline teaches the system of claim 40 wherein the manager includes a member join module **(paragraph 67)**.

As to claim 42, Cheline teaches the system of claim 41 wherein the join module provides a virtual address to a registered member **(paragraph 68)**.

As to claim 43, Cheline teaches the system of claim 41 wherein the manager maintains data on an association between at least one virtual address with at least one member **(paragraph 68)**.

As to claim 44, Cheline teaches the system of claim 40 wherein the manager includes a DNS server for the virtual community **(paragraph 64)**.

As to claim 45, Cheline teaches the system of claim 32 further including a virtual community network communication agent for a device, comprising a virtual

network adapter interfacing with the device and applications on the device to route traffic to members of the virtual community via their virtual address **(paragraph 47)**.

As to claim 46, Cheline teaches the system of claim 45 wherein the agent includes a domain name routing plugin **(paragraph 47)**.

As to claim 47, Cheline teaches the system of claim 45 wherein the agent includes a separate IP stack for each user in the user set accessing the device **(paragraph 47)**.

As to claim 48, Cheline teaches the system of claim 45 wherein the adapter is a deterministic network enhancer **(paragraph 47)**.

As to claim 49, Cheline teaches the system of claim 45 wherein the adapter includes a DNS plugin **(paragraph 47)**.

As to claim 50, Cheline teaches the system of claim 45 wherein the adapter includes an IPSEC plugin **(paragraph 47)**.

As to claim 51, Cheline teaches the system of claim 45 wherein the adapter includes a domain name routing plugin **(paragraph 47)**.

As to claim 52, Cheline teaches the system of claim 45 wherein the agent includes a community registration module **(paragraph 47)**.

As to claim 53, Cheline teaches a virtual community network system, comprising: a virtual community network manager **(paragraphs 87-89)**; a route director **(paragraph 47)**; at least a first virtual community agent associated community member **(paragraph 86)**; and with a first at least a second virtual community agent associated with at least a second community member **(paragraph 86)**.

As to claim 54, Cheline teaches the system of claim 53 wherein the route director is a network route director, and includes a public network interface and public address **(paragraph 51-54)**.

As to claim 55, Cheline teaches the system of claim 53 wherein the route director is a private route director, and includes a private physical network address interface and a private physical network address **(paragraph 51-54)**.

As to claim 56, Cheline teaches the system of claim 53 wherein the first or second virtual community network agent is installed on a device used by a member to access a network **(paragraph 51-54)**.

As to claim 57, Cheline teaches the system of claim 56 wherein the device is in a private physical network **(paragraph 51-54)**.

As to claim 58, Cheline teaches the system of claim 56 wherein the device is coupled to a public physical network **(paragraph 51-54)**.

As to claim 59, Cheline teaches the system of claim 53 wherein the first or second virtual community network agent is a proxy agent **(paragraph 51-54)**.

As to claim 60, Cheline teaches the system of claim 53 wherein the first and second members access the virtual community via devices coupled to separate private address physical realms **(paragraph 51-54)**.

As to claim 61, Cheline teaches the system of claim 53 wherein the virtual community network manager includes at least a first community definition and a second community definition **(paragraph 86)**.

As to claim 62, Cheline teaches the system of claim 53 wherein the community network manager includes a member authenticator **(paragraph 67)**.

As to claim 63, Cheline teaches the system of claim 62 wherein the community network manager includes a DNS server providing authorative responses for DNS queries in the virtual community **(paragraphs 86-89)**.

As to claim 64, Cheline teaches a method for providing a secure virtual network, comprising: providing a virtual network manager coupled to a public network **(ref. number 146 in Figure 1)**; defining a member set of users entitled to communicate in the virtual network **(paragraph 67)**; registering members with the manager **(paragraph 67)**; assigning members a virtual address **(paragraph 55)**; and routing network traffic between the members in the virtual community **(paragraphs 51-54)**.

As to claim 65, Cheline teaches the method of claim 64 further including the step of providing users in said member set with a communication agent **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 66, Cheline teaches the method of claim 65 wherein said step of providing users with a communication agent includes providing a proxy agent **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 67, Cheline teaches the method of claim 65 wherein said step of providing users with a communication agent includes providing an agent installed on a device used by the member to couple to a network **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 68, Cheline teaches the method of claim 65 wherein the step of registering comprises authenticating members with the member set **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 69, Cheline teaches the method of claim 64 wherein the step of defining a member set includes the step of assigning a domain name for the community **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 70, Cheline teaches the method of claim 64 wherein the step of defining a member set includes defining at least two member sets having at least one different member **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 71, Cheline teaches the method of claim 64 wherein the step of assigning a virtual address includes assigning an IPV4 compliant address **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 72, Cheline teaches the method of claim 71 wherein the step of assigning a virtual address includes assigning a non-routable IPV4 compliant address **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 73, Cheline teaches the method of claim 64 wherein the step of routing network traffic includes routing traffic from a first member accessing the public network on a first device having a public address with a second member accessing the public network on a second device having a different public address **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 74, Cheline teaches the method of claim 64 wherein the step of routing network traffic includes routing traffic from a first member accessing the public network on a first device in a private physical network having a private address with a second member

accessing the public network on a second device having a public address **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 75, Cheline teaches the method of claim 64 wherein the step of routing network traffic includes routing traffic from a first member accessing the public network on a device in a private physical network having a first private physical address with a second member accessing the public network on a device in a private physical network having a second private physical address **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 76, Cheline teaches the method of claim 75 wherein the first private physical address and the second private physical address are identical **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 77, Cheline teaches the method of claim 64 further including the step of responding to DNS requests for members in the virtual network **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 78, Cheline teaches the method of claim 64 further including the step of responding to joined status requests for registered members in the virtual network **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 79, Cheline teaches the method of claim 64 further including applying a group policy to members of the virtual community **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 80, Cheline teaches one or more processor readable storage devices having processor readable code embodied on said processor readable storage devices, said processor readable code for programming one or more processors to

perform a method comprising the steps of: managing a virtual community network realm **(Figure 1)**; defining a member set of users entitled to communicate in the virtual community **(paragraph 67)**; registering users with the virtual community **(paragraph 67)**; assigning each user a virtual address **(paragraph 55)**; and routing network traffic between the users in the virtual community **(paragraphs 51-54)**.

As to claim 81, Cheline teaches the one or more processor readable storage devices as defined in claim 80 further including code for programming one or more processors to perform a step of providing users in said member set with a communication agent **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 82, Cheline teaches the one or more processor readable storage devices as defined in claim 81 wherein said step of providing users with a communication agent includes providing a proxy agent **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 83, Cheline teaches the one or more processor readable storage devices as defined in claim 80 wherein the step of defining a member set includes the step of assigning a domain name for the community **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 84, Cheline teaches the one or more processor readable storage devices as defined in claim 80 wherein the step of assigning a virtual address includes a non-routable IPV4 compliant address **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 85, Cheline teaches the one or more processor readable storage devices as defined in claim 80 wherein the step of routing network traffic includes routing traffic from a first member accessing the public address realm on a first device

having a public address with a second member accessing the public address realm on a second device having a different public address **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 86, Cheline teaches the one or more processor readable storage devices as defined in claim 80 wherein the step of routing network traffic includes routing traffic from a first member accessing the public address realm on a first device in a private physical network having a private address with a second member accessing the public address realm on a second device having a public address **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 87, Cheline teaches the one or more processor readable storage devices as defined in claim 80 wherein the step of routing network traffic includes routing traffic from a first member accessing the public address realm on a device in a private physical network having a first private physical address with a second member accessing the public address realm on a device in a private physical network having a second private physical address **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 88, Cheline teaches the one or more processor readable storage devices as defined in claim 87 wherein the step of routing network traffic includes routing traffic to the first or second member via a NAT device **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 89, Cheline teaches the one or more processor readable storage devices as defined in claim 87 wherein the first private physical address and the second private physical address are identical **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 90, Cheline teaches the one or more processor readable storage devices as defined in claim 80 wherein the step of routing includes routing encapsulated traffic **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 91, Cheline teaches the one or more processor readable storage devices as defined in claim 80 wherein the step of routing includes routing encrypted traffic **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 92, Cheline teaches the one or more processor readable storage devices as defined in claim 80 further including applying a group policy to members of the virtual community **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 93, Cheline teaches a virtual community network system, comprising: a virtual network manager having a network interface coupled to a network, the manager including at least one virtual community definition comprising at least a domain name and a user set **(see mapping in claim 1)**, the network being assessable by users in the user set and users outside the user set **(in Figure 1 the VPN is attached to the Internet)**, the manager exchanging virtual community network information with users in the user set **(paragraphs 51-54)**.

As to claim 94, Cheline teaches the system of claim 93 wherein the virtual network manager includes a member register module **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 95, Cheline teaches the system of claim 93 wherein the virtual network manager includes a member join module **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 96, Cheline teaches the system of claim 95 wherein the join module provides a virtual address to a registered member **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 97, Cheline teaches the system of claim 93 wherein the virtual network manager maintains data on an association between at least one virtual address with at least one member **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 98, Cheline teaches the system of claim 93 wherein the virtual network manager includes a DNS server for the virtual community **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 99, Cheline teaches the system of claim 93 wherein the virtual network manager includes a NAT device detector for users connecting with the virtual network manager using a processing device behind a NAT device **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 100, Cheline teaches the system of claim 93 wherein the virtual network manager includes at least a second virtual domain definition **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 101, Cheline teaches the system of claim 93 wherein the virtual network manager includes at least a first virtual community definition and a second virtual community definition **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 102, Cheline teaches the system of claim 93 wherein the virtual network manager includes a member authenticator **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 103, Cheline teaches the system of claim 93 wherein the virtual network manager includes a DNS server providing authorative responses for DNS queries form users in the virtual community **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 104, Cheline teaches the system of claim 93 wherein the system further includes at least one route director capable of communicating with users in the user set **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 105, Cheline teaches the system of claim 93 wherein each user communicates with the virtual network manager and other users in the user set via at least one agent **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 106, Cheline teaches the system of claim 93 wherein the user set includes at least a first user and a second user, said first user accesses other users in the community using at least a first processing device, said second user accesses other users in the community using at least a second processing device, wherein at least one of said first device or second device is coupled to a first private network and accesses a public network via a NAT device **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 107, Cheline teaches the system of claim 106 wherein said first device is coupled to said first private network, and said second device is coupled to a second private network and accesses the public network via a second NAT device **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 108, Cheline teaches the system of claim 93 wherein communications between users in the user set are encrypted **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

As to claim 109, Cheline teaches the system of claim 108 wherein the virtual network manager provides a shared secret to users in the user set to establish encrypted communications **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas B. Blair whose telephone number is 571-272-3893. The examiner can normally be reached on 8:30am-5pm Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Caldwell can be reached on 571-272-3868. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Douglas Blair

BUNJOB JAROENCHONWANIT
SUPERVISORY PATENT EXAMINER

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 1

Complete if Known	
Application Number	10/403,818
Filing Date	March 31, 2003
First Named Inventor	Alkhatib
Art Unit	2157
Examiner Name	
Attorney Docket Number	TTCC-01021US0

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NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
DB		VENTERS, Demystifying Protocols: A comparison of Protocols Suitable for IP Telephony, Sonus Networks, pp. 1-11, 2000.	
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DB		FINSETH, An Access Control Protocol, Sometimes Called TACACS, Network Working Group, July 1993, pp. 1-18.	
DB		Computer Netowrks, Third Edition, by Andrew S. Tanenbaum, 1996, pp. 643-670, 685-691.	
DB		PERKINS, Mobile IP, IEEE Communications Magazine, May 1997, pp. 84-99	

Examiner Signature	/Douglas Blair/	Date Considered	09/14/2006

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

1 Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.98: The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 1

Complete if Known	
Application Number	10/403,818
Filing Date	March 31, 2003
First Named Inventor	Alkhatib
Art Unit	2157
Examiner Name	
Attorney Docket Number	TTCC-01021US0

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US-			
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FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3] Number[4] Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]
DB		EP 0 817 444 A2	01/07/1998	Sun Microsystems, Inc.		

Examiner Signature	/Douglas Blair/	Date Considered	09/14/2006

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This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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PATENT & TRADEMARK OFFICE

ELECTRONIC INFORMATION DISCLOSURE STATEMENT

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Stylesheet Version v18.0

Title of Invention	SECURE VIRTUAL COMMUNITY NETWORK SYSTEM

Application Number: 10/403818
Confirmation Number: 2698
First Named Applicant: HASAN ALKHATIB
Attorney Docket Number: TTCC-01021US0
Art Unit: 2157
Search string: (5361256 or 5623605 or 5717687 or 5751961 or 5777989 or 5781550 or 5790548 or 5805818 or 5805820 or 5856974 or 5867667 or 5884246 or 5889953 or 5913210 or 5937162 or 5937163 or 6003084 or 6055575 or 5793763 or 6119171 or 6061738 or 6047325 or 6032196 or 5815664 or 5764906 or 6006272 or 6557037 or 6591306 or 5734651 or 5701427 or 5563878).pn.

US Patent Documents

Note: Applicant is not required to submit a paper copy of cited US Patent Documents

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Signature

Examiner Name	Date
	9/15/06

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Notice of References Cited	Application/Control No. 10/403,818	Applicant(s)/Patent Under Reexamination ALKHATIB ET AL.	
	Examiner Douglas B. Blair	Art Unit 2142	Page 1 of 1

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*	C	US-6,970,941	11-2005	Caronni et al.	709/238
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Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

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Index of Claims

Application/Control No.	Applicant(s)/Patent under Reexamination
10/403,818	ALKHATIB ET AL.
Examiner	**Art Unit**
Douglas B. Blair	2142

√	Rejected	–	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
=	Allowed	+	Restricted	I	Interference	O	Objected

Claim		Date								
Final	Original	9/14/06								
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Search Notes	Application/Control No.	Applicant(s)/Patent under Reexamination	
	10/403,818	ALKHATIB ET AL.	
	Examiner	Art Unit	
	Douglas B. Blair	2142	

SEARCHED			
Class	Subclass	Date	Examiner
709	245	9/14/2006	DBB

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
east text search	9/14/2006	DBB
Inventor name search	9/14/2006	DBB

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application		)	PATENT APPLICATION
Inventors:	Alkhatib	)	Art Unit: 2142
Application No.:	10/403,818	)	Examiner: Blair, Douglas B.
Filed:	March 31, 2003	)	Customer No. 28554
Title:	SECURE VIRTUAL COMMUNITY NETWORK SYSTEM	)	

RESPONSE A TO OFFICE ACTION UNDER 37 C.F.R. §1.111

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This RESPONSE is in reply to the Office Action mailed September 22, 2006.

AMENDMENTS TO THE SPECIFICATION begin on page 2.

AMENDMENTS TO THE CLAIMS are reflected in the listing of claims which begin on page 3.

REMARKS begin on page 19.

Applicants hereby petition for a three-month extension of time to extend the time for responding from December 22, 2006 to March 22, 2007. Payment of the appropriate small entity fee is enclosed.

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AMENDMENTS TO THE SPECIFICATION

Please amend the paragraph at page 20, lines 3-18 as follows:

Device M_B is in a private domain (e.g. private network)) 540 and connected to a NAT Device 515 ~~530~~ to access the Internet 506 by a private network path 540a. Device M_B may use have a dynamic or static IP address specific to the private domain 540. Generally, such addresses are part of the private received IP classes which are not routable via the Internet. For example, 10.0.0.0 - 10.255.255.255, 172.16.0.0 - 172.31.255.255, 192.168.0.0 - 192.168.255.255 are network addresses classified for private networks. Firewall/NATdevice 515 translates Machine M_B's private IP address to a routable public IP address. NAT device 515 may include other security functions as well. M_B communicates with other non-VCN devices on the Internet via the NAT device 515, and with other members of the VCN via Private Route Director (PRD) 530, which is coupled to the private network path 540a and is a member of the private network 540. Device M_X is also shown as connected to and a member of the private domain 540 but has a static, routable public IP addresses. As such it may communicate with devices coupled to Internet 506 in a different manner, as illustrated in Fig. 5B.

Please amend the paragraph at page 21, lines 16-20 as follows:

As described herein, three forms of communication are used in creating and implementing the VCN. TCP is used in the registration and joining processes; encapsulated UDP ~~UCP~~ packets are used between elements in establishing communication between joined devices and for management traffic, and Encrypted UDP ~~UCP~~ packets are used for agent-to-agent communications.

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AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

1. (currently amended) A virtual community network system, comprising:

a virtual network manager including a definition of at least one virtual community, the definition comprising at least a domain name and a user set, the virtual network manager provides virtual network addresses to users in the user set when the users join the virtual community, the users are identified by one another in the virtual community by their virtual network addresses, and the virtual network addresses are not directly routable; and

at least one route director capable of communicating with users in the user set, the at least one route director routes traffic between the users.

2. (currently amended) The system of claim 1 wherein each user communicates with the virtual network manager and other users in the user set via at least one associated agent.

3. (currently amended) The system of claim 2 wherein, for each user, the associated agent is installed on a processing device.

4. (currently amended) The system of claim 2 wherein, for each user, the associated agent is installed on an associated ~~a~~ proxy device which is a proxy for the user with respect to the virtual network manager and the at least one route director.

5. (currently amended) The system of claim 2 wherein the virtual network manager detects a presence of ~~includes~~ a NAT device ~~detector~~ when an agent ~~for agents~~ installed in a private network on a processing device behind the ~~a~~ NAT device contacts the virtual network manager in an attempt to join the virtual community.

6. (currently amended) The system of claim 1 wherein the virtual network manager comprises a device coupled to a public network and having a public network address.

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7. (original) The system of claim 1 wherein the user set includes at least a first user and a second user, said first user accesses other users in the community using at least a first processing device, said second user accesses other users in the community using at least a second processing device.

8. (currently amended) The system of claim 7 wherein each said processing device is configured with the virtual network address provided to the associated user ~~includes at least one virtual address in the community~~ and at least one physical address.

9. (currently amended) The system of claim 8 wherein the physical addresses are ~~address is~~ dynamic.

10. (currently amended) The system of claim 8 wherein the physical addresses are ~~address is~~ static.

11. (currently amended) The system of claim 8 wherein the physical ~~address is~~ addresses are private network addresses, and the virtual network addresses are unique in the virtual community and do not conflict with the private network addresses.

12. (currently amended) The system of claim 8 wherein ~~at least one of~~ said first processing device ~~or second device~~ is coupled to a first private network and accesses a public network via a first NAT device, the first NAT device transmits packets in which a destination address is a public address of the at least one route director, and the packets include encapsulated packets provided by the first processing device in which a source address is the virtual network address of the first processing device, a destination address is the virtual network address of the second processing device and a shim includes the physical address of the first processing device~~s~~ as a private network address in the first private network.

13. (currently amended) The system of claim 12 wherein the physical addresses are ~~address is~~ dynamic.

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14. (currently amended) The system of claim 12 wherein the physical addresses are ~~address is~~ static.

15. (currently amended) The system of claim 12 wherein said ~~first device is coupled to said first private network, and said~~ second processing device is coupled to a second private network and accesses the public network via a second NAT device, the shim includes the physical address of the second processing device as a private network address in the second private network.

16. (currently amended) The system of claim 15 wherein said second device includes ~~at least one virtual address in the realm and~~ at least one private physical address.

17. (original) The system of claim 15 wherein the physical address is dynamic.

18. (original) The system of claim 15 wherein the physical address is static.

19. (currently amended) The system of claim 15 wherein said ~~at least~~ first private network and said ~~at least~~ second private network share at least one network address.

20. (currently amended) The system of claim 1 wherein the route director provides ~~includes~~ a pseudo address assignment for at least one user in the user set when the at least one user communicates with the route director via a NAT device, the route director stores an association of the pseudo address with a public network address of the NAT device and a port number of the NAT device.

21. (original) The system of claim 1 wherein the route director includes a translator for virtual address information for a virtual user in a private network realm.

22. (original) The system of claim 1 wherein the virtual community manager is coupled to a public network and includes a public network address.

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23. (original) The system of claim 22 wherein the route director is coupled to said public network and includes a public network address.

24. (original) The system of claim 22 wherein the route director is coupled to a first private network and said route director includes a private network address.

25. (currently amended) The system of claim 1 wherein communications between users in the user set include packets having a source address which is the virtual network address of the sending user and a destination address which is the virtual network address of the receiving user, the packets are encapsulated and sent to the at least one route director in packets having a destination address which is a public network address of the at least one route director.

26. (currently amended) The system of claim 1 wherein packets communicated ~~communications~~ between users in the user set are encrypted prior to being encapsulated.

27. (original) The system of claim 26 wherein said encryption uses IPSEC.

28. (currently amended) The system of claim 26 wherein said encryption uses DES or triple DES.

29. (currently amended) The system of claim 5 ~~26~~ wherein

the virtual network manager detects the presence of the NAT device by receiving a message from the agent when the agent contacts the virtual network manager in the attempt to join the virtual community, and comparing a field in a payload of the message with a source address in a header of the message.

30. (currently amended) The system of claim 1 wherein the virtual network manager includes at least two ~~a second~~ virtual ~~domain~~ community definitions ~~definition~~.

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31. (currently amended) The system of claim 1 further including ~~at least~~ a ~~first~~ public route director and a ~~second~~ private route director for routing messages among the users, the public route director is in a public network, and the private route director is in a private network to enable access to users inside the private network from users outside the private network.

32. (currently amended) A system, comprising:

a management device for a virtual community, the management device including a network interface coupled to a public address realm and having a public address; and

a ~~virtual community~~ network traffic router which uses router data to route traffic between members of the virtual community, the ~~; and~~ router data including at least one association of a logical identifier with public routing information for a member.

33. (currently amended) The system of claim 32 wherein the network traffic router includes a network interface accessible to the members by a public address in the public address realm.

34. (currently amended) The system of claim 32 wherein the management device includes a UDP port capable of receiving network traffic of the virtual community ~~network traffic~~.

35. (currently amended) The system of claim 34 ~~32~~ wherein the management device includes a TCP port capable of communicating ~~virtual community~~ network traffic in the virtual community to allow the members to register and join in the virtual community.

36. (currently amended) The system of claim 32 wherein a first member accesses a physical network via a processing device and the system further includes at least one agent installed on the processing device, the at least one agent communicates with the network traffic router to allow the first member to communicate with another member.

37. (original) The system of claim 36 wherein the processing device is coupled to a private physical network behind a NAT device, and the network traffic router includes a

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transposer for routing information in a packet destined for the agent to direct the packet to the NAT device for the agent.

38. (currently amended) The system of claim 32 further including at least one proxy agent on a private physical network communicating with at least one of the members ~~a member~~ and the network traffic router, the proxy agent is a proxy for the at least one of members with respect to the network traffic router.

39. (currently amended) The system of claim 38 wherein the at least one of the members ~~member~~ accesses other members using a device coupled to a private physical network.

40. (currently amended) The system of claim 32 wherein the management device ~~manager~~ includes a member register module which allows a potential member to register with the management device.

41. (currently amended) The system of claim 40 wherein the management device ~~manager~~ includes a member join module which allows a particular member to notify the management device via a join request that the particular member is available to participate in the virtual community, and to notify the management device via a leave request that the particular member is no longer available to participate in the virtual community.

42. (currently amended) The system of claim 41 wherein the join module provides ~~a~~ virtual network addresses ~~address~~ to the ~~a registered member~~ members.

43. (currently amended) The system of claim 41 wherein the management device ~~manager~~ maintains data on an association between at least one virtual network address and ~~with~~ at least one member.

44. (currently amended) The system of claim 40 wherein the management device ~~manager~~ includes a DNS server for the virtual community, a first member in the virtual community communicates with another member in the virtual community by querying the DNS

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server to determine a virtual network address and a private network address for the another member, and to determine a public address of the network traffic router.

45. (currently amended) The system of claim 32 further including a virtual community network communication agent for a device used by a member to communicate in the virtual community, the virtual community network communication agent comprising a virtual network adapter interfacing with the device and applications on the device to route traffic to members of the virtual community via ~~their~~ associated virtual network addresses ~~address~~.

46. (currently amended) The system of claim 45 wherein the virtual community network communication agent includes a domain name routing plugin.

47. (currently amended) The system of claim 45 wherein the virtual community network communication agent includes a separate IP stack for each member ~~user in the user set~~ accessing the device.

48. (currently amended) The system of claim 45 wherein the virtual network adapter is a deterministic network enhancer.

49. (currently amended) The system of claim 45 wherein the virtual network adapter includes a DNS plugin which processes DNS queries.

50. (currently amended) The system of claim 45 wherein the virtual network adapter includes an IPSEC plugin for encrypting messages.

51. (currently amended) The system of claim 45 wherein the virtual network adapter includes a domain name routing plugin.

52. (currently amended) The system of claim 45 wherein the virtual community network communication agent includes a community registration module for registering the members with the management device.

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53. (currently amended) A virtual community network system, comprising:

a ~~virtual community~~ network manager of a virtual community;

a route director;

at least a first virtual community agent associated with a first community member; and

at least a second virtual community agent associated with at least a second community member, the route director routes communications between the first and second community members via the first and second virtual community agents.

54. (currently amended) The system of claim 53 wherein the route director is a network route director, and includes a public network interface and public address by which the first and second virtual community agents communicate with the network route director.

55. (original) The system of claim 53 wherein the route director is a private route director, and includes a private physical network address interface and a private physical network address.

56. (currently amended) The system of claim 53 wherein the first ~~or second~~ virtual community network agent is installed on a device used by the first community ~~a~~ member to access a network.

57. (currently amended) The system of claim 56 wherein the device is in a private physical network and has an associated private network address for communicating within the private physical network, the device also has a first virtual network address, assigned by the network manager, by which the device can be identified by the second virtual community agent from outside the private physical network.

58. (currently amended) The system of claim 56 wherein the device is coupled to a public physical network, has an associated public network address for communicating within the

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public physical network and has a first virtual network address, assigned by the network manager, by which the device can be identified by the second virtual community agent.

59. (currently amended) The system of claim 53 wherein the first ~~or second~~ virtual community network agent is a proxy agent for the first community member with respect to the network manager and the route director.

60. (original) The system of claim 53 wherein the first and second members access the virtual community via devices coupled to separate private address physical realms.

61. (original) The system of claim 53 wherein the virtual community network manager includes at least a first community definition and a second community definition.

62. (currently amended) The system of claim 53 wherein the community network manager includes a member authenticator for authenticating potential members when the potential members request to register with the network manager.

63. (currently amended) The system of claim 62 wherein the ~~community~~ network manager includes a DNS server providing ~~authorative~~ authoritative responses for DNS queries in the virtual community, the first virtual community agent provides a DNS query to the DNS server to obtain the virtual network address of the second community member for use in communicating with the second community member .

64. (currently amended) A method for providing a secure virtual network, comprising:

providing a virtual network manager coupled to a public network;

defining a member set of users entitled to communicate in the virtual network;

registering members with the manager;

assigning members ~~a~~ respective virtual addresses which ~~address,~~ are not directly routable; and

routing network traffic between the members in a ~~the~~ virtual community.

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65. (original) The method of claim 64 further including the step of providing users in said member set with a communication agent.

66. (original) The method of claim 65 wherein said step of providing users with a communication agent includes providing a proxy agent.

67. (original) The method of claim 65 wherein said step of providing users with a communication agent includes providing an agent installed on a device used by the member to couple to a network.

68. (original) The method of claim 65 wherein the step of registering comprises authenticating members with the member set.

69. (currently amended) The method of claim 64 wherein the step of defining a member set includes the step of assigning a domain name for the virtual community.

70. (original) The method of claim 64 wherein the step of defining a member set includes defining at least two member sets having at least one different member.

71. (original) The method of claim 64 wherein the step of assigning a virtual address includes assigning an IPV4 compliant address.

72. (original) The method of claim 71 wherein the step of assigning a virtual address includes assigning a non-routable IPV4 compliant address.

73. (currently amended) The method of claim 64 wherein the step of routing network traffic includes routing traffic from a first member accessing the public network on a first device having a public address to ~~with~~ a second member accessing the public network on a second device having a different public address, the traffic includes packets having a source address which is the virtual address of the first member and a destination address which is the virtual

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address of the second member, the packets are encapsulated in packets having a source address which is the public address of the first device and a destination address which is the different public address of the second device.

74. (currently amended) The method of claim 64 wherein the step of routing network traffic includes routing traffic from a first member accessing the public network on a first device in a private physical network having a private address ~~with~~ to a second member accessing the public network on a second device having a public address, the traffic includes packets having a source address which is the virtual address of the first member, a destination address which is the virtual address of the second member, and a shim which includes the private address, the packets are encapsulated in packets having a destination address which is the public address of the second device.

75. (currently amended) The method of claim 64 wherein the step of routing network traffic includes routing traffic from a first member accessing the public network on a device in a private physical network having a first private physical address to ~~with~~ a second member accessing the public network on a device in a private physical network having a second private physical address, the traffic includes encapsulated packets having a source address which is the virtual network address of the first member, a destination address which is the virtual network address of the second member, and a shim which includes the first and second private physical addresses.

76. (original) The method of claim 75 wherein the first private physical address and the second private physical address are identical.

77. (original) The method of claim 64 further including the step of responding to DNS requests for members in the virtual network.

78. (currently amended) The method of claim 64 further including the step of responding to joined status requests for registered members in the virtual network, a first registered member provides a joined status request as a query to the virtual network manager

regarding a status of a second registered member, the status indicating whether or not the second registered member is joined to the virtual community and therefore available to participate in the virtual community.

79. (original) The method of claim 64 further including applying a group policy to members of the virtual community.

80. (currently amended) One or more processor readable storage devices having processor readable code embodied thereon ~~on said processor readable storage devices~~, said processor readable code for programming one or more processors to perform a method comprising the steps of:

managing a virtual community network realm;

defining a member set of users entitled to communicate in the virtual community;

registering users with the virtual community to allow the users to communicate with one another;

assigning each user a virtual address; and

routing network traffic between the users in the virtual community.

81. (original) One or more processor readable storage devices as defined in claim 80 further including code for programming one or more processors to perform a step of providing users in said member set with a communication agent.

82. (original) One or more processor readable storage devices as defined in claim 81 wherein said step of providing users with a communication agent includes providing a proxy agent.

83 (original) One or more processor readable storage devices as defined in claim 80 wherein the step of defining a member set includes the step of assigning a domain name for the community.

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84. (currently amended) One or more processor readable storage devices as defined in claim 80 wherein the ~~step of assigning a~~ virtual address includes a non-routable IPV4 compliant address.

85. (currently amended) One or more processor readable storage devices as defined in claim 80 wherein the step of routing network traffic includes routing traffic from a first member accessing the public address realm on a first device having a public address ~~with~~ to a second member accessing the public address realm on a second device having a different public address.

86. (currently amended) One or more processor readable storage devices as defined in claim 80 wherein the step of routing network traffic includes routing traffic from a first member accessing the public address realm on a first device in a private physical network having a private address ~~with~~ to a second member accessing the public address realm on a second device having a public address.

87. (currently amended) One or more processor readable storage devices as defined in claim 80 wherein the step of routing network traffic includes routing traffic from a first member accessing the public address realm on a device in a private physical network having a first private physical address ~~with~~ to a second member accessing the public address realm on a device in a private physical network having a second private physical address.

88. (original) One or more processor readable storage devices as defined in claim 87 wherein the step of routing network traffic includes routing traffic to the first or second member via a NAT device.

89. (original) One or more processor readable storage devices as defined in claim 87 wherein the first private physical address and the second private physical address are identical.

90. (original) One or more processor readable storage devices as defined in claim 80 wherein the step of routing includes routing encapsulated traffic.

91. (original) One or more processor readable storage devices as defined in claim 80 wherein the step of routing includes routing encrypted traffic.

92. (original) One or more processor readable storage devices as defined in claim 80 further including applying a group policy to members of the virtual community.

93. (currently amended) A virtual community network system, comprising:

a virtual network manager having a network interface coupled to a network, the manager including at least one virtual community definition comprising at least a domain name and a user set, the network being ~~assessable~~ accessible by users in the user set and users outside the user set, the manager exchanging virtual community network information with users in the user set.

94. (original) The system of claim 93 wherein the virtual network manager includes a member register module.

95. (original) The system of claim 93 wherein the virtual network manager includes a member join module.

96. (original) The system of claim 95 wherein the join module provides a virtual address to a registered member.

97. (original) The system of claim 93 wherein the virtual network manager maintains data on an association between at least one virtual address with at least one member.

98. (original) The system of claim 93 wherein the virtual network manager includes a DNS server for the virtual community.

99. (original) The system of claim 93 wherein the virtual network manager includes a NAT device detector for users connecting with the virtual network manager using a processing device behind a NAT device.

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100. (currently amended) The system of claim 93 wherein the virtual network manager includes at least a second virtual ~~domain~~ community definition.

101. (cancelled)

102. (original) The system of claim 93 wherein the virtual network manager includes a member authenticator.

103. (currently amended) The system of claim 93 wherein the virtual network manager includes a DNS server providing authoritative ~~authorative~~ responses for DNS queries form users in the virtual community.

104. (currently amended) The system of claim 93 ~~wherein the system~~ further comprising ~~includes~~ at least one route director capable of communicating with users in the user set.

105. (original) The system of claim 93 wherein each user communicates with the virtual network manager and other users in the user set via at least one agent.

106. (currently amended) The system of claim 93 wherein the user set includes at least a first user and a second user, said first user accesses other users in the virtual community using at least a first processing device, said second user accesses other users in the virtual community using at least a second processing device, wherein at least one of said first device and said ~~or~~ second device is coupled to a first private network and accesses a public network via a NAT device.

107. (original) The system of claim 106 wherein said first device is coupled to said first private network, and said second device is coupled to a second private network and accesses the public network via a second NAT device.

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108. (original) The system of claim 93 wherein communications between users in the user set are encrypted.

109. (original) The system of claim 108 wherein the virtual network manager provides a shared secret to users in the user set to establish encrypted communications.

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REMARKS

The above Amendments and these Remarks are in reply to the Office Action mailed September 22, 2006

Currently, claims 1-109 are pending. Claims 1-6, 8-16, 19, 20, 25, 26, 28, 29, 30-36, 38-54, 56-59, 62-64, 69, 73-75, 78-80, 84-87, 93, 100, 103, 104 and 106. No new matter is entered. Claim 101 is cancelled.

Claims 1-109 have been rejected under 35 U.S.C. 102 as being anticipated by Cheline et al. (US2003/0041136) (Cheline). Applicants respectfully traverse the rejection.

Cheline is concerned with automatically configuring a virtual private network (VPN). A VPN provides a secure tunnel between a server side system 130 and a client side system 108 (Fig. 1). In this approach, a service provider system 146 provides instructions to configure and control a modem 106 at the client side system 108 and a VPN concentrator 136 at the server side system 130 to provide a VPN tunnel between the modem and the VPN concentrator (par. 31, 33 and 42). The modem can also provide network address translation (NAT) (par. 47). This approach allows a number of client computers in a LAN 104 on the client side system 108 to communicate with the server side system 130 via the VPN tunnel.

However, Applicants' invention differs from Cheline's system in many important aspects. For example, claim 1 sets forth a virtual community network system which includes a virtual network manager including at least one virtual community definition comprising at least a domain name and a user set. Cheline resolves host names in a VPN using multiple DNS servers so that a client knows whether to communicate with an internal DNS Server, which contains private IP addresses, or an external DNS Server, which contains public IP addresses (par. 87 and 88). However, this is not the same as providing a virtual community definition, that is, a definition of a virtual community, which includes a domain name. The fact that Cheline resolves a host name is different than using a domain name as part of a definition of a virtual community.

Further, claim 1 sets forth that a virtual network manager provides virtual network addresses to users in the user set when the users join the virtual community, the users are identified by one another in the virtual community by their virtual network addresses and the virtual network addresses are not directly routable. In Cheline's system, a user's client computer uses either a corporate assigned IP address that can be routed within the server side system, or a private non-routable IP address which is translated using NAT to assume a corporate assigned IP

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address (par. 51). The corporate assigned IP address that can be routed is not a virtual network address that is not directly routable. Further, the private non-routable IP address is not a virtual address by which users are identified by one another in a virtual community. Moreover, there is no indication that such an IP address is provided by a virtual network manager when the user joins a virtual community.

In view of the above, claim 1 is clearly patentable over the cited reference.

Further, the dependent claims of claim 1 provide further patentable features. For example, claim 5 sets forth that a virtual network manager detects a presence of a NAT device when an agent installed in a private network on a processing device behind the NAT device contacts the virtual network manager in an attempt to join the virtual community. Even if, arguendo, the modem 106 of Cheline is a NAT device and the VPN provider can receive communications from the NAT device, the VPN provider does not know, and does not detect, if the communication is from behind the NAT device.

The specific technique used to detect the presence of a NAT device as set forth in claim 29 similarly is neither disclosed nor suggested by Cheline.

Further, claim 8 sets forth that processing devices of the users in the virtual community are configured with both a virtual network address and a physical address. In contrast, Cheline indicates that a user's client computer uses either a corporate assigned IP address or a private non-routable IP address (par. 51). There is no indication that the user's client computer is configured with a virtual network address and a physical address, e.g., where the users are identified by one another in the virtual community by their virtual network addresses. Cheline does not provide both types of addresses to the clients 102.

Claim 12 sets forth details of how a first NAT device associated with a first processing device on a first private network transmits packets to a second processing device. The first NAT device transmits packets to a route director, and the packets include encapsulated packets provided by the first processing device in which a source address is the virtual network address of the first processing device, a destination address is the virtual network address of the second processing device and a shim includes the physical address of the first processing devices as a private network address in the first private network. Cheline fails to disclose or suggest this feature.

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Claim 15, which depends on claim 12, sets forth that the second processing device is coupled to a second private network and accesses a public network via a second NAT device. In this case, the shim also includes the physical address of the second processing devices as a private network address in the second private network. Cheline is not concerned with processing devices in different private networks communicating in this manner. Instead, Cheline is concerned with clients 102 on a common LAN at client side system 108 communicating with a server side system 130 via a VPN. The clients 102 on the LAN do not communicate with clients on another private network

The remaining dependent claims of claim 1 are similarly patentable over Cheline.

Regarding independent claim 32, the client 102 of Cheline can hardly be considered to be a management device for a virtual community since the client does not perform any managing as claimed. Further, while each client can have an IP address which can be routed through the server side system (par. 51), the clients do not include a network interface coupled to a public address realm. Moreover, the Examiner asserts that the service provider system 146 is a network traffic router as claimed. However, the service provider system 146 is used for providing instructions to configure and control a modem 106 at the client side system 108 and a VPN concentrator 136 at the server side system 130 to provide a VPN tunnel (par. 31, 33 and 42). There is no disclosure or suggestion that the service provider system 146 routes traffic between members of a virtual community as claimed. Moreover, there is no need for the service provider system to route traffic as claimed since the client side system and the server side system communicate directly via the VPN tunnel.

Claim 32 is therefore clearly patentable over Cheline.

Further, the dependent claims of claim 32 provide additional patentable features. For example, regarding claim 35, the client of Cheline is not a management device with a TCP port capable of communicating network traffic in a virtual community to allow members of the virtual community to register and join in the virtual community. The client of Cheline is also not involved with allowing other members of the virtual community to register and join in the virtual community.

Regarding claim 41, Cheline at par. 67 and 68 refers to a client requesting the initiation of a VPN session. However, Cheline does not disclose or suggest that a management device includes a member join module which allows a particular member to notify the management

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device via a join request that the particular member is available to participate in the virtual community, and to notify the management device via a leave request that the particular member is no longer available to participate in the virtual community.

Regarding claim 44, Cheline resolves host names in a VPN using multiple DNS servers so that a client knows whether to communicate with an internal DNS Server or an external DNS Server (par. 87 and 88). However, Cheline does not disclose or suggest the features of claim 44 as amended. For example, the client 102(1) of Cheline does not communicate with the DNS server 120 to obtain a virtual network address and private network address of another client such as client 102(2) and to obtain a public network address of the service provider system 146, which is asserted by the Examiner to be a network traffic router as claimed.

The remaining dependent claims of claim 32 are similarly patentable over Cheline.

Regarding independent claim 53, Cheline at par. 86 states that multiple VPNs can be established over a single modem, thus avoiding the need for multiple modems. Cheline indicates that previously, separate modems and telephone lines were need for two clients to communicate via separate VPN tunnels. For example, a husband would communicate with his office via one modem and VPN tunnel, and a wife would communicate with her office via another modem and VPN tunnel (par. 7). Thus, the husband and wife as clients would not be part of the same community. In contrast, claim 53 sets forth routing communications between first and second community members in a community.

Claim 53 and its dependent claims are therefore clearly patentable over Cheline.

Independent claims 64 sets forth, in part, assigning members a respective virtual address, where the virtual addresses are not directly routable, and routing network traffic between the members in a virtual community. Cheline at par. 55 refers to using a DHCP server to allow network administrators to assign IP addresses to client computers. However, these addresses are not virtual addresses which are not directly routable.

Claim 64 and its dependent claims are therefore clearly patentable over Cheline.

Independent claim 80 sets forth, in part, managing a virtual community network realm, defining a member set of users entitled to communicate in the virtual community, and registering users with the virtual community to allow the users to communicate with one another. In contrast, as discussed, Cheline is only concerned with enabling clients to communicate via one or more VPN tunnels with a server, but not with other clients (par. 67).

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Claim 80 and its dependent claims are therefore clearly patentable over Cheline.

Claim 93 sets forth, in part, a virtual network manager having a network interface coupled to a network, the manager including at least one virtual community definition comprising at least a domain name and a user set. As discussed above in connection with claim 1, Cheline resolves host names in a VPN using multiple DNS servers so that a client knows whether to communicate with an internal DNS Server or an external DNS Server (par. 87 and 88). However, this is not the same as providing a virtual community definition, that is, a definition of a virtual community, which includes a domain name. The fact that Cheline resolves a host name is different than using a domain name as part of a definition of a virtual community.

Claim 93 and its dependent claims are therefore clearly patentable over Cheline.

Based on the above amendments and these remarks, reconsideration of claims is respectfully requested.

The Examiner's prompt attention to this matter is greatly appreciated. Should further questions remain, the Examiner is invited to contact the undersigned attorney by telephone.

The Commissioner is authorized to charge any underpayment or credit any overpayment to Deposit Account No. 501826 for any matter in connection with this response, including any fee for extension of time, which may be required.

Respectfully submitted,

Date: March 22, 2007

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Electronic Patent Application Fee Transmittal

Application Number:	10403818
Filing Date:	31-Mar-2003
Title of Invention:	Secure virtual community network system
First Named Inventor/Applicant Name:	Hasan S. Alkhatib
Filer:	Ralph Hoppin
Attorney Docket Number:	TTCC-01021US0
Filed as Small Entity	

Utility Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 3 months with $0 paid	2253	1	510	510

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
		Total in USD ($)		**510**

Electronic Acknowledgement Receipt	
EFS ID:	1614156
Application Number:	10403818
International Application Number:	
Confirmation Number:	2698
Title of Invention:	Secure virtual community network system
First Named Inventor/Applicant Name:	Hasan S. Alkhatib
Customer Number:	28554
Filer:	Ralph Hoppin
Filer Authorized By:	
Attorney Docket Number:	TTCC-01021US0
Receipt Date:	22-MAR-2007
Filing Date:	31-MAR-2003
Time Stamp:	11:13:35
Application Type:	Utility

Payment information:

Submitted with Payment	yes
Payment was successfully received in RAM	$510
RAM confirmation Number	1533
Deposit Account	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)	Multi Part /.zip	Pages (if appl.)

1		1021-response-001.pdf	114767	yes	23

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Amendment - After Non-Final Rejection	1	1
Specification	2	2
Claims	3	18
Applicant Arguments/Remarks Made in an Amendment	19	23

Warnings:

Information:

2	Fee Worksheet (PTO-06)	fee-info.pdf	8134	no	2

Warnings:

Information:

Total Files Size (in bytes):	122901

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If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (07-06)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 10/403,818	Filing Date 03/31/2003	☐ To be Mailed

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☒		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

		(Column 1)		(Column 2)	(Column 3)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
	03/22/2007	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
AMENDMENT	Total (37 CFR 1.16(i))	* 108	Minus	** 109	= 0	X $25 =	0	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 6	Minus	***6	= 0	X $100 =	0	OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	

		(Column 1)		(Column 2)	(Column 3)					
		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
AMENDMENT	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
Jacquelyn L. Williams

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	33	"virtual community" near2 network$2	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:48
S2	19	S1 and @ad<"20030331"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/14 10:09
S3	5	S2 and ((private or public) with address)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/13 20:00
S4	45	((virtual near (community or network)) and (private near address$3) and (public near address$3) and (IP near address$2))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/13 20:04
S5	27	S4 and @ad<"20030331"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/13 20:04
S6	53	("6226751").URPN.	USPAT	OR	OFF	2006/09/13 20:30
S7	1	"20040249911".pn.	US-PGPUB; USPAT	OR	OFF	2006/09/14 09:59
S8	139	("domain name" or DNS) with (VPN)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/14 10:08
S9	74	S8 and @ad<"20030331"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/14 10:09
S10	22	S9 and (NAT with (public or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:59

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EAST Search History

S11	1801	709/245.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/14 11:02
S12	454	"virtual community"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:49
S13	353	router same (public with address$3) same (private with address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:50
S14	353	S13 same S13	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:50
S15	0	S12 same S13	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:50
S16	3	S12 and S13	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:50
S17	0	S16 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:51
S18	387	router same (public with address$3) and router same (private with address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:50
S19	260	S18 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:52
S20	0	S19 and S12	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:51

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American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

EAST Search History

S21	306	rout$3 with (public near address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:51
S22	0	S12 same S21	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:52
S23	3	S12 and S21	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:52
S24	0	S23 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:55
S25	1	S12 same public near address$3	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:53
S26	0	S12 same (rout$3 with internet)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:53
S27	1	S12 same private near address$3	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:54
S28	15	(community or group) same S13	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:54
S29	7	S28 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:59
S30	85	((group or community) with (member$4 or belong$3)) and (NAT with (public or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:00

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American Airlines, et. al. v. Intellectual Ventures, et.al.
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EAST Search History

S31	49	S30 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:01
S32	55	((group or community) with (member$4 or belong$3)) and ((group$1 or community) same rout$3) and (NAT with (public or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:25
S33	34	S32 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:27
S34	272055	((group or community) with (member$4 or belong$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:25
S35	6111	S34 same server	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:25
S36	124	S35 and ((rout$3 near2 (messag$3 or communication$1)) same (firewall or NAT or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:26
S37	68	S36 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:27
S38	35	S37 and "domain name"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:27
S39	1	"20020152297".pn.	US-PGPUB; USPAT	OR	OFF	2007/05/25 18:47

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/403,818	03/31/2003	Hasan S. Alkhatib	TTCC-01021US0	2698

28554 7590 06/05/2007
VIERRA MAGEN MARCUS & DENIRO LLP
575 MARKET STREET SUITE 2500
SAN FRANCISCO, CA 94105

EXAMINER	
BLAIR, DOUGLAS B	
ART UNIT	**PAPER NUMBER**
2142	

MAIL DATE	DELIVERY MODE
06/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

Office Action Summary	Application No.	Applicant(s)	
	10/403,818	ALKHATIB ET AL.	
	Examiner	Art Unit	
	Douglas B. Blair	2142	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 March 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-100 and 102-109* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-100 and 102-109* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

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IPR2025-00786

DETAILED ACTION

Response to Amendment

1. Claims 1-100 and 102-109 are pending in this application.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 93-100 and 102-109 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Application Publication Number 2003/0041136 by Cheline et al.

4. As to claim 93, Cheline teaches a virtual community network system, comprising: a virtual network manager having a network interface coupled to a network, the manager including at least one virtual community definition comprising at least a domain name **(paragraphs 87-89, an infrastructure for dealing with domain names is clearly defined)** and a user set **(paragraph 43, the users registered with the authentication server are a user set)**, the network being assessable by users in the user set and users outside the user set **(in Figure 1 the VPN is attached to the Internet)**, the manager exchanging virtual community network information with users in the user set **(paragraphs 51-54)**.

5. As to claim 94, Cheline teaches the system of claim 93 wherein the virtual network manager includes a member register module **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

6. As to claim 95, Cheline teaches the system of claim 93 wherein the virtual network manager includes a member join module **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

7. As to claim 96, Cheline teaches the system of claim 95 wherein the join module provides a virtual address to a registered member **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

8. As to claim 97, Cheline teaches the system of claim 93 wherein the virtual network manager maintains data on an association between at least one virtual address with at least one member **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

9. As to claim 98, Cheline teaches the system of claim 93 wherein the virtual network manager includes a DNS server for the virtual community **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

10. As to claim 99, Cheline teaches the system of claim 93 wherein the virtual network manager includes a NAT device detector for users connecting with the virtual network manager using a processing device behind a NAT device **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

11. As to claim 100, Cheline teaches the system of claim 93 wherein the virtual network manager includes at least a second virtual domain definition **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

12. As to claim 102, Cheline teaches the system of claim 93 wherein the virtual network manager includes a member authenticator **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

13. As to claim 103, Cheline teaches the system of claim 93 wherein the virtual network manager includes a DNS server providing authorative responses for DNS queries form users in the virtual community **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

14. As to claim 104, Cheline teaches the system of claim 93 wherein the system further includes at least one route director capable of communicating with users in the user set **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

15. As to claim 105, Cheline teaches the system of claim 93 wherein each user communicates with the virtual network manager and other users in the user set via at least one agent **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

16. As to claim 106, Cheline teaches the system of claim 93 wherein the user set includes at least a first user and a second user, said first user accesses other users in the community using at least a first processing device, said second user accesses other users in the community using at least a second processing device, wherein at least one of said first device or second device is coupled to a first private network and accesses a public network via a NAT device **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

17. As to claim 107, Cheline teaches the system of claim 106 wherein said first device is coupled to said first private network, and said second device is coupled to a second private network and accesses the public network via a second NAT device **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

18. As to claim 108, Cheline teaches the system of claim 93 wherein communications between users in the user set are encrypted **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

19. As to claim 109, Cheline teaches the system of claim 108 wherein the virtual network manager provides a shared secret to users in the user set to establish encrypted communications **(paragraphs 43, 47, 51-55, 62-64 and 86-89)**.

Claim Rejections - 35 USC § 103

20. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

21. Claims 1-92 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication Number 2003/0041136 by Cheline et al. in view of U.S. Patent Application Publication Number 2004/0006708 to Mukherjee et al.

22. As to claim 1, Cheline teaches a virtual community network system, comprising: a virtual network manager including at least one virtual community definition comprising at least a domain name **(paragraphs 87-89, an infrastructure for dealing with domain names is clearly defined)** and a user set **(paragraph 43, the users registered with the authentication server are a user set)**; and at least one route director capable of communicating with users in the user set **(paragraphs 62-64, the modem is considered a route director)**; however Cheline does not explicitly teach the users being identified by one another in the virtual community by the virtual network addresses.

Mukherjee teaches a virtual community network system, comprising: a virtual network manager including a definition of at least one virtual community definition **(paragraph**

47) comprising at least a domain name **(the service provider domain name)** and a user set **(the user group)**, the virtual network manager provides virtual network addresses to users in the user set when the users join the virtual community **(paragraph 46)**, the users are identified by one another in the virtual community by their virtual network addresses, and the virtual network addresses are not directly routable **(paragraph 56)**; and at least one route director capable of communicating with users in the user set, the at least one route director routes traffic between the users **(paragraph 56)**.

It would have been obvious to one of ordinary skill in the Computer Networking art at the time of the invention to combine the teachings of Cheline regarding the implementation of a virtual community with the teachings of Mukherjee regarding users being identified by one another in the virtual community by the virtual network addresses being identified in a virtual community because such identifications provide a more user friendly way to contact fellow group members **(paragraph 47)**.

23. As to claim 2, Mukherjee teaches the system of claim 1 wherein each user communicates with the virtual network manager and other users in the user set via at least one associated agent **(paragraph 47, the VISA program)**.

24. As to claim 3, Mukherjee teaches the system of claim 2 wherein, for each user, the associated agent is installed on a processing device **(paragraph 47)**.

25. As to claim 4, Mukherjee teaches the system of claim 2 wherein the agent is installed on an associated proxy device which is proxy for the user with respect to the virtual network manager and the at least one route director **(paragraph 47)**.

26. As to claim 5, Cheline teaches the system of claim 2 wherein the virtual network manager includes a NAT device detector for agents installed on a processing device behind a NAT device **(Figure 2, the modem is NAT device, the VPN provider detects communication from the modem)**.

27. As to claim 6, Mukherjee teaches the system of claim 1 wherein the manager comprises a device coupled to a public network and having a public network address **(paragraph 45)**.

28. As to claim 7, Mukherjee teaches the system of claim 1 wherein the user set includes at least a first user and a second user, said first user accesses other users in the community using at least a first processing device, said second user accesses other users in the community using at least a second processing device **(paragraph 45)**.

29. As to claim 8, Mukherjee teaches the system of claim 7 wherein each said device includes at least one virtual address in the community and at least one physical address **(paragraph 45)**.

30. As to claim 9, Mukherjee teaches the system of claim 8 wherein the physical address is dynamic **(paragraph 45)**.

31. As to claim 10, Mukherjee teaches the system of claim 8 wherein the physical address is static **(paragraph 45)**.

32. As to claim 11, Mukherjee teaches the system of claim 8 wherein the physical address is private **(paragraph 45)**.

33. As to claim 12, Cheline teaches the system of claim 8 wherein at least one of said first device or second device is coupled to a first private network and accesses a public network via a NAT device **(paragraph 51-54)**.

34. As to claim 13, Cheline teaches the system of claim 12 wherein the physical address is dynamic **(paragraph 51-54)**.

35. As to claim 14, Cheline teaches the system of claim 12 Wherein the physical address is static **(paragraph 51-54)**.

36. As to claim 15, Cheline teaches the system of claim 12 wherein said first, device is coupled to said first private network, and said second device is coupled to a second private network and accesses the public network via a second NAT device **(paragraph 51-54)**.

37. As to claim 16, Cheline teaches the system of claim 15 wherein said second device includes at least one virtual address in the realm and at least one private physical address **(paragraph 51-54)**.

38. As to claim 17, Cheline teaches the system of claim 15 wherein the physical address is dynamic **(paragraph 51-54)**.

39. As to claim 18, Cheline teaches the system of claim 15 wherein the physical address is static **(paragraph 51-54)**.

40. As to claim 19, Cheline teaches the system of claim 15 wherein said at least first private network and said at least second private network share at least one network address **(paragraph 51-54)**.

41. As to claim 20, Mukherjee teaches the system of claim 1 wherein the route director includes a pseudo address assignment for at least one user in the user set **(paragraph 47)**.

42. As to claim 21, Mukherjee teaches the system of claim 1 wherein the route director includes a translator for virtual address information for a virtual user in a private network realm **(paragraph 47)**.

43. As to claim 22, Mukherjee teaches the system of claim 1 wherein the virtual community manager is coupled to a public network and includes a public network address **(paragraph 47)**.

44. As to claim 23, Mukherjee teaches the system of claim 22 wherein the route director is coupled to said public network and includes a public network address **(paragraph 47)**.

45. As to claim 24, Mukherjee teaches the system of claim 22 wherein the route director is coupled to a first private network and said route director includes a private network address **(paragraph 47)**.

46. As to claim 25, Mukherjee teaches the system of claim 1 wherein communications between users in the user set are encapsulated **(paragraph 45)**.

47. As to claim 30, Mukherjee teaches the system of claim 1 wherein the manager includes at least a second virtual domain definition **(paragraph 40-41)**.

48. As to claim 31, Mukherjee teaches the system of claim 1 further including at least a first public route director and a second private route director **(paragraph 40-41)**.

49. As to claims 32-92, they feature limitations found in claims 1-31 and are rejected for the same reasons as claims 1-31.

Response to Arguments

50. Applicant's arguments with respect to claims 1-92 have been considered but are moot in view of the new ground(s) of rejection.

51. Applicant's arguments filed 3/22/2007 with respect to claim 93 and its dependents have been fully considered but they are not persuasive. The Applicant argues that Cheline does not show a virtual community definition that includes a domain name. Instead the Applicant states that Cheline resolves host names in a VPN using multiple DNS server so that the client knows whether to communicate with an internal DNS Server or an external DNS server. However, the Examiner points out that the DNS Server's are considered part of the virtual community definition. Since the DNS Server's include many domain names, the virtual community definition includes domain names. Claim 93 does nothing to specify the relationship between a domain name and the virtual community definition so this interpretation is reasonable given the broad nature of claim 93.

Conclusion

52. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

53. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

54. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas B. Blair whose telephone number is (571) 272-3893. The examiner can normally be reached on 9:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Caldwell can be reached on (571) 272-3868. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Douglas Blair
DBB

Andrew Caldwell

ANDREW CALDWELL
SUPERVISORY PATENT EXAMINER

Notice of References Cited	Application/Control No. 10/403,818	Applicant(s)/Patent Under Reexamination ALKHATIB ET AL.	
	Examiner Douglas B. Blair	Art Unit 2142	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2004/0006708	01-2004	Mukherjee et al.	713/201
*	B	US-2004/0111612	06-2004	Choi et al.	713/163
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

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Index of Claims

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Examiner	**Art Unit**
Douglas B. Blair	2142

√	Rejected	–	(Through numeral) Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

Claim		Date	
Final	Original	9/14/06	5/28/07
	1	√	√
	2	√	√
	3	√	√
	4	√	√
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	6	√	√
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	45	√	√
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	48	√	√
	49	√	√
	50	√	√

Claim		Date	
Final	Original		
	51	√	√
	52	√	√
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	97	√	√
	98	√	√
	99	√	√
	100	√	√

Claim		Date	
Final	Original		
	101	√	
	102	√	√
	103	√	√
	104	√	√
	105	√	√
	106	√	√
	107	√	√
	108	√	√
	109	√	√
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Search Notes

Application/Control No.	Applicant(s)/Patent under Reexamination
10/403,818	ALKHATIB ET AL.
Examiner	**Art Unit**
Douglas B. Blair	2142

SEARCHED			
Class	Subclass	Date	Examiner
709	245	9/14/2006	DBB
update		5/24/2007	DBB

INTERFERENCE SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES (INCLUDING SEARCH STRATEGY)		
	DATE	EXMR
east text search	9/14/2006	DBB
Inventor name search	9/14/2006	DBB
update	5/24/2007	DBB

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application		)	PATENT APPLICATION
Inventors:	Alkhatib	)	Art Unit: 2142
Application No.:	10/403,818	)	Examiner: Blair, Douglas B.
Filed:	March 31, 2003	)	Customer No. 28554
Title:	SECURE VIRTUAL COMMUNITY NETWORK SYSTEM	)	

RESPONSE B TO OFFICE ACTION UNDER 37 C.F.R. §1.116

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This is a response to the final Office Action mailed June 5, 2007.

A listing of the claims begins on page 2.

Remarks begin on page 17.

Applicants hereby petition for a two-month extension of time to extend the time for responding from September 5, 2007 to November 5, 2007. The appropriate small entity extension fee is enclosed.

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LISTING OF THE CLAIMS

A listing of the pending claims is provided below.

1. (previously presented) A virtual community network system, comprising:

a virtual network manager including a definition of at least one virtual community, the definition comprising at least a domain name and a user set, the virtual network manager provides virtual network addresses to users in the user set when the users join the virtual community, the users are identified by one another in the virtual community by their virtual network addresses, and the virtual network addresses are not directly routable; and

at least one route director capable of communicating with users in the user set, the at least one route director routes traffic between the users.

2. (previously presented) The system of claim 1 wherein each user communicates with the virtual network manager and other users in the user set via at least one associated agent.

3. (previously presented) The system of claim 2 wherein, for each user, the associated agent is installed on a processing device.

4. (previously presented) The system of claim 2 wherein, for each user, the associated agent is installed on an associated proxy device which is a proxy for the user with respect to the virtual network manager and the at least one route director.

5. (previously presented) The system of claim 2 wherein the virtual network manager detects a presence of a NAT device when an agent installed in a private network on a processing device behind the NAT device contacts the virtual network manager in an attempt to join the virtual community.

6. (previously presented) The system of claim 1 wherein the virtual network manager comprises a device coupled to a public network and having a public network address.

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7. (original) The system of claim 1 wherein the user set includes at least a first user and a second user, said first user accesses other users in the community using at least a first processing device, said second user accesses other users in the community using at least a second processing device.

8. (previously presented) The system of claim 7 wherein each said processing device is configured with the virtual network address provided to the associated user and at least one physical address.

9. (previously presented) The system of claim 8 wherein the physical addresses are dynamic.

10. (previously presented) The system of claim 8 wherein the physical addresses are static.

11. (previously presented) The system of claim 8 wherein the physical addresses are private network addresses, and the virtual network addresses are unique in the virtual community and do not conflict with the private network addresses.

12. (previously presented) The system of claim 8 wherein said first processing device is coupled to a first private network and accesses a public network via a first NAT device, the first NAT device transmits packets in which a destination address is a public address of the at least one route director, and the packets include encapsulated packets provided by the first processing device in which a source address is the virtual network address of the first processing device, a destination address is the virtual network address of the second processing device and a shim includes the physical address of the first processing device as a private network address in the first private network.

13. (previously presented) The system of claim 12 wherein the physical addresses are dynamic.

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14. (previously presented) The system of claim 12 wherein the physical addresses are static.

15. (previously presented) The system of claim 12 wherein said second processing device is coupled to a second private network and accesses the public network via a second NAT device, the shim includes the physical address of the second processing device as a private network address in the second private network.

16. (previously presented) The system of claim 15 wherein said second device includes at least one private physical address.

17. (original) The system of claim 15 wherein the physical address is dynamic.

18. (original) The system of claim 15 wherein the physical address is static.

19. (previously presented) The system of claim 15 wherein said first private network and said second private network share at least one network address.

20. (previously presented) The system of claim 1 wherein the route director provides a pseudo address assignment for at least one user in the user set when the at least one user communicates with the route director via a NAT device, the route director stores an association of the pseudo address with a public network address of the NAT device and a port number of the NAT device.

21. (original) The system of claim 1 wherein the route director includes a translator for virtual address information for a virtual user in a private network realm.

22. (original) The system of claim 1 wherein the virtual community manager is coupled to a public network and includes a public network address.

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23. (original) The system of claim 22 wherein the route director is coupled to said public network and includes a public network address.

24. (original) The system of claim 22 wherein the route director is coupled to a first private network and said route director includes a private network address.

25. (previously presented) The system of claim 1 wherein communications between users in the user set include packets having a source address which is the virtual network address of the sending user and a destination address which is the virtual network address of the receiving user, the packets are encapsulated and sent to the at least one route director in packets having a destination address which is a public network address of the at least one route director.

26. (previously presented) The system of claim 1 wherein packets communicated between users in the user set are encrypted prior to being encapsulated.

27. (original) The system of claim 26 wherein said encryption uses IPSEC.

28. (previously presented) The system of claim 26 wherein said encryption uses DES or triple DES.

29. (previously presented) The system of claim 5 wherein

the virtual network manager detects the presence of the NAT device by receiving a message from the agent when the agent contacts the virtual network manager in the attempt to join the virtual community, and comparing a field in a payload of the message with a source address in a header of the message.

30. (previously presented) The system of claim 1 wherein the virtual network manager includes at least two virtual community definitions .

31. (previously presented) The system of claim 1 further including a public route director and a private route director for routing messages among the users, the public route

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director is in a public network, and the private route director is in a private network to enable access to users inside the private network from users outside the private network.

32. (previously presented) A system, comprising:

a management device for a virtual community, the management device including a network interface coupled to a public address realm and having a public address; and

a network traffic router which uses router data to route traffic between members of the virtual community, the router data including at least one association of a logical identifier with public routing information for a member.

33. (previously presented) The system of claim 32 wherein the network traffic router includes a network interface accessible to the members by a public address in the public address realm.

34. (previously presented) The system of claim 32 wherein the management device includes a UDP port capable of receiving network traffic of the virtual community .

35. (previously presented) The system of claim 34 wherein the management device includes a TCP port capable of communicating network traffic in the virtual community to allow the members to register and join in the virtual community.

36. (previously presented) The system of claim 32 wherein a first member accesses a physical network via a processing device and the system further includes at least one agent installed on the processing device, the at least one agent communicates with the network traffic router to allow the first member to communicate with another member.

37. (original) The system of claim 36 wherein the processing device is coupled to a private physical network behind a NAT device, and the network traffic router includes a transposer for routing information in a packet destined for the agent to direct the packet to the NAT device for the agent.

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38. (previously presented) The system of claim 32 further including at least one proxy agent on a private physical network communicating with at least one of the members and the network traffic router, the proxy agent is a proxy for the at least one of members with respect to the network traffic router.

39. (previously presented) The system of claim 38 wherein the at least one of the members accesses other members using a device coupled to a private physical network.

40. (previously presented) The system of claim 32 wherein the management device includes a member register module which allows a potential member to register with the management device.

41. (previously presented) The system of claim 40 wherein the management device includes a member join module which allows a particular member to notify the management device via a join request that the particular member is available to participate in the virtual community, and to notify the management device via a leave request that the particular member is no longer available to participate in the virtual community.

42. (previously presented) The system of claim 41 wherein the join module provides virtual network addresses to the members.

43. (previously presented) The system of claim 41 wherein the management device maintains data on an association between at least one virtual network address and at least one member.

44. (previously presented) The system of claim 40 wherein the management device includes a DNS server for the virtual community, a first member in the virtual community communicates with another member in the virtual community by querying the DNS server to determine a virtual network address and a private network address for the another member, and to determine a public address of the network traffic router.

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45. (previously presented) The system of claim 32 further including a virtual community network communication agent for a device used by a member to communicate in the virtual community, the virtual community network communication agent comprising a virtual network adapter interfacing with the device and applications on the device to route traffic to members of the virtual community via associated virtual network addresses .

46. (previously presented) The system of claim 45 wherein the virtual community network communication agent includes a domain name routing plugin.

47. (previously presented) The system of claim 45 wherein the virtual community network communication agent includes a separate IP stack for each member accessing the device.

48. (previously presented) The system of claim 45 wherein the virtual network adapter is a deterministic network enhancer.

49. (previously presented) The system of claim 45 wherein the virtual network adapter includes a DNS plugin which processes DNS queries.

50. (previously presented) The system of claim 45 wherein the virtual network adapter includes an IPSEC plugin for encrypting messages.

51. (previously presented) The system of claim 45 wherein the virtual network adapter includes a domain name routing plugin.

52. (previously presented) The system of claim 45 wherein the virtual community network communication agent includes a community registration module for registering the members with the management device.

53. (previously presented) A virtual community network system, comprising:

a network manager of a virtual community;

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a route director;

at least a first virtual community agent associated with a first community member; and

at least a second virtual community agent associated with at least a second community member, the route director routes communications between the first and second community members via the first and second virtual community agents.

54. (previously presented) The system of claim 53 wherein the route director is a network route director, and includes a public network interface and public address by which the first and second virtual community agents communicate with the network route director.

55. (original) The system of claim 53 wherein the route director is a private route director, and includes a private physical network address interface and a private physical network address.

56. (previously presented) The system of claim 53 wherein the first virtual community network agent is installed on a device used by the first community member to access a network.

57. (previously presented) The system of claim 56 wherein the device is in a private physical network and has an associated private network address for communicating within the private physical network, the device also has a first virtual network address, assigned by the network manager, by which the device can be identified by the second virtual community agent from outside the private physical network.

58. (previously presented) The system of claim 56 wherein the device is coupled to a public physical network, has an associated public network address for communicating within the public physical network and has a first virtual network address, assigned by the network manager, by which the device can be identified by the second virtual community agent.

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59. (previously presented) The system of claim 53 wherein the first virtual community network agent is a proxy agent for the first community member with respect to the network manager and the route director.

60. (original) The system of claim 53 wherein the first and second members access the virtual community via devices coupled to separate private address physical realms.

61. (original) The system of claim 53 wherein the virtual community network manager includes at least a first community definition and a second community definition.

62. (previously presented) The system of claim 53 wherein the community network manager includes a member authenticator for authenticating potential members when the potential members request to register with the network manager.

63. (previously presented) The system of claim 62 wherein the network manager includes a DNS server providing authoritative responses for DNS queries in the virtual community, the first virtual community agent provides a DNS query to the DNS server to obtain the virtual network address of the second community member for use in communicating with the second community member .

64. (previously presented) A method for providing a secure virtual network, comprising:

providing a virtual network manager coupled to a public network;

defining a member set of users entitled to communicate in the virtual network;

registering members with the manager;

assigning members respective virtual addresses which are not directly routable; and

routing network traffic between the members in a virtual community.

65. (original) The method of claim 64 further including the step of providing users in said member set with a communication agent.

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66. (original) The method of claim 65 wherein said step of providing users with a communication agent includes providing a proxy agent.

67. (original) The method of claim 65 wherein said step of providing users with a communication agent includes providing an agent installed on a device used by the member to couple to a network.

68. (original) The method of claim 65 wherein the step of registering comprises authenticating members with the member set.

69. (previously presented) The method of claim 64 wherein the step of defining a member set includes the step of assigning a domain name for the virtual community.

70. (original) The method of claim 64 wherein the step of defining a member set includes defining at least two member sets having at least one different member.

71. (original) The method of claim 64 wherein the step of assigning a virtual address includes assigning an IPV4 compliant address.

72. (original) The method of claim 71 wherein the step of assigning a virtual address includes assigning a non-routable IPV4 compliant address.

73. (previously presented) The method of claim 64 wherein the step of routing network traffic includes routing traffic from a first member accessing the public network on a first device having a public address to a second member accessing the public network on a second device having a different public address, the traffic includes packets having a source address which is the virtual address of the first member and a destination address which is the virtual address of the second member, the packets are encapsulated in packets having a source address which is the public address of the first device and a destination address which is the different public address of the second device.

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74. (previously presented) The method of claim 64 wherein the step of routing network traffic includes routing traffic from a first member accessing the public network on a first device in a private physical network having a private address to a second member accessing the public network on a second device having a public address, the traffic includes packets having a source address which is the virtual address of the first member, a destination address which is the virtual address of the second member, and a shim which includes the private address, the packets are encapsulated in packets having a destination address which is the public address of the second device.

75. (previously presented) The method of claim 64 wherein the step of routing network traffic includes routing traffic from a first member accessing the public network on a device in a private physical network having a first private physical address to a second member accessing the public network on a device in a private physical network having a second private physical address, the traffic includes encapsulated packets having a source address which is the virtual network address of the first member, a destination address which is the virtual network address of the second member, and a shim which includes the first and second private physical addresses.

76. (original) The method of claim 75 wherein the first private physical address and the second private physical address are identical.

77. (original) The method of claim 64 further including the step of responding to DNS requests for members in the virtual network.

78. (previously presented) The method of claim 64 further including the step of responding to joined status requests for registered members in the virtual network, a first registered member provides a joined status request as a query to the virtual network manager regarding a status of a second registered member, the status indicating whether or not the second registered member is joined to the virtual community and therefore available to participate in the virtual community.

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79. (original) The method of claim 64 further including applying a group policy to members of the virtual community.

80. (previously presented) One or more processor readable storage devices having processor readable code embodied thereon , said processor readable code for programming one or more processors to perform a method comprising the steps of:

managing a virtual community network realm;

defining a member set of users entitled to communicate in the virtual community;

registering users with the virtual community to allow the users to communicate with one another;

assigning each user a virtual address; and

routing network traffic between the users in the virtual community.

81. (original) One or more processor readable storage devices as defined in claim 80 further including code for programming one or more processors to perform a step of providing users in said member set with a communication agent.

82. (original) One or more processor readable storage devices as defined in claim 81 wherein said step of providing users with a communication agent includes providing a proxy agent.

83 (original) One or more processor readable storage devices as defined in claim 80 wherein the step of defining a member set includes the step of assigning a domain name for the community.

84. (previously presented) One or more processor readable storage devices as defined in claim 80 wherein the virtual address includes a non-routable IPV4 compliant address.

85. (previously presented) One or more processor readable storage devices as defined in claim 80 wherein the step of routing network traffic includes routing traffic from a first

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member accessing the public address realm on a first device having a public address to a second member accessing the public address realm on a second device having a different public address.

86. (previously presented) One or more processor readable storage devices as defined in claim 80 wherein the step of routing network traffic includes routing traffic from a first member accessing the public address realm on a first device in a private physical network having a private address to a second member accessing the public address realm on a second device having a public address.

87. (previously presented) One or more processor readable storage devices as defined in claim 80 wherein the step of routing network traffic includes routing traffic from a first member accessing the public address realm on a device in a private physical network having a first private physical address to a second member accessing the public address realm on a device in a private physical network having a second private physical address.

88. (original) One or more processor readable storage devices as defined in claim 87 wherein the step of routing network traffic includes routing traffic to the first or second member via a NAT device.

89. (original) One or more processor readable storage devices as defined in claim 87 wherein the first private physical address and the second private physical address are identical.

90. (original) One or more processor readable storage devices as defined in claim 80 wherein the step of routing includes routing encapsulated traffic.

91. (original) One or more processor readable storage devices as defined in claim 80 wherein the step of routing includes routing encrypted traffic.

92. (original) One or more processor readable storage devices as defined in claim 80 further including applying a group policy to members of the virtual community.

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93. (previously presented) A virtual community network system, comprising:

a virtual network manager having a network interface coupled to a network, the manager including at least one virtual community definition comprising at least a domain name and a user set, the network being accessible by users in the user set and users outside the user set, the manager exchanging virtual community network information with users in the user set.

94. (original) The system of claim 93 wherein the virtual network manager includes a member register module.

95. (original) The system of claim 93 wherein the virtual network manager includes a member join module.

96. (original) The system of claim 95 wherein the join module provides a virtual address to a registered member.

97. (original) The system of claim 93 wherein the virtual network manager maintains data on an association between at least one virtual address with at least one member.

98. (original) The system of claim 93 wherein the virtual network manager includes a DNS server for the virtual community.

99. (original) The system of claim 93 wherein the virtual network manager includes a NAT device detector for users connecting with the virtual network manager using a processing device behind a NAT device.

100. (previously presented) The system of claim 93 wherein the virtual network manager includes at least a second virtual community definition.

101. (cancelled)

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102. (original) The system of claim 93 wherein the virtual network manager includes a member authenticator.

103. (previously presented) The system of claim 93 wherein the virtual network manager includes a DNS server providing authoritative responses for DNS queries form users in the virtual community.

104. (previously presented) The system of claim 93 further comprising at least one route director capable of communicating with users in the user set.

105. (original) The system of claim 93 wherein each user communicates with the virtual network manager and other users in the user set via at least one agent.

106. (previously presented) The system of claim 93 wherein the user set includes at least a first user and a second user, said first user accesses other users in the virtual community using at least a first processing device, said second user accesses other users in the virtual community using at least a second processing device, wherein at least one of said first device and said second device is coupled to a first private network and accesses a public network via a NAT device.

107. (original) The system of claim 106 wherein said first device is coupled to said first private network, and said second device is coupled to a second private network and accesses the public network via a second NAT device.

108. (original) The system of claim 93 wherein communications between users in the user set are encrypted.

109. (original) The system of claim 108 wherein the virtual network manager provides a shared secret to users in the user set to establish encrypted communications.

REMARKS

This is a response to the final Office Action mailed June 5, 2007.

No claims are amended in this response.

Claims 93-100 and 102-109 have been rejected under 35 U.S.C. §102(e) as being anticipated by U.S. pub. 2003/0041136 to Cheline et al.

Claims 1-92 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Cheline et al. in view of U.S. pub. 2004/0006708 to Mukherjee et al.

Applicants respectfully traverse on the grounds that the claims have not been properly examined. In particular, it is noted that the Office Action does not address the amended claims in Applicants' amendment filed on March 22, 2007, at least in regard to claims 5, 8, 11, 12, 15, 20, 25, 30 and any claims in claims 32-92 which feature similar limitations. The Office Action instead addresses the corresponding claims *as filed*. Further, the Office Action does not address claims 26-29 at all.

For example, regarding claim 5, paragraph 26 of the Office Action states: "As to claim 5, Cheline teaches the system of claim 2 wherein the virtual network manager includes a NAT device detector for agents installed on a processing device behind a NAT device..." However, claim 5 as pending states: "The system of claim 1 wherein communications between users in the user set include packets having a source address which is the virtual network address of the sending user and a destination address which is the virtual network address of the receiving user, the packets are encapsulated and sent to the at least one route director in packets having a destination address which is a public network address of the at least one route director." Clearly, the Office Action does not address the pending claims.

As stated in MPEP 2142 (Legal Concept of *Prima Facie* Obviousness), "The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness." See also MPEP 706.02(j) (Contents of a 35 U.S.C. 103 Rejection).

In view of this oversight, Applicants do not believe it is appropriate or necessary for them to comment on the substance of the current rejections.

The Office is requested to examine the application based on the amended claims filed on March 22, 2007.

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Conclusion

Each of the pending claims is believed to be in condition for immediate allowance. The Examiner is therefore requested to pass this application on to an early issue. Should further questions remain, the Examiner is invited to contact the undersigned attorney by telephone.

The Examiner's prompt attention to this matter is greatly appreciated. Should further questions remain, the Examiner is invited to contact the undersigned attorney by telephone.

The Commissioner is authorized to charge any underpayment or credit any overpayment to Deposit Account No. 501826 for any matter in connection with this response, including any fee for extension of time, which may be required.

Respectfully submitted,

Date: Nov. 5, 2007

By: /Ralph F. Hoppin/
Ralph F. Hoppin
Reg. No. 38,494

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Electronic Patent Application Fee Transmittal

Application Number:	10403818
Filing Date:	31-Mar-2003
Title of Invention:	Secure virtual community network system
First Named Inventor/Applicant Name:	Hasan S. Alkhatib
Filer:	Ralph Hoppin
Attorney Docket Number:	TTCC-01021US0
Filed as Small Entity	

Utility Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 2 months with $0 paid	2252	1	230	230

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
			Total in USD ($)	**230**

Electronic Acknowledgement Receipt	
EFS ID:	2427030
Application Number:	10403818
International Application Number:	
Confirmation Number:	2698
Title of Invention:	Secure virtual community network system
First Named Inventor/Applicant Name:	Hasan S. Alkhatib
Customer Number:	28554
Filer:	Ralph Hoppin
Filer Authorized By:	
Attorney Docket Number:	TTCC-01021US0
Receipt Date:	05-NOV-2007
Filing Date:	31-MAR-2003
Time Stamp:	18:09:48
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment was successfully received in RAM	$230
RAM confirmation Number	2766
Deposit Account	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)

1		1021-response-002.pdf	108899 ade186ed6b23e2962cfa0ddcb5aa3d9dcb922138	yes	18

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment After Final	1	1
	Claims	2	16
	Applicant Arguments/Remarks Made in an Amendment	17	18

Warnings:					
Information:					
2	Fee Worksheet (PTO-06)	fee-info.pdf	8133 d6763226158c84e3b705523e06d52716aa974670	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	117032		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 10/403,818	Filing Date 03/31/2003	☐ To be Mailed

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☒		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	11/05/2007	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 108	Minus	** 109	= 0	X $25 =	0	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 8	Minus	***6	= 2	X $105 =	210	OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE	210	OR	TOTAL ADD'L FEE	

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
lamont mclauhlin

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/403,818	03/31/2003	Hasan S. Alkhatib	TTCC-01021US0	2698

28554 7590 11/19/2007
VIERRA MAGEN MARCUS & DENIRO LLP
575 MARKET STREET SUITE 2500
SAN FRANCISCO, CA 94105

EXAMINER	
BLAIR, DOUGLAS B	

ART UNIT	PAPER NUMBER
2142	

MAIL DATE	DELIVERY MODE
11/19/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

AA/SWA Ex. 1002, p.240 of 833
American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

Advisory Action Before the Filing of an Appeal Brief	Application No. 10/403,818	Applicant(s) ALKHATIB ET AL.	
	Examiner Douglas B. Blair	Art Unit 2142	

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 05 November 2007 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

1. ☒ The reply was filed after a final rejection, but prior to or on the same day as filing a Notice of Appeal. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114. The reply must be filed within one of the following time periods:
   a) ☒ The period for reply expires 3 months from the mailing date of the final rejection.
   b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.

   Examiner Note: If box 1 is checked, check either box (a) or (b). ONLY CHECK BOX (b) WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. ☐ The proposed amendment(s) filed after a final rejection, but prior to the date of filing a brief, will not be entered because
   (a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);
   (b) ☐ They raise the issue of new matter (see NOTE below);
   (c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
   (d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

   NOTE: _____. (See 37 CFR 1.116 and 41.33(a)).
4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicant's reply has overcome the following rejection(s): _____.
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☒ For purposes of appeal, the proposed amendment(s): a) ☐ will not be entered, or b) ☒ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.
   The status of the claim(s) is (or will be) as follows:
   Claim(s) allowed: _____.
   Claim(s) objected to: _____.
   Claim(s) rejected: *1-100 and 102-109*.
   Claim(s) withdrawn from consideration: _____.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ The affidavit or other evidence filed after a final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
9. ☐ The affidavit or other evidence filed after the date of filing a Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing a good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
10. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

11. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: See Continuation Sheet.
12. ☐ Note the attached Information Disclosure Statement(s). (PTO/SB/08) Paper No(s). _____
13. ☐ Other: _____.

Andrew Caldwell

ANDREW CALDWELL
SUPERVISORY PATENT EXAMINER

AA/SWA Ex. 1002, p.241 of 833
American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

Continuation of 11. does NOT place the application in condition for allowance because: The applicant's response cannot place the application in condition for allowance because it does not address the patentability of any of the independent claims.

AA/SWA Ex. 1002, p.242 of 833
American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application		)	PATENT APPLICATION
Inventors:	Alkhatib	)	
Application No.:	10/403,818	)	Art Unit: 2142
Filed:	March 31, 2003	)	Examiner: Blair, Douglas B.
Title:	SECURE VIRTUAL COMMUNITY NETWORK SYSTEM	)	Customer No. 28554

Please Enter - DBB

RESPONSE B TO OFFICE ACTION UNDER 37 C.F.R. §1.116

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This is a response to the final Office Action mailed June 5, 2007.

A listing of the claims begins on page 2.

Remarks begin on page 17.

Applicants hereby petition for a two-month extension of time to extend the time for responding from September 5, 2007 to November 5, 2007. The appropriate small entity extension fee is enclosed.

Attorney Docket No.: TTCC-01021US0
ttcc/1021/1021.response-002

AA/SWA Ex. 1002, p.243 of 833
American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

PTO/SB/30EFS (05/07)
Approved for use through 09/30/2007. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	10403818	Filing Date	2003-03-31	Docket Number (if applicable)	TTCC-01021US0	Art Unit	2142
First Named Inventor	Alkhatib			Examiner Name	Blair, Douglas B.		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

- ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
- ☐ Other _____

☒ Enclosed

- ☒ Amendment/Reply
- ☐ Information Disclosure Statement (IDS)
- ☐ Affidavit(s)/ Declaration(s)
- ☐ Other _____

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____
(Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

☒ **The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.**
The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 501826

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

☐ Applicant Signature

AA/SWA Ex. 1002, p.244 of 833
American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

Signature of Registered U.S. Patent Practitioner			
Signature	/Ralph F. Hoppin/	Date (YYYY-MM-DD)	2007-12-04
Name	Ralph F. Hoppin	Registration Number	38494

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

AA/SWA Ex. 1002, p.246 of 833
American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application		)	PATENT APPLICATION
Inventors:	Alkhatib	)	
Application No.:	10/403,818	)	Art Unit: 2142
Filed:	March 31, 2003	)	Examiner: Blair, Douglas B.
Title:	SECURE VIRTUAL COMMUNITY NETWORK SYSTEM	)	Customer No. 28554

RESPONSE C TO OFFICE ACTION WITH RCE UNDER 37 C.F.R. §1.114

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This is a response to the final Office Action mailed June 5, 2007, and supplements the response filed on November 5, 2007.

A listing of the claims begins on page 2.

Remarks begin on page 18.

Applicants hereby petition for a three-month extension of time to extend the time for responding from September 5, 2007 to December 5, 2007. Applicants previously paid the fee for a two-month extension of time. Accordingly, an amount which is the difference between the two- and three-month small entity extension fees is now being paid.

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American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

LISTING OF THE CLAIMS

A listing of the pending claims is provided below.

1. (currently amended) A virtual community network system, comprising:

a virtual network manager including a definition of at least one virtual community, the definition comprising at least a domain name and a user set, the virtual network manager provides virtual network addresses to users in the user set when the users join the virtual community, the users are identified by one another in the virtual community by their virtual network addresses, and the virtual network addresses are not directly routable; and

at least one route director capable of communicating with users in the user set, the at least one route director routes traffic between the users, wherein communications between users include encapsulated packets having a source address which is the virtual network address of a first, sending user and a destination address which is the virtual network address of a second, receiving user, and the encapsulated packets are sent to the at least one route director in encapsulating packets having a destination address which is a public network address of the at least one route director.

2. (previously presented) The system of claim 1 wherein each user communicates with the virtual network manager and other users in the user set via at least one associated agent.

3. (previously presented) The system of claim 2 wherein, for each user, the associated agent is installed on a processing device.

4. (previously presented) The system of claim 2 wherein, for each user, the associated agent is installed on an associated proxy device which is a proxy for the user with respect to the virtual network manager and the at least one route director.

5. (previously presented) The system of claim 2 wherein the virtual network manager detects a presence of a NAT device when an agent installed in a private network on a

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processing device behind the NAT device contacts the virtual network manager in an attempt to join the virtual community.

6. (previously presented) The system of claim 1 wherein the virtual network manager comprises a device coupled to a public network and having a public network address.

7. (currently amended) The system of claim 1 wherein ~~the user set includes at least a first user and a second user,~~ said first, sending user accesses other users in the community using at least a first processing device, and said second, receiving user accesses other users in the community using at least a second processing device.

8. (previously presented) The system of claim 7 wherein each said processing device is configured with the virtual network address provided to the associated user and at least one physical address.

9. (previously presented) The system of claim 8 wherein the physical addresses are dynamic.

10. (previously presented) The system of claim 8 wherein the physical addresses are static.

11. (previously presented) The system of claim 8 wherein the physical addresses are private network addresses, and the virtual network addresses are unique in the virtual community and do not conflict with the private network addresses.

12. (currently amended) The system of claim 8 wherein said first processing device is coupled to a first private network and accesses a public network via a first NAT device, the first NAT device transmits the encapsulating packets, and the encapsulating packets ~~in which a destination address is a public address of the at least one route director, and the packets include encapsulated packets provided by the first processing device in which a source address is the virtual network address of the first processing device, a destination address is the virtual network~~

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American Airlines, et. al. v. Intellectual Ventures, et.al.
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~~address of the second processing device and~~ include a shim which includes the physical address of the first processing device as a private network address in the first private network.

13. (previously presented) The system of claim 12 wherein the physical addresses are dynamic.

14. (previously presented) The system of claim 12 wherein the physical addresses are static.

15. (previously presented) The system of claim 12 wherein said second processing device is coupled to a second private network and accesses the public network via a second NAT device, the shim includes the physical address of the second processing device as a private network address in the second private network.

16. (previously presented) The system of claim 15 wherein said second device includes at least one private physical address.

17. (original) The system of claim 15 wherein the physical address is dynamic.

18. (original) The system of claim 15 wherein the physical address is static.

19. (previously presented) The system of claim 15 wherein said first private network and said second private network share at least one network address.

20. (currently amended) The system of claim 1 wherein the route director provides a user-specific pseudo address assignment for at least one user in the user set when the at least one user communicates with the route director via a NAT device, the route director stores an association of the user-specific pseudo address with a public network address of the NAT device and a port number of the NAT device.

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American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

21. (original) The system of claim 1 wherein the route director includes a translator for virtual address information for a virtual user in a private network realm.

22. (original) The system of claim 1 wherein the virtual community manager is coupled to a public network and includes a public network address.

23. (original) The system of claim 22 wherein the route director is coupled to said public network and includes a public network address.

24. (currently amended) The system of claim 22 wherein the route director is coupled to a first private network and ~~said route director~~ includes a private network address.

25. (cancelled)

26. (previously presented) The system of claim 1 wherein packets communicated between users in the user set are encrypted prior to being encapsulated.

27. (original) The system of claim 26 wherein said encryption uses IPSEC.

28. (previously presented) The system of claim 26 wherein said encryption uses DES or triple DES.

29. (previously presented) The system of claim 5 wherein

the virtual network manager detects the presence of the NAT device by receiving a message from the agent when the agent contacts the virtual network manager in the attempt to join the virtual community, and comparing a field in a payload of the message with a source address in a header of the message.

30. (previously presented) The system of claim 1 wherein the virtual network manager includes at least two virtual community definitions.

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American Airlines, et. al. v. Intellectual Ventures, et.al.
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31. (previously presented) The system of claim 1 further including a public route director and a private route director for routing messages among the users, the public route director is in a public network, and the private route director is in a private network to enable access to users inside the private network from users outside the private network.

32. (previously presented) A system, comprising:

a management device for a virtual community, the management device including a network interface coupled to a public address realm and having a public address; and

a network traffic router which uses router data to route traffic between members of the virtual community, the router data including at least one association of a logical identifier with public routing information for a member.

33. (previously presented) The system of claim 32 wherein the network traffic router includes a network interface accessible to the members by a public address in the public address realm.

34. (previously presented) The system of claim 32 wherein the management device includes a UDP port capable of receiving network traffic of the virtual community.

35. (previously presented) The system of claim 34 wherein the management device includes a TCP port capable of communicating network traffic in the virtual community to allow the members to register and join in the virtual community.

36. (previously presented) The system of claim 32 wherein a first member accesses a physical network via a processing device and the system further includes at least one agent installed on the processing device, the at least one agent communicates with the network traffic router to allow the first member to communicate with another member.

37. (original) The system of claim 36 wherein the processing device is coupled to a private physical network behind a NAT device, and the network traffic router includes a

transposer for routing information in a packet destined for the agent to direct the packet to the NAT device for the agent.

38. (previously presented) The system of claim 32 further including at least one proxy agent on a private physical network communicating with at least one of the members and the network traffic router, the proxy agent is a proxy for the at least one of members with respect to the network traffic router.

39. (previously presented) The system of claim 38 wherein the at least one of the members accesses other members using a device coupled to a private physical network.

40. (previously presented) The system of claim 32 wherein the management device includes a member register module which allows a potential member to register with the management device.

41. (previously presented) The system of claim 40 wherein the management device includes a member join module which allows a particular member to notify the management device via a join request that the particular member is available to participate in the virtual community, and to notify the management device via a leave request that the particular member is no longer available to participate in the virtual community.

42. (previously presented) The system of claim 41 wherein the join module provides virtual network addresses to the members.

43. (previously presented) The system of claim 41 wherein the management device maintains data on an association between at least one virtual network address and at least one member.

44. (currently amended) The system of claim 32, ~~40~~ wherein each member receives a respective virtual network address when registering with the management device to join the virtual community, the management device includes a DNS server for the virtual community, a

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first member in the virtual community communicates with another member in the virtual community by querying the DNS server to determine ~~a virtual network address and~~ a private network and the respective virtual network address for the another member, and to determine a public address of the network traffic router, and the first member communicates with the another member using an encapsulated packet having a source address which is the respective virtual network address of the first member and a destination address which is the respective virtual network address of the another member, by sending the encapsulated packet to the network traffic router in an encapsulating packet having a destination address which is the public address of the network traffic router, the private network address for the another member is included in the encapsulating packet and is used by the network traffic router to route the encapsulated packet to the another member.

45. (previously presented) The system of claim 32 further including a virtual community network communication agent for a device used by a member to communicate in the virtual community, the virtual community network communication agent comprising a virtual network adapter interfacing with the device and applications on the device to route traffic to members of the virtual community via associated virtual network addresses.

46. (previously presented) The system of claim 45 wherein the virtual community network communication agent includes a domain name routing plugin.

47. (previously presented) The system of claim 45 wherein the virtual community network communication agent includes a separate IP stack for each member accessing the device.

48. (previously presented) The system of claim 45 wherein the virtual network adapter is a deterministic network enhancer.

49. (previously presented) The system of claim 45 wherein the virtual network adapter includes a DNS plugin which processes DNS queries.

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50. (previously presented) The system of claim 45 wherein the virtual network adapter includes an IPSEC plugin for encrypting messages.

51. (previously presented) The system of claim 45 wherein the virtual network adapter includes a domain name routing plugin.

52. (previously presented) The system of claim 45 wherein the virtual community network communication agent includes a community registration module for registering the members with the management device.

53. (previously presented) A virtual community network system, comprising:

a network manager of a virtual community;

a route director;

at least a first virtual community agent associated with a first community member; and

at least a second virtual community agent associated with at least a second community member, the route director routes communications between the first and second community members via the first and second virtual community agents.

54. (previously presented) The system of claim 53 wherein the route director is a network route director, and includes a public network interface and public address by which the first and second virtual community agents communicate with the network route director.

55. (original) The system of claim 53 wherein the route director is a private route director, and includes a private physical network address interface and a private physical network address.

56. (previously presented) The system of claim 53 wherein the first virtual community network agent is installed on a device used by the first community member to access a network.

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57. (currently amended) The system of claim 56 wherein the device is in a private physical network, ~~and~~ has an associated private network address for communicating within the private physical network, and ~~the device also~~ has a first virtual network address, assigned by the network manager, by which the device can be identified by the second virtual community agent from outside the private physical network, the first virtual network address is not directly routable.

58. (previously presented) The system of claim 56 wherein the device is coupled to a public physical network, has an associated public network address for communicating within the public physical network and has a first virtual network address, assigned by the network manager, by which the device can be identified by the second virtual community agent.

59. (previously presented) The system of claim 53 wherein the first virtual community network agent is a proxy agent for the first community member with respect to the network manager and the route director.

60. (original) The system of claim 53 wherein the first and second members access the virtual community via devices coupled to separate private address physical realms.

61. (original) The system of claim 53 wherein the virtual community network manager includes at least a first community definition and a second community definition.

62. (previously presented) The system of claim 53 wherein the community network manager includes a member authenticator for authenticating potential members when the potential members request to register with the network manager.

63. (previously presented) The system of claim 62 wherein the network manager includes a DNS server providing authoritative responses for DNS queries in the virtual community, the first virtual community agent provides a DNS query to the DNS server to obtain the virtual network address of the second community member for use in communicating with the second community member.

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64. (currently amended) A method for providing a secure virtual network, comprising:

providing a virtual network manager coupled to a public network;

defining a member set of users entitled to communicate in the virtual network using associated processing devices which each have at least one physical address which is a private network address;

registering members with the manager;

assigning members respective virtual addresses which are not directly routable, the virtual addresses are unique among the members and do not conflict with the private network addresses;

configuring each of said processing devices with the virtual address assigned to the associated member; and

routing network traffic between the members in a virtual community.

65. (original) The method of claim 64 further including the step of providing users in said member set with a communication agent.

66. (original) The method of claim 65 wherein said step of providing users with a communication agent includes providing a proxy agent.

67. (original) The method of claim 65 wherein said step of providing users with a communication agent includes providing an agent installed on a device used by the member to couple to a network.

68. (original) The method of claim 65 wherein the step of registering comprises authenticating members with the member set.

69. (previously presented) The method of claim 64 wherein the step of defining a member set includes the step of assigning a domain name for the virtual community.

70. (original) The method of claim 64 wherein the step of defining a member set includes defining at least two member sets having at least one different member.

71. (original) The method of claim 64 wherein the step of assigning a virtual address includes assigning an IPV4 compliant address.

72. (original) The method of claim 71 wherein the step of assigning a virtual address includes assigning a non-routable IPV4 compliant address.

73. (previously presented) The method of claim 64 wherein the step of routing network traffic includes routing traffic from a first member accessing the public network on a first device having a public address to a second member accessing the public network on a second device having a different public address, the traffic includes packets having a source address which is the virtual address of the first member and a destination address which is the virtual address of the second member, the packets are encapsulated in packets having a source address which is the public address of the first device and a destination address which is the different public address of the second device.

74. (previously presented) The method of claim 64 wherein the step of routing network traffic includes routing traffic from a first member accessing the public network on a first device in a private physical network having a private address to a second member accessing the public network on a second device having a public address, the traffic includes packets having a source address which is the virtual address of the first member, a destination address which is the virtual address of the second member, and a shim which includes the private address, the packets are encapsulated in packets having a destination address which is the public address of the second device.

75. (currently amended) The method of claim 64 wherein the step of routing network traffic includes routing traffic from a first member accessing the public network on a device in a private physical network having a first private physical address to a second member accessing the public network on a device in a private physical network having a second private physical

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address, the traffic includes encapsulated packets having a source address which is the virtual network address of the first member, and a destination address which is the virtual network address of the second member, and the traffic also includes a shim which includes the first and second private physical addresses.

76. (original) The method of claim 75 wherein the first private physical address and the second private physical address are identical.

77. (original) The method of claim 64 further including the step of responding to DNS requests for members in the virtual network.

78. (previously presented) The method of claim 64 further including the step of responding to joined status requests for registered members in the virtual network, a first registered member provides a joined status request as a query to the virtual network manager regarding a status of a second registered member, the status indicating whether or not the second registered member is joined to the virtual community and therefore available to participate in the virtual community.

79. (original) The method of claim 64 further including applying a group policy to members of the virtual community.

80. (currently amended) One or more processor readable storage devices having processor readable code embodied thereon , said processor readable code for programming one or more processors to perform a method comprising the steps of:

managing a virtual community network realm;

defining a member set of users entitled to communicate in the virtual community using associated processing devices which each have at least one physical address which is a private network address;

registering users with the virtual community to allow the users to communicate with one another via the associated processing devices;

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assigning each user a virtual address which is not directly routable, the virtual addresses are unique among the users and do not conflict with the private network addresses;

configuring each of said processing devices with the virtual address assigned to the associated user; and

routing network traffic between the users in the virtual community.

81. (original) One or more processor readable storage devices as defined in claim 80 further including code for programming one or more processors to perform a step of providing users in said member set with a communication agent.

82. (original) One or more processor readable storage devices as defined in claim 81 wherein said step of providing users with a communication agent includes providing a proxy agent.

83 (original) One or more processor readable storage devices as defined in claim 80 wherein the step of defining a member set includes the step of assigning a domain name for the community.

84. (previously presented) One or more processor readable storage devices as defined in claim 80 wherein the virtual address includes a non-routable IPV4 compliant address.

85. (previously presented) One or more processor readable storage devices as defined in claim 80 wherein the step of routing network traffic includes routing traffic from a first member accessing the public address realm on a first device having a public address to a second member accessing the public address realm on a second device having a different public address.

86. (previously presented) One or more processor readable storage devices as defined in claim 80 wherein the step of routing network traffic includes routing traffic from a first member accessing the public address realm on a first device in a private physical network having a private address to a second member accessing the public address realm on a second device having a public address.

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87. (previously presented) One or more processor readable storage devices as defined in claim 80 wherein the step of routing network traffic includes routing traffic from a first member accessing the public address realm on a device in a private physical network having a first private physical address to a second member accessing the public address realm on a device in a private physical network having a second private physical address.

88. (original) One or more processor readable storage devices as defined in claim 87 wherein the step of routing network traffic includes routing traffic to the first or second member via a NAT device.

89. (original) One or more processor readable storage devices as defined in claim 87 wherein the first private physical address and the second private physical address are identical.

90. (original) One or more processor readable storage devices as defined in claim 80 wherein the step of routing includes routing encapsulated traffic.

91. (original) One or more processor readable storage devices as defined in claim 80 wherein the step of routing includes routing encrypted traffic.

92. (original) One or more processor readable storage devices as defined in claim 80 further including applying a group policy to members of the virtual community.

93. (previously presented) A virtual community network system, comprising:

a virtual network manager having a network interface coupled to a network, the manager including at least one virtual community definition comprising at least a domain name and a user set, the network being accessible by users in the user set and users outside the user set, the manager exchanging virtual community network information with users in the user set.

94. (original) The system of claim 93 wherein the virtual network manager includes a member register module.

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95. (original) The system of claim 93 wherein the virtual network manager includes a member join module.

96. (original) The system of claim 95 wherein the join module provides a virtual address to a registered member.

97. (original) The system of claim 93 wherein the virtual network manager maintains data on an association between at least one virtual address with at least one member.

98. (original) The system of claim 93 wherein the virtual network manager includes a DNS server for the virtual community.

99. (original) The system of claim 93 wherein the virtual network manager includes a NAT device detector for users connecting with the virtual network manager using a processing device behind a NAT device.

100. (previously presented) The system of claim 93 wherein the virtual network manager includes at least a second virtual community definition.

101. (cancelled)

102. (original) The system of claim 93 wherein the virtual network manager includes a member authenticator.

103. (currently amended) The system of claim 93 wherein the virtual network manager includes a DNS server providing authoritative responses for DNS queries ~~form~~ from users in the virtual community.

104. (previously presented) The system of claim 93 further comprising at least one route director capable of communicating with users in the user set.

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105. (original) The system of claim 93 wherein each user communicates with the virtual network manager and other users in the user set via at least one agent.

106. (previously presented) The system of claim 93 wherein the user set includes at least a first user and a second user, said first user accesses other users in the virtual community using at least a first processing device, said second user accesses other users in the virtual community using at least a second processing device, wherein at least one of said first device and said second device is coupled to a first private network and accesses a public network via a NAT device.

107. (original) The system of claim 106 wherein said first device is coupled to said first private network, and said second device is coupled to a second private network and accesses the public network via a second NAT device.

108. (original) The system of claim 93 wherein communications between users in the user set are encrypted.

109. (original) The system of claim 108 wherein the virtual network manager provides a shared secret to users in the user set to establish encrypted communications.

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REMARKS

This is a response to the final Office Action mailed June 5, 2007, and supplements the response filed on November 5, 2007.

Claims 1, 7, 12, 20, 24, 44, 57, 64, 75 are 80 are amended. Claim 25 is cancelled. No new matter is presented. Example support for the claims is as follows: claim 1 (former claim 12), claim 7 (amended for consistency with claim 1), claim 12 (amended for consistency with claim 1), claim 20 (step 2135, Fig. 21), claim 24 (amended for conciseness), claim 44 (p.24, line 3 to p.2, line 3; Figs. 6a and 6b), claim 57 (claim 1), claim 64 (claim 11), claim 75 (p.25, line 25 to p.26, line 3) and claim 80 (claim 1).

In Applicants' response of November 5, 2007, it was pointed out that: 1) the Office Action did not address all of the amended claims in Applicants' amendment filed on March 22, 2007, at least in regard to claims 5, 8, 11, 12, 15, 20, 25, 30 and any claims in claims 32-92 which feature similar limitations, 2) the Office Action instead addressed the corresponding claims as filed, and 3) the Office Action did not address claims 26-29 at all. The Examiner is requested to carefully consider the language of each pending claim.

Claims 93-100 and 102-109 have been rejected under 35 U.S.C. §102(e) as being anticipated by U.S. pub. 2003/0041136 to Cheline et al.

Claims 1-92 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Cheline et al. in view of U.S. pub. 2004/0006708 to Mukherjee et al.

Cheline is concerned with automatically configuring a virtual private network (VPN). A VPN provides a secure tunnel between a server side system 130 and a client side system 108 (Fig. 1). In this approach, a service provider system 146 provides instructions to configure and control a modem 106 at the client side system 108 and a VPN concentrator 136 at the server side system 130 to provide a VPN tunnel between the modem and the VPN concentrator (par. 31, 33 and 42). The modem can also provide network address translation (NAT) (par. 47). This approach allows a number of client computers in a LAN 104 on the client side system 108 to communicate with the server side system 130 via the VPN tunnel.

Mukherjee provides a peer-to-peer virtual private network in which a virtual private host (VPH) is provided for each user device, and each VPH communicates with each user device via a respective tunnel to provide secure communications between user devices. Mukherjee is cited as teaching the use of virtual network addresses to identify users in a virtual community.

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However, Applicants' invention differs from the cited references. For example, claim 1 sets forth a virtual community network system which includes a virtual network manager including at least one virtual community definition comprising at least a domain name and a user set. Cheline resolves host names in a VPN using multiple DNS servers so that a client knows whether to communicate with an internal DNS Server, which contains private IP addresses, or an external DNS Server, which contains public IP addresses (par. 87 and 88). However, this is not the same as providing a virtual community definition, that is, a definition of a virtual community, which includes a domain name. The fact that Cheline resolves a host name is different than using a domain name as part of a definition of a virtual community.

Further, claim 1 sets forth that a virtual network manager provides virtual network addresses to users in the user set when the users join the virtual community, the users are identified by one another in the virtual community by their virtual network addresses and the virtual network addresses are not directly routable. Mukherjee provides subnet addresses for a group and host addresses for end user devices (par. 46).

However, neither Cheline nor Mukherjee, taken alone or in combination, suggests or discloses that communications between users include encapsulated packets having a source address which is the virtual network address of a first, sending user and a destination address which is the virtual network address of a second, receiving user. Moreover, the encapsulated packets are sent to at least one route director in encapsulating packets having a destination address which is a public network address of the at least one route director. For example, the host addresses for end user devices in Mukherjee are not used in this way.

In view of the above, claim 1 and its dependent claims are clearly patentable over the cited references.

Further, the dependent claims of claim 1 provide further patentable features. For example, claim 5 sets forth that a virtual network manager detects a presence of a NAT device when an agent installed in a private network on a processing device behind the NAT device contacts the virtual network manager in an attempt to join the virtual community. Even if, arguendo, the modem 106 of Cheline is a NAT device and the VPN provider can receive communications from the NAT device, the VPN provider does not know, and does not detect, if the communication is from behind the NAT device. Moreover, Applicants note that the

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comments in the Office Action indicate that the currently pending claim was not examined. The Examiner is requested to carefully consider the language of the claim as pending.

Further, claim 12 sets forth that the first processing device is coupled to a first private network and accesses a public network via a first NAT device, the first NAT device transmits the encapsulating packets, and the encapsulating packets include a shim which includes the physical address of the first processing device as a private network address in the first private network. Neither Cheline nor Mukherjee discloses or suggests the transmission of such packets.

Claim 15, which depends on claim 12, sets forth that the second processing device is coupled to a second private network and accesses a public network via a second NAT device. In this case, the shim also includes the physical address of the second processing devices as a private network address in the second private network. Cheline is not concerned with processing devices in different private networks communicating in this manner. Instead, Cheline is concerned with clients 102 on a common LAN at client side system 108 communicating with a server side system 130 via a VPN. The clients 102 on the LAN do not communicate with clients on another private network. Moreover, Applicants note that the comments in the Office Action indicate that the currently pending claim was not examined. The Examiner is requested to carefully consider the language of the claim as pending.

Claim 20 sets forth that the route director provides a user-specific pseudo address assignment for at least one user in the user set when the at least one user communicates with the route director via a NAT device, and the route director stores an association of the user-specific pseudo address with a public network address of the NAT device and a port number of the NAT device. Regarding Mukherjee assigning a network access identifier (NAI) to a user group (par. 47), this is not a user-specific pseudo address as claimed. Further, there is no disclosure or suggestion of storing an association of the user-specific pseudo address with a public network address of a NAT device and a port number of the NAT device. Moreover, Applicants note that the comments in the Office Action indicate that the currently pending claim was not examined. The Examiner is requested to carefully consider the language of the claim as pending.

The remaining claims are similarly patentable based on the above comments.

Conclusion

In view of the above, each of the pending claims is believed to be in condition for immediate allowance. The Examiner is therefore requested to pass this application on to an early

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issue. Should further questions remain, the Examiner is invited to contact the undersigned attorney by telephone.

The Examiner's prompt attention to this matter is greatly appreciated. Should further questions remain, the Examiner is invited to contact the undersigned attorney by telephone.

The Commissioner is authorized to charge any underpayment or credit any overpayment to Deposit Account No. 501826 for any matter in connection with this response, including any fee for extension of time, which may be required.

Respectfully submitted,

Date: Dec. 4, 2007

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Electronic Patent Application Fee Transmittal

Application Number:	10403818
Filing Date:	31-Mar-2003
Title of Invention:	Secure virtual community network system
First Named Inventor/Applicant Name:	Hasan S. Alkhatib
Filer:	Ralph Hoppin
Attorney Docket Number:	TTCC-01021US0
Filed as Small Entity	

Utility Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 3 months with $230 paid	2253	1	295	295

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Request for continued examination	2801	1	405	405
		Total in USD ($)		**700**

Electronic Acknowledgement Receipt	
EFS ID:	2545743
Application Number:	10403818
International Application Number:	
Confirmation Number:	2698
Title of Invention:	Secure virtual community network system
First Named Inventor/Applicant Name:	Hasan S. Alkhatib
Customer Number:	28554
Filer:	Ralph Hoppin
Filer Authorized By:	
Attorney Docket Number:	TTCC-01021US0
Receipt Date:	04-DEC-2007
Filing Date:	31-MAR-2003
Time Stamp:	18:49:55
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$700
RAM confirmation Number	2507
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)

1	Request for Continued Examination (RCE)	TTCC-1021-RCE.pdf	719224 1ff0704f4e38cd1d651f04462dda56a4c7e554a7	no	3
Warnings:					
Information:					
2		1021-response-003.pdf	104859 0e9c0f40d5123eb8d21fc826dfb0ff109defb88a	yes	21

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment Submitted/Entered with Filing of CPA/RCE	1	1
	Claims	2	17
	Applicant Arguments/Remarks Made in an Amendment	18	21

Warnings:					
Information:					
3	Fee Worksheet (PTO-06)	fee-info.pdf	8302 a1e4257ce7e0678105c9ffeb774471890dbb735b	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	832385		

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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 10/403,818	Filing Date 03/31/2003	☐ To be Mailed

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☒		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	12/04/2007	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 108	Minus	** 109	= 0	X $25 =	0	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 8	Minus	***8	= 0	X $105 =	0	OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
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Legal Instrument Examiner:
Kim Downing

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**		
	Application Number	10403818
	Filing Date	2003-03-31
	First Named Inventor	Alkhatib
	Art Unit	2142
	Examiner Name	Blair, Douglas B.
	Attorney Docket Number	TTCC-1021US0

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	6983319		2006-01-03	Lu	
	2	7032242		2006-04-18	Grabelsky	
	3	7139828		2006-11-21	Alkhatib	
	4	6353614		2002-03-05	Borella	
	5	6353886		2002-03-05	Howard	
	6	6981020		2005-12-27	Miloslavsky	
	7	6982953		2006-01-03	Swales	
	8	6438597		2002-08-20	Mosberger	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Attorney Docket Number	TTCC-1021US0

	9	6438612		2002-08-20	Ylonen	
	10	6381638		2002-04-30	Mahler	
	11	6457061		2002-09-24	Bal	
	12	6993012		2006-01-31	Liu	
	13	6490289		2002-12-03	Zhang	
	14	6496867		2002-12-17	Beser	
	15	6507873		2003-01-14	Suzuki	
	16	6523068		2003-02-18	Beser	
	17	6556584		2003-04-29	Horsley	
	18	6993595		2006-01-31	Luptowski	
	19	6557306		2003-05-06	Sekiya	

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	Examiner Name	Blair, Douglas B.
	Attorney Docket Number	TTCC-1021US0

	20	6996628		2006-02-07	Keane	
	21	6430622		2002-08-06	Aiken, Jr.	
	22	6996631		2006-02-07	Aiken	
	23	7003481		2006-02-21	Banka	
	24	6631416		2003-10-07	Bendinelli	
	25	6772210		2004-08-03	Edholm	
	26	6657991		2003-12-02	Akgun	
	27	6778528		2004-08-17	Blair	
	28	6697377		2004-02-24	Ju	
	29	6430623		2002-08-06	Alkhatib	
	30	6452925		2002-09-17	Sistanizadeh	

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	Art Unit	2142
	Examiner Name	Blair, Douglas B.
	Attorney Docket Number	TTCC-1021US0

	31	6781982		2004-08-24	Borella	
	32	6480508		2002-11-12	Mwikalo	
	33	6948003		2005-09-20	Newman	
	34	6557037		2003-04-29	Provino	
	35	6591306		2003-07-08	Redlich	
	36	6618757		2003-09-09	Babbitt	
	37	6973485		2005-12-16	Ebata	
	38	6629137		2003-09-30	Wynn	
	39	6651101		2003-11-18	Gai	
	40	6662223		2003-12-09	Zhang	
	41	6742045		2004-05-25	Albert	

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	Art Unit	2142
	Examiner Name	Blair, Douglas B.
	Attorney Docket Number	TTCC-1021US0

	42	6747979		2004-06-08	Banks	
	43	6754706		2004-06-22	Swildens	
	44	6779035		2004-08-17	Gbadegesin	
	45	6973485		2005-12-06	Ebata	

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	Attorney Docket Number	TTCC-1021US0

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	Filing Date	2003-03-31
	First Named Inventor	Alkhatib
	Art Unit	2142
	Examiner Name	Blair, Douglas B.
	Attorney Docket Number	TTCC-1021US0

CERTIFICATION STATEMENT

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☐ See attached certification statement.

☐ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ None

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Ralph F. Hoppin/	Date (YYYY-MM-DD)	2007-12-05
Name/Print	Ralph F. Hoppin	Registration Number	38494

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American Airlines, et. al. v. Intellectual Ventures, et.al.
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7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**		
	Application Number	10403818
	Filing Date	2003-03-31
	First Named Inventor	Alkhatib
	Art Unit	2142
	Examiner Name	Blair, Douglas B.
	Attorney Docket Number	TTCC-1021US0

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	5864666		1999-01-26	Shrader	
	2	6058431		2000-05-02	Srisuresh	
	3	6128664		2000-10-13	Yanagidate	
	4	6173399		2001-01-09	Gilbrech	
	5	5159592		1992-10-27	Perkins	
	6	5361256		1994-11-01	Doeringer	
	7	5563878		1996-10-08	Blakeley	
	8	5623605		1997-04-22	Keshav	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Filing Date	2003-03-31
	First Named Inventor	Alkhatib
	Art Unit	2142
	Examiner Name	Blair, Douglas B.
	Attorney Docket Number	TTCC-1021US0

	9	5701427		1997-12-23	Lathrop	
	10	5717686		1998-02-10	Schiavoni	
	11	5717687		1998-02-10	Minot	
	12	5734651		1998-03-31	Blakeley	
	13	5751961		1998-05-12	Smyk	
	14	5764906		1998-06-09	Edelstein	
	15	5777989		1998-07-07	McGarvey	
	16	5781550		1998-07-14	Templin	
	17	5790548		1998-08-04	Sistanizadeh	
	18	5793763		1998-08-11	Mayes	
	19	5805818		1998-09-08	Perlman	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	First Named Inventor	Alkhatib
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	Examiner Name	Blair, Douglas B.
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	20	5805820		1998-09-08	Bellovin	
	21	5815664		1998-09-29	Asano	
	22	5826014		1998-10-20	Coley	
	23	5856974		1999-01-05	Gervais	
	24	5867667		1999-02-02	Butman	
	25	5884038		1999-03-16	Kapoor	
	26	5884246		1999-03-16	Boucher	
	27	5889953		1999-03-30	Thebaut	
	28	5897662		1999-04-27	Corrigan	
	29	5898830		1999-04-27	Wesinger, Jr.	
	30	5913210		1999-06-15	Call	

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	Application Number	10403818
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	First Named Inventor	Alkhatib
	Art Unit	2142
	Examiner Name	Blair, Douglas B.
	Attorney Docket Number	TTCC-1021US0

	31	5937162		1999-08-10	Funk	
	32	5937163		1999-08-10	Lee	
	33	6003084		1999-12-14	Green	
	34	6006272		1999-12-21	Aravamudan	
	35	6032196		2000-02-29	Monier	
	36	6047325		2000-04-04	Jain	
	37	6055236		2000-04-25	Nessett	
	38	6055575		2000-04-25	Paulsen	
	39	6061349		2000-05-09	Coile	
	40	6061738		2000-05-09	Osaku	
	41	6101543		2000-08-08	Alden	

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	Examiner Name	Blair, Douglas B.
	Attorney Docket Number	TTCC-1021US0

	42	6119171		2000-09-12	Alkhatib	
	43	6122276		2000-09-19	Boe	
	44	6137791		2000-10-24	Frid	
	45	6154839		2000-11-28	Arrow	
	46	6219715		2001-04-17	Ohno	
	47	6243749		2001-06-05	Sitaraman	
	48	6249801		2001-06-19	Zisapel	
	49	6266707		2001-07-24	6266707	
	50	6304906		2001-10-16	Bhatti	

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American Airlines, et. al. v. Intellectual Ventures, et.al.
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	1	KESSLER, Gary C., "Mobile IP: Harbiner of Untethered Computing," http://www.garykessler,net/librarymobileip.htm, 1/20/2004	☐
	2	REKHTER, "Cisco Systems' Tag Switching Architecture overview," Network Working Group, February 1997.	☐
	3	KENT, "Security Architecture for the Internet Protocol," Network Working Group, November 1998.	☐
	4	Computer Dictionary; Microsoft Press; 3rd Edition; 1997; p. 264.	☐
	5	Excerpts from the Help section of Microsoft Outlook pertaining to rules and forwarding email. Microsoft Corporation.	☐

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	Art Unit	2142
	Examiner Name	Blair, Douglas B.
	Attorney Docket Number	TTCC-1021US0

	6	K. EGEVANG and P. FRANCIS, RFC 1631, The IP Network Address Translator (NAT), May 1994.	☐

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	First Named Inventor	Alkhatib
	Art Unit	2142
	Examiner Name	Blair, Douglas B.
	Attorney Docket Number	TTCC-1021US0

CERTIFICATION STATEMENT

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☐ See attached certification statement.

☐ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ None

SIGNATURE

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Signature	/Ralph F. Hoppin/	Date (YYYY-MM-DD)	2007-12-05
Name/Print	Ralph F. Hoppin	Registration Number	38494

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

AA/SWA Ex. 1002, p.289 of 833
American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

Electronic Acknowledgement Receipt

EFS ID:	2550830
Application Number:	10403818
International Application Number:	
Confirmation Number:	2698
Title of Invention:	Secure virtual community network system
First Named Inventor/Applicant Name:	Hasan S. Alkhatib
Customer Number:	28554
Filer:	Ralph Hoppin
Filer Authorized By:	
Attorney Docket Number:	TTCC-01021US0
Receipt Date:	05-DEC-2007
Filing Date:	31-MAR-2003
Time Stamp:	16:09:49
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Filed	1021-ids-004-part1.pdf	1050297 6530d44cde912ad775f0c9cae0df5889dd309c68	no	8
Warnings:					
Information:					

2	Information Disclosure Statement (IDS) Filed	1021-ids-004-part2.pdf	1130215 e2fd714c28d341baeb32091087b7a45a084555c2	no	9
Warnings:					
Information:					
3	NPL Documents	Microsoft-dictionary2.pdf	2544882 d950db4c42db8d2ec848bb6221b2139d8a539c77	no	3
Warnings:					
Information:					
4	NPL Documents	Kessler2.pdf	119823 1d5595abb575fb70cd744378c154224ad10317d5	no	9
Warnings:					
Information:					
5	NPL Documents	Rekhter2.pdf	76085 cc5f57ebf4de72be4374cd5ab65ded90bf6deb24	no	13
Warnings:					
Information:					
6	NPL Documents	Kent2.pdf	376445 6aa57ce7a23b036ad5225eb2477f302debd86b89	no	66
Warnings:					
Information:					
7	NPL Documents	Microsoft-manage-the-inbox 2.pdf	226838 9006c22b1f11fe7745d6a44d8708d7df75512537	no	3
Warnings:					
Information:					
8	NPL Documents	Egevang2.pdf	96471 a152fc8385dd8aebe372388d1a25dee9f3c4b8de	no	9
Warnings:					
Information:					
		Total Files Size (in bytes):	5621056		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

INPF097

PTO/SB/96 (04-07)
Approved for use through 09/30/2007. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: Inpro Network Facility, LLC

Application No./Patent No.: 10/403,818 Filed/Issue Date: March 31, 2003

Entitled: Secure virtual community network system

Inpro Network Facility, LLC, a LLC
(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that it is:

1. ☑ the assignee of the entire right, title, and interest; or

2. ☐ an assignee of less than the entire right, title and interest
(The extent (by percentage) of its ownership interest is _____%)

in the patent application/patent identified above by virtue of either:

A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

OR

B. ☑ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Hasan S. Alkhatib To: IP Dynamics, Inc.
The document was recorded in the United States Patent and Trademark Office at
Reel 014340, Frame 0968, or for which a copy thereof is attached.

2. From: IP Dynamics, Inc. To: Inpro Network Facility, LLC
The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

3. From: _____ To: _____
The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet.

☑ As required by 37 CFR 3.73(b)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (*i.e.*, a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (~~whose title is supplied~~ below) is authorized to act on behalf of the assignee.

/DAMorasch/	Jan. 22, 2008
Signature	Date
David A. Morasch	509-755-7262
Printed or Typed Name	Telephone Number
Attorney of Record, Reg. No. 42905	
Title	

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: **Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/SB/80 (01-06)
Approved for use through 12-31-2008. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(b).

I hereby appoint:

[X] Practitioners associated with the Customer Number: **75671**

OR

[ ] Practitioner(s) named below (If more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number	Name	Registration Number

as attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(b).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(b) to:

[X] The address associated with Customer Number: **75671**

OR

[ ] Firm or Individual Name

Address					
City		State		Zip	
Country		Telephone		Email	

Assignee Name and Address:

Inpro Network Facility, LLC
2711 Centerville Road, Suite 400
Wilmington, DE 19808

A copy of this form, together with a statement under 37 CFR 3.73(b) (Form PTO/SB/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(b) may be completed by one of the practitioners appointed in this form if the appointed practitioner is authorized to act on behalf of the assignee, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature	Pat Mathews	Date	22 January 2008
Name	Pat Mathews	Telephone	
Title	Authorized Person for Inpro Network Facility, LLC		

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Assignment of Patent Rights

IP Dynamics, Inc., acting through its Chapter 7 bankruptcy trustee, Mohamed Poonja ("**Assignor**"), hereby assigns to Inpro Network Facility, LLC, a Delaware limited liability company, with an address at 2711 Centerville Road, Suite 400, Wilmington, DE 19808 ("**Assignee**"), all present and future right, title, and interest in and to all: (a) patent applications and patents of Assignor, including, without limitation, those listed below, together with all reissues, reexaminations, extensions, continuations, continuations in part, continuing prosecution applications, requests for continuing examinations, divisions, registrations of any such patent applications and patents of Assignor (the "**Patents**"); (b) inventions, invention disclosures, and discoveries described in any of the Patents; and (c) causes of action for past, current, and future infringement of the Patents (the "**Purchased Assets**").

Patent/Application No.	Patent/Application Name	Filing Country	First Named Inventor	Filing Date
6119171	DOMAIN NAME ROUTING	US	ALKHATIB, HASAN S.	1/29/1998
EP99903457.2	SYSTEM AND METHOD FOR USING DOMAIN NAMES TO ROUTE DATA SE NT TO A DESTINATION ON A NETWORK	EP	ALKHATIB, HASAN S.	3/08/2000
KR1020007008280	SYSTEM AND METHOD FOR USING DOMAIN NAMES TO ROUTE DATA SE NT TO A DESTINATION ON A NETWORK	KR	ALKHATIB, HASAN S.	7/28/2000
CN99802561.5	SYSTEM AND METHOD FOR USING DOMAIN NAMES TO ROUTE DATA SE NT TO A DESTINATION ON A NETWORK	CN	ALKHATIB, HASAN S.	7/31/2000
JP12-0529825	SYSTEM AND METHOD FOR USING DOMAIN NAMES TO ROUTE DATA SE NT TO A DESTINATION ON A NETWORK	JP	ALKHATIB, HASAN S.	7/31/2000
AU19990023470	SYSTEM AND METHOD FOR USING DOMAIN NAMES TO ROUTE DATA SE NT TO A DESTINATION ON A NETWORK	AU	ALKHATIB, HASAN S.	1/27/1999
6430623	DOMAIN NAME ROUTING	US	ALKHATIB, HASAN S.	1/27/2000
6772227	COMMUNICATING BETWEEN ADDRESS SPACES	US	ALKHATIB, HASAN S.	5/26/2002
6421732	IPNET GATE	US	ALKHATIB, HASAN S.	10/06/1998
6532217	SYSTEM FOR AUTOMATICALLY DETERMINING A NETWORK ADDRESS	US	ALKHATIB, HASAN S.	06/28/1999
7133404	COMMUNICATION USING TWO ADDRESSES FOR AN ENTITY	US	ALKHATIB, HASAN S.	08/10/2001

Patent/Application No.	Patent/Application Name	Filing Country	First Named Inventor	Filing Date
7139828	ACCESSING AN ENTITY INSIDE A PRIVATE NETWORK	US	ALKHATIB, HASAN S.	3/30/2002
10/161,573	CREATING A PUBLIC IDENTITY FOR AN ENTITY ON A NETWORK	US	ALKHATIB, HASAN S.	6/3/2002
10/233,288	COMMUNICATING WITH AN ENTITY INSIDE A PRIVATE NETWORK USING AN EXISTING CONNECTION TO INITIATE COMMUNICATION	US	ALKHATIB, HASAN S.	8/30/2002
10/403,518	GROUP AGENT	US	ALKHATIB, HASAN S.	3/31/20032
10/403,818	SECURE VIRTUAL COMMUNITY NETWORK SYSTEM	US	ALKHATIB, HASAN S.	3/31/2003
10/403,829	SECURE VIRTUAL ADDRESS REALM	US	ALKHATIB, HASAN S.	3/31/2003
PCT/US1999/01806	SYSTEM AND METHOD FOR USING DOMAIN NAMES TO ROUTE DATA SENT TO A DESTINATION ON A NETWORK	WO	ALKHATIB, HASAN S.	1/27/1999
60/098,205	IPNET GATEWAY	US	ALKHATIB, HASAN S.	8/27/1998
60/091,000	SYSTEM FOR AUTO-CONFIGURING AN IP DEVICE	US	ALKHATIB, HASAN S.	6/29/1998
60/224,864	COMMUNICATION USING TWO ADDRESSES FOR AN ENTITY	US	ALKHATIB, HASAN S.	8/11/2000
PCT/US2003/27161	ACCESSING AN ENTITY INSIDE A PRIVATE NETWORK	WO	ALKHATIB, HASAN S.	8/27/2003
PCT/US2003/27160	COMMUNICATING WITH AN ENTITY INSIDE A PRIVATE NETWORK USING AN EXISTING CONNECTION TO INITIATE COMMUNICATION	WO	ALKHATIB, HASAN S.	8/23/2000
09/637,803		US	ALKHATIB, HASAN S.	

Assignor hereby authorizes the Commissioner of Patents and Trademarks of the United States and other empowered officials of the United States Patent and Trademark Office and/or the appropriate empowered officials of other relevant jurisdictions outside the United States to record the transfer of the Patents and related assets to Assignee, in accordance with this Assignment, and to issue to Assignee all letters patent which may issue with respect to the Purchased Assets.

At the reasonable request of Assignee, Assignor will execute and deliver such other instruments as may be necessary or desirable for effecting completely the consummation of the transactions contemplated hereby.

The terms and conditions of this Assignment of Patent Rights will inure to the benefit of Assignee,

its successors, assigns, and other legal representatives and will be binding upon Assignor, its successors, assigns, and other legal representatives.

IN WITNESS WHEREOF, Assignor has caused these presents to be duly executed in a manner appropriate thereto as of January 7, 2008.

Assignor:

IP DYNAMICS, INC

By: _____
Name: Mohamed A. Poonja
Title: Chapter 7 Bankruptcy Trustee

ACKNOWLEDGMENT

State of California)
) ss:
County of Santa Clara)

On this 7th day of January XXX 2008, before me, the undersigned, personally appeared Mohammed A. Poonja personally known to me and acknowledged to me that he/she/they executed the same in his capacity as the Chapter 7 Trustee of IP Dynamics, Inc., and that by his signature on the instrument executed this instrument on behalf of IP Dynamics, Inc.

WITNESS my hand and official seal.

Signature: Mona Oliver (Seal)
Notary Public

MONA OLIVER
Commission # 1763981
Notary Public - California
Santa Clara County
My Comm. Expires Aug 27, 2011

Electronic Acknowledgement Receipt	
EFS ID:	2789466
Application Number:	10403818
International Application Number:	
Confirmation Number:	2698
Title of Invention:	Secure virtual community network system
First Named Inventor/Applicant Name:	Hasan S. Alkhatib
Customer Number:	28554
Filer:	William Breen/Linnaea Freeman
Filer Authorized By:	William Breen
Attorney Docket Number:	TTCC-01021US0
Receipt Date:	30-JAN-2008
Filing Date:	31-MAR-2003
Time Stamp:	15:33:22
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	INNF0017.pdf	193617 ea511d7c17b4dc7164d138f3af55a1a3644581f1	no	5
Warnings:					
Information:					

Total Files Size (in bytes):	193617

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No. 10/403,818
Confirmation No. 2698
Filing Date .....Mar 31, 2003
Inventorship.....Hasan S. Alkhatib
Assignee.....Inpro Network Facility, LLC
Group Art Unit 2142
Examiner .....Douglas B. Blair
Attorney's Docket No. INNF0017
Title: Secure virtual community network system

NOTIFICATION OF LOSS OF ENTITLEMENT TO SMALL ENTITY STATUS

To: Honorable Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

From: Michael K. Colby (Tel. 509-755-7262; Fax 509-755-7252)
Sadler, Breen, Morasch & Colby, p.s.
422 W. Riverside Avenue, Suite 424
Spokane, WA 99201

Customer No. 75671

Due to an assignment of ownership in the above patent application, the entity status of the Assignee in this patent application should be changed to Large Entity Status.

Respectfully Submitted,

Date: 1 February 2008

By: /Michael K. Colby/
Michael K. Colby
Reg. No. 45816
Attorney for Applicant
Sadler, Breen, Morasch & Colby, PS
422 W. Riverside Avenue, Suite 424
Spokane, Washington 99201
Telephone: (509) 755-7254
Facsimile: (509) 755-7252

AA/SWA Ex. 1002, p.300 of 833
American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

Electronic Acknowledgement Receipt

EFS ID:	2805626
Application Number:	10403818
International Application Number:	
Confirmation Number:	2698
Title of Invention:	Secure virtual community network system
First Named Inventor/Applicant Name:	Hasan S. Alkhatib
Customer Number:	28554
Filer:	William Breen/Linnaea Freeman
Filer Authorized By:	William Breen
Attorney Docket Number:	TTCC-01021US0
Receipt Date:	01-FEB-2008
Filing Date:	31-MAR-2003
Time Stamp:	18:52:41
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1	Miscellaneous Incoming Letter	INNF0017LargeEntityAssertion.pdf	60639 b620e36332c318c8b1be094a50e5df2aa6d90e62	no	1

Warnings:	
Information:	

Total Files Size (in bytes):	60639

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
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New International Application Filed with the USPTO as a Receiving Office
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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/403,818	03/31/2003	Hasan S. Alkhatib	TTCC-01021US0

CONFIRMATION NO. 2698

28554
VIERRA MAGEN MARCUS & DENIRO LLP
575 MARKET STREET SUITE 2500
SAN FRANCISCO, CA 94105

POWER OF ATTORNEY NOTICE

OC000000028113939

Date Mailed: 02/06/2008

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 01/30/2008.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

/atesfai/

Office of Initial Patent Examination (571) 272-4000 or 1-800-PTO-9199

AA/SWA Ex. 1002, p.303 of 833
American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/403,818	03/31/2003	Hasan S. Alkhatib	TTCC-01021US0

CONFIRMATION NO. 2698

75671
Sadler, Breen, Marasch & Colby, ps
422 W. Riverside Ave, Suite 424
Spokane, WA 99201

POA ACCEPTANCE LETTER

OC000000028113959

Date Mailed: 02/06/2008

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 01/30/2008.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/atesfai/

Office of Initial Patent Examination (571) 272-4000 or 1-800-PTO-9199

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American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

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10/403,818	03/31/2003	Hasan S. Alkhatib	TTCC-01021US0	2698

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EXAMINER	
DOUGLAS B. BLAIR	
ART UNIT	**PAPER**
2142	20080212

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Commissioner for Patents

The applicant's response filed on 12/4/2007 is not fully responsive to the last office action for reasons explained on the following page of this letter.

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Notice of Non-Responsive Amendment

The reply filed on 12/4/2007 is not fully responsive to the prior Office Action because of the following omission(s) or matter(s): The applicant's response does not address why the applicant believes the limitations of independent claim 93 are patentable over the prior art of record. See 37 CFR 1.111. Since the above-mentioned reply appears to be *bona fide*, applicant is given **ONE (1) MONTH or THIRTY (30) DAYS** from the mailing date of this notice, whichever is longer, within which to supply the omission or correction in order to avoid abandonment. EXTENSIONS OF THIS TIME PERIOD MAY BE GRANTED UNDER 37 CFR 1.136(a).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DOUGLAS B. BLAIR whose telephone number is (571)272-3893. The examiner can normally be reached on 9:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Caldwell can be reached on (571) 272-3868. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Douglas B Blair/
Examiner, Art Unit 2142

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application Serial No.	10/403,818
Filing Date	03/31/2003
Inventorship	Alkhatib *et al.*
Applicant	Inpro Network Facility, LLC
Group Art Unit	2142
Examiner	Blair, Douglas B.
Confirmation No.	2698
Attorney's Docket No.	INNF0017
Title: Secure Virtual Community Network System	(formerly TTCC-01021US0)

RESPONSE TO OFFICE COMMUNICATION DATED FEBRUARY 13, 2008

& FINAL OFFICE ACTION DATED JUNE 5, 2007

To: Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

From: David A. Morasch Tel. 509-755-7250
Fax 509-755-7252
Customer # 75671

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SPECIFICATION AMENDMENTS

Please amend the specification as follows:

Substitute the paragraph starting at page 1, line 4, with the following:

This Application is related to the following Applications: U.S. Patent No. 7,139,828 issued November 21, 2006; ~~Application No. 10/233,289, "Accessing An Entity Inside a Private Network," filed on August 30, 2002;~~ U.S. Patent Application No. 10/161,573, "Creating A Public Identity For An Entity On A Network," filed on June 3, 2002; U.S. Patent Application No. 10/233,288, "Communicating With An Entity Inside A Private Network Using An Existing Connection To Initiate Communication," filed on August 30, 2002; U.S. Patent Application No. 10/403,829 "Secure Virtual Address Realm," filed on March 31, 2003~~, Atty. Docket TTCC-01020US0~~; and U.S. Patent Application No. 10/403,518 "Group Agent," filed on March 31, 2003~~, Atty. Docket TTCC-01022US0~~. All of these related applications are incorporated herein ~~be~~ by reference in their entirety.

Substitute the paragraph starting at page 3, line 22, with the following:

For most organizations, the security of devices coupled to the Internet is a concern. As a result, not all devices are directly connected to or accessible via the Internet. Rather, many devices are placed in private networks for security concerns (in addition to the address usage issue ~~describe~~ described above). Many private networks are secured by placing a firewall device between the private network and the Internet.

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Substitute the paragraph starting at page 6, line 12, with the following:

Fig. 1 depicts the basic structure of an IP version 4 packet 10 used at the Network Layer. IP packet 10 consists of header 12 and payload 14. Payload 14 stores the data received from the Transport Layer in the TCP/IP model. Fig. [[2]] 2A depicts the format of a header of an IP packet. The header is depicted to include six rows. …[continue with rest of paragraph to page 7, line 20] … indicate security, suggested routing path, previous routing path and ~~time~~ time.

Substitute the paragraph starting at page 7, line 21, with the following:

UDP is an alternative to TCP. Fig. 2B depicts the structure of a packet that uses UDP. Like the TCP, UDP uses the Internet Protocol to actually send a data unit from one computer to another. Unlike TCP, however, UDP does not provide the service of dividing a message into packets (datagrams) and reassembling it at the other end. Specifically, UDP does not provide sequencing of the packets that the data arrives in. Hence, application programs using UDP must ensure that the entire message has arrived and is in the right order. As shown in Fig. 2B, the packet includes ~~and~~ an IP header 12a and IP payload 14a. The payload 14a comprises the UDP header 50 and UDP data 60. UDP header 50 consists of a 16 bit source port identifier, a 16 bit destination port identifier, a length field and checksum field. In Fig. 2B, the Destination Port has a meaning within the context of a particular Internet destination address, and the Length field is the length in octets of this user datagram, including its header and the data. The checksum is the 16-bit one's complement of the sum of consecutive two octaves of a pseudo header of information from the IP header, the UDP header, and the data (padded with zero octets at the end, if necessary, to make a multiple of two octets).

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Substitute the paragraph starting at page 8, line 20, with the following:

One solution currently in use that provides for local and remote specified entities to communicate and collaborate using the Internet is the Virtual Private Network ("VPN"). The VPN uses additional network software layers to increase security between users in the public realm and those in private realms. For example, some VPNs encrypt packets using IPsec (or other protocols). The encrypted packets are then encapsulated within a standard packet and transmitted across the Internet to the destination. At the destination, the encrypted packet is decrypted. While the ~~exiting~~ existing VPN provides remote users with secure access to a network, via the Internet, many existing VPNs have various shortcomings that prevent them from satisfying the needs of many users. For example, many VPNs do not provide for peer-to-peer communication with IPsec (or other security measures), do not work though NAT devices in all cases, are difficult to set up and maintain, do not provide for full mobility of entities communicating on the VPN, and do not always provide for communication with entities in the various private network configurations discussed herein.

Substitute the paragraph starting at page 10, line 13, with the following:

A system is disclosed ~~that desired~~ that allows local and remote entities to communicate and collaborate from various locations. In one embodiment, the system makes use of a virtual subnet with a virtual address realm. The virtual address realm allows two or more users to communicate securely via at least one public network, whether the users are both coupled directly to the public network, both coupled directly to separate private networks or whether one is in a public network and one is in a private network. The virtual address realm uses virtual addresses to identify the devices on the

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virtual subnet. Although the devices are in different physical subnets, from the point of view of the applications the devices of the virtual subnet appear to be in one local subnet.

Substitute the paragraph starting at page 11, line 11, with the following:

Yet another embodiment of the invention is a method comprising the steps of: defining a virtual address realm overlying a public address realm, the virtual address realm including at least a user set and a logical name for said user set; and routing communications between users in the user set by means of virtual address realm addresses. In a further aspect, this method includes the step of registering users in the user set as members of the virtual address realm. Further, the method may include the step of assigning each registered user a unique virtual address in the virtual address realm. The method may further include the steps of encrypting communications between devices in the realm, and/or applying at least one address realm group policy.

Substitute the paragraph starting at page 12, line 6, with the following:

Another embodiment of the invention comprises a method for providing a secure virtual network. The method may include the steps of: providing a virtual network manager coupled to a public network; defining a member set of users entitled to ~~communicated~~ communicate in the virtual network; registering members with the manager; assigning members a virtual address; and routing network traffic between the members in the virtual community.

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Substitute the paragraph starting at page 12, line 12, with the following:

An additional further embodiment of the invention may comprise one or more processor readable storage devices having processor readable code embodied on said processor readable storage devices. The processor readable code may be for programming one or more processors to perform a method comprising the steps of: managing a virtual community network realm; defining a member set of users entitled to ~~communicated~~ communicate in the virtual community; registering users with the virtual community; assigning each user a virtual address; and routing network traffic between the users in the virtual community.

Substitute the paragraph starting at page 15, line 9, with the following:

Fig. 6B is a table depicting the shim configuration of the packet in Fig. [[6]] 6A.

Substitute the paragraph starting at page 50, line 8, with the following:

The NRD implements a NAT traversal architecture which allows System packets to enter and exit a private network. The NRD maintains persistent connections/sessions with members that are behind NAT devices. Member Agents initiate a TCP or UDP persistent connection/session with the NRD and use keep-alive messages to ensure that the NAT device does not drop the member's connection/session. The use of TCP or UDP is based on a bit set by the VCN Manager in the INIT ACK packet of the Join Protocol. Communication to a member ~~using a~~ uses NRD tunnels between the NRD and the Member Agent through the persistent connection/session. More information about a suitable NAT traversal architecture is found in U.S. Patent No. 7,139,828 and U.S. Patent Application No. ~~Applications 10/233,289, "Accessing an Entity Inside a Private~~

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~~Network,: and~~ 10/233,288, "Communicating With An Entity Inside a Private Network Using an Existing Connection to Initiate Communication," both of which are incorporated herein by reference.

Substitute the paragraph starting at page 60, line 15, with the following:

Because members of a VCN register with the VCN Manager, the VCN Manager will know how to find the members (e.g. it will know its public and private addresses). Thus, a Group Agent acting as a proxy for a first member will be able to act as an intermediary for that first member when talking to a second member of a VCN even if the second member moves to a different or new private network and/or changes its IP address. That is, when the second member makes the move or change, the second member will so inform the VCN Manager. The VCN Manager will inform the Group Agent of the change so that the Group Agent can continue to act as an intermediary between the first member and the group member. More information about communicating with mobile entities can be found in U.S. Patent No. 7,139,828; ~~Application No. 10/233,289, "Accessing An Entity Inside a Private Network," filed on August 30, 2002;~~ U.S. Patent Application No. 10/161,573, "Creating A Public Identity For An Entity On A Network," filed on June 3, 2002; and U.S. Patent Application No. 10/233,288, "Communicating With An Entity Inside A Private Network Using An Existing Connection To Initiate Communication," filed on August 30, 2002, all three applications are incorporated herein by reference in their entirety.

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LIST OF CLAIMS / AMENDMENTS

Claims 25 and 101 were previously canceled.

Please cancel claims 37-40, 45-52, and 67 without prejudice.

Please amend claims 1-18, 20-24, 26-36, 41-44, 53-66, 68-93, 96-99, 103-106, and 108-109 as shown herein.

Claims 1-24, 26-36, 41-44, 53-66, 68-100, and 102-109 are pending as follows:

1. (currently amended) A virtual ~~community~~ network system, comprising:

a virtual network manager configured to register devices in a virtual network that is defined by a domain name, each device in the virtual network being identified to the other devices by a virtual network address that is unique for each device and not directly routable via a public network, ~~including a definition of at least one virtual community, the definition comprising at least a domain name and a user set,~~ the virtual network manager further configured to distribute a virtual network address to a device when the device is registered in the virtual network; and ~~provides virtual network addresses to users in the user set when the users join the virtual community, the users are identified by one another in the virtual community by their virtual network addresses, and the virtual network addresses are not directly routable; and~~

~~at least one~~ a route director configured to communicate data between the devices that are registered in the virtual network, the data being communicated as encapsulated packets from a source device to a destination device, an encapsulated packet including a first virtual network address that corresponds to the source device and a second virtual network address that corresponds to the destination device. ~~capable of communicating with users in the user set, the at least one route director routes traffic between the users,~~

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~~wherein communications between users include encapsulated packets having a source address which is the virtual network address of a first, sending user and a destination address which is the virtual network address of a second, receiving user, and the encapsulated packets are sent to the at least one route director in encapsulating packets having a destination address which is a public network address of the at least one route director.~~

2. (currently amended) The system of claim 1 wherein each of the devices communicate ~~user communicates~~ with the virtual network manager and the other devices in the virtual network ~~users in the user set via at least one~~ via an associated agent.

3. (currently amended) The system of claim 1 wherein each of the devices include an agent configured to communicate with the virtual network manager and agents of the other devices in the virtual network. ~~claim 2 wherein, for each user, the associated agent is installed on a processing device.~~

4. (currently amended) The system of claim 2 ~~wherein, for each user,~~ wherein the associated agent is installed on ~~an associated~~ a proxy device which is a proxy agent for ~~the user~~ one or more of the devices in the virtual network with respect to the virtual network manager and the ~~at least one~~ route director.

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5. (currently amended) The system of claim 2 wherein the virtual network manager is further configured to:

receive a request from the agent associated with a device in a private network to register the device in the virtual network; and

~~detects~~ detect a presence of a NAT device via which the request is routed from the agent to the virtual network manager. ~~when an agent installed in a private network on a processing device behind the NAT device contacts the virtual network manager in an attempt to join the virtual community.~~

6. (currently amended) The system of claim 1 wherein the virtual network manager ~~comprises a device~~ is coupled to [[a]] the public network and ~~having a~~ has an associated public network address.

7. (currently amended) The system of claim 1 wherein the route director is further configured to receive the encapsulated packets when routed to a public network address corresponding to the route director. ~~said first, sending user accesses other users in the community using at least a first processing device, and said second, receiving user accesses other users in the community using at least a second processing device.~~

8. (currently amended) The system of claim 1 wherein each of the devices in the virtual network are further identified by ~~claim 7 wherein each said processing device is configured with the virtual network address provided to the associated user and~~ at least one physical network address.

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9. (currently amended) The system of claim 8 wherein the physical network addresses that are associated with the devices in the virtual network are dynamic.

10. (currently amended) The system of claim 8 wherein the physical network addresses that are associated with the devices in the virtual network are static.

11. (currently amended) The system of claim 8 wherein the physical network addresses that are associated with the devices in the virtual network are private network addresses, and wherein the virtual network addresses are unique in the virtual ~~community and do~~ network so as not to conflict with the private network addresses.

12. (currently amended) The system of claim 8 wherein ~~said first processing~~ the source device is coupled to a first private network and accesses a public network via a first NAT device configured to transmit the encapsulated packets, an encapsulated packet further including ~~device, the first NAT device transmits the encapsulating packets, and the encapsulating packets include a shim which includes~~ the physical network address of the ~~first processing~~ source device as a private network address in the first private network.

13. (currently amended) The system of claim 12 wherein the physical ~~addresses are~~ network address of the source device is dynamic.

14. (currently amended) The system of claim 12 wherein the physical ~~addresses are~~ network address of the source device is static.

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15. (currently amended) The system of claim 12 wherein ~~said second processing~~ the destination device is coupled to a second private network and accesses the public network via a second NAT device, the encapsulated packet further including ~~shim includes~~ the physical network address of the ~~second processing~~ destination device as a private network address in the second private network.

16. (currently amended) The system of claim 1 wherein the virtual network manager is further configured to receive a DNS request from the source device, and return a public network address of the route director, a private network address for the destination device, and the second virtual network address that corresponds to the destination device. ~~claim 15 wherein said second device includes at least one private physical address.~~

17. (currently amended) The system of claim 15 wherein the physical network address of the destination device is dynamic.

18. (currently amended) The system of claim 15 wherein the physical network address of the destination device is static.

19. (previously presented) The system of claim 15 wherein said first private network and said second private network share at least one network address.

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20. (currently amended) The system of claim 1 wherein the route director is further configured to:

~~provides a user~~ provide a device-specific pseudo address assignment for ~~at least one user in the user set~~ the device in the virtual network when the ~~at least one user~~ device communicates with the route director via a NAT ~~device,~~ device; and ~~the route director stores~~

store an association of the ~~user~~ device-specific pseudo address with a public network address of the NAT device and a port number of the NAT device.

21. (currently amended) The system of claim 1 wherein the route director includes a translator for virtual network address information for a device in the virtual network that is implemented ~~virtual user~~ in a private network ~~realm~~.

22. (currently amended) The system of claim 1 wherein the virtual ~~community~~ network manager is coupled to [[a]] the public network and includes a public network address.

23. (currently amended) The system of claim 22 wherein the route director is coupled to ~~said~~ the public network and includes a different public network address than the public network address of the virtual network manager.

24. (currently amended) The system of claim 22 wherein the route director is coupled to a ~~first~~ private network and includes a private network address.

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25. (canceled)

26. (currently amended) The system of claim 1 wherein the encapsulated packets further include virtual IP packets configured for communication of the data, the virtual IP packets being ~~communicated between users in the user set are~~ encrypted prior to being encapsulated.

27. (currently amended) The system of claim 26 wherein ~~said encryption uses~~ the virtual IP packets are encrypted using IPSEC.

28. (currently amended) The system of claim 26 wherein ~~said encryption uses~~ the virtual IP packets are encrypted using DES or triple DES.

29. (currently amended) The system of claim 5 wherein the virtual network manager is further configured to receive the request from the agent as a message, and detect ~~detects~~ the presence of the NAT device by ~~receiving a message from the agent when the agent contacts the virtual network manager in the attempt to join the virtual community, and~~ comparing a field in a payload of the message with a source address in a header of the message.

30. (currently amended) The system of claim 1 wherein the virtual network manager includes ~~at least two~~ a virtual community ~~definitions~~ definition that is defined by the domain name, and includes one or more of the devices that are registered in the virtual network.

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31. (currently amended) The system of claim 1 wherein the route director is a ~~further including a public route director and a private route director for routing messages among the users, the~~ public route director ~~is in a~~ in the public network, the system further comprising a ~~and the~~ private route director [[is]] in a private network configured to enable access to devices of ~~users inside~~ the private network that are also in the virtual network from devices of the public network that are also in the virtual network ~~users outside the private network~~.

32. (currently amended) A ~~system~~ virtual network manager, comprising:

a network interface configured for data communication via a virtual network that is defined by a domain name having an associated public network address;

a register module configured to register devices in a virtual network, the register module further configured to:

receive a registration request from an agent associated with a device; and

distribute a virtual network address to the device when the device is registered in the virtual network, the device being identified to other devices in the virtual network by the virtual network address.

~~a management device for a virtual community, the management device including a network interface coupled to a public address realm and having a public address; and~~

~~a network traffic router which uses router data to route traffic between members of the virtual community, the router data including at least one association of a logical identifier with public routing information for a member.~~

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33. (currently amended) The ~~system~~ virtual network manager of claim 32 further comprising an additional network interface configured for data communication via a public network. ~~wherein the network traffic router includes a network interface accessible to the members by a public address in the public address realm.~~

34. (currently amended) The ~~system~~ virtual network manager of claim 32 wherein the network interface is ~~management device includes~~ a UDP port configured for data communication via the virtual network ~~capable of receiving network traffic of the virtual community~~.

35. (currently amended) The ~~system~~ virtual network manager of claim 33 [[34]] wherein the network interface is a UDP port configured for data communication via the virtual network, and wherein the additional network interface is ~~the management device includes~~ a TCP port configured for registration communications via the public network ~~capable of communicating network traffic in the virtual community to allow the members to register and join in the virtual community~~.

36. (currently amended) The ~~system~~ virtual network manager of claim 32 wherein the register module is further configured to receive the registration request from the agent that is installed on the device for data communication via the virtual network. ~~a first member accesses a physical network via a processing device and the system further includes at least one agent installed on the processing device, the at least one agent communicates with the network traffic router to allow the first member to communicate with another member.~~

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37-40. (canceled)

41. (currently amended) The ~~system of claim 40 wherein the management device includes a member~~ virtual network manager of claim 32 further comprising a join module configured to receive a join request from the agent associated with the device to indicate that the device is connected for data communication within the virtual network, the join module further configured to receive a leave request from the agent associated with the device to indicate that the device will be disconnected from data communication within the virtual network. ~~which allows a particular member to notify the management device via a join request that the particular member is available to participate in the virtual community, and to notify the management device via a leave request that the particular member is no longer available to participate in the virtual community.~~

42. (currently amended) The ~~system~~ virtual network manager of claim 41 wherein the join module is further configured to provide ~~provides~~ virtual network addresses to the ~~members~~ devices that are registered in the virtual network.

43. (currently amended) The ~~system~~ virtual network manager of claim 41 wherein the join module is further configured to maintain data to associate a virtual network address with a device in the virtual network ~~management device maintains data on an association between at least one virtual network address and at least one member~~.

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44. (currently amended) The ~~system~~ virtual network manager of claim 32 further comprising a DNS server for the virtual network, the DNS server configured to receive a DNS request from a first device in the virtual network, and return a network address associated with a network route director, a private network address associated with a second device in the virtual network, and a virtual network address associated with the second device. ~~wherein each member receives a respective virtual network address when registering with the management device to join the virtual community, the management device includes a DNS server for the virtual community, a first member in the virtual community communicates with another member in the virtual community by querying the DNS server to determine a private network and the respective virtual network address for the another member, and to determine a public address of the network traffic router, and the first member communicates with the another member using an encapsulated packet having a source address which is the respective virtual network address of the first member and a destination address which is the respective virtual network address of the another member, by sending the encapsulated packet to the network traffic router in an encapsulating packet having a destination address which is the public address of the network traffic router, the private network address for the another member is included in the encapsulating packet and is used by the network traffic router to route the encapsulated packet to the another member.~~

45-52. (canceled)

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53. (currently amended) A virtual ~~community~~ network system, comprising:

a network manager of a virtual network that is defined by a public domain name, the network manager configured to distribute virtual network addresses to devices that register as members in the virtual network, each device in the virtual network being identified to the other devices by a virtual network address associated with the device; ~~community;~~

~~a route director;~~

~~at least~~ a first virtual ~~community~~ network agent associated with a first device that is registered as a member in the virtual network; ~~community member; and~~

at least a second virtual ~~community~~ network agent associated with at least a second device that is registered as a member in the virtual network; and ~~community member, the~~

a route director configured to route ~~routes~~ communications between the first device and the at least second device in the virtual network ~~community members~~ via the respective first and second virtual ~~community~~ network agents.

54. (currently amended) The system of claim 53 wherein the route director is a public network route ~~director, and~~ director that includes a public network interface and an associated public network address by which the first and second virtual ~~community~~ network agents communicate with the public network route director.

55. (currently amended) The system of claim 53 wherein the route director is a private route ~~director, and~~ director that includes a private physical network ~~address~~ interface and [[a]] an associated private physical network address.

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56. (currently amended) The system of claim 53 wherein the first virtual ~~community~~ network agent is installed on [[a]] the first device for data communication via the virtual ~~used by the first community member to access a~~ network.

57. (currently amended) The system of claim 56 wherein the first device is in a private physical network, has an associated private network address, ~~address for communicating within the private physical network,~~ and has ~~a first~~ an associated virtual network address that is not directly routable and ~~, assigned by the network manager,~~ by which the first device can be identified by the at least second virtual ~~community~~ network agent from outside of the private physical network~~, the first virtual network address is not directly routable~~.

58. (currently amended) The system of claim 56 wherein the first device is coupled to a public physical network, has an associated public network address, ~~address for communicating within the public physical network~~ and has ~~a first~~ an associated virtual network address~~, assigned by the network manager,~~ by which the first device can be identified by the at least second virtual ~~community~~ network agent.

59. (currently amended) The system of claim 53 wherein the first virtual ~~community~~ network agent is a proxy agent for the first ~~community member~~ device with respect to the network manager and the route director.

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60. (currently amended) The system of claim 53 wherein the first and second ~~members~~ devices are configured to access the virtual network from ~~community via devices coupled to~~ separate private address physical realms.

61. (currently amended) The system of claim 53 wherein the ~~virtual community~~ network manager includes at least a first community definition and a second community definition, the first community definition being defined by the public domain name and includes one or more of the devices that are registered in the virtual network, and the second community definition being defined by a different public domain name and includes one or more different devices that are registered in the virtual network.

62. (currently amended) The system of claim 53 wherein the ~~community~~ network manager includes a member authenticator configured to authenticate the devices that ~~for authenticating potential members when the potential members~~ request to register with the network manager.

63. (currently amended) The system of claim 62 wherein the network manager includes a DNS server configured to provide ~~providing~~ authoritative responses for DNS queries in the virtual network ~~community~~, the DNS server further configured to receive ~~the first virtual community agent provides~~ a DNS query from the first device ~~to the DNS server~~ to obtain the virtual network address of the at least second device ~~community member~~ for use in communicating with the second device ~~community member~~.

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64. (currently amended) A method ~~for providing a secure virtual network~~, comprising:

receiving registration requests from devices that request to be registered as members of a virtual network that is defined by a domain name having an associated public network address in a public network, each of the devices having an associated private network address; and

distributing a virtual network address to a device to register the device as a member in the virtual network, each device in the virtual network being identified to the other devices by the virtual network address that is associated with the device.

~~providing a virtual network manager coupled to a public network;~~

~~defining a member set of users entitled to communicate in the virtual network using associated processing devices which each have at least one physical address which is a private network address;~~

~~registering members with the manager;~~

~~assigning members respective virtual addresses which are not directly routable, the virtual addresses are unique among the members and do not conflict with the private network addresses;~~

~~configuring each of said processing devices with the virtual address assigned to the associated member; and~~

~~routing network traffic between the members in a virtual community.~~

65. (currently amended) The method of claim 64 further ~~including the step of~~ comprising providing ~~users in said member set~~ the devices in the virtual network with a communication agent.

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66. (currently amended) The method of claim 65 wherein said ~~step of~~ providing ~~users~~ the devices in the virtual network with a communication agent includes providing a proxy agent.

67. (canceled)

68. (currently amended) The method of ~~claim 65 wherein the step of registering comprises~~ claim 64 further comprising authenticating the devices as the members in the virtual network ~~with the member set~~.

69. (currently amended) The method of claim 64 further comprising ~~wherein the step of~~ defining a member set of the virtual network that includes one or more of the devices, and ~~the step of~~ assigning [[a]] the domain name that defines ~~for~~ the virtual network ~~community~~.

70. (currently amended) The method of claim 64 further comprising ~~wherein the step of defining a member set includes~~ defining at least two member sets of the virtual network that each include one or more of the devices, the at least two member sets having at least one different device ~~member~~.

71. (currently amended) The method of claim 64 further comprising ~~wherein the step of~~ assigning [[a]] the virtual network address to the device as ~~includes assigning~~ an IPV4 compliant address.

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72. (currently amended) The method of claim 71 wherein ~~the step of assigning a virtual address includes assigning a non-routable~~ the IPV4 compliant address is non-routable.

73. (currently amended) The method of claim 64 further comprising ~~wherein the step of~~ routing network traffic ~~includes routing traffic~~ via the public network from a ~~first member accessing the public network on a~~ first device having a public network address to a ~~second member accessing the public network on a~~ second device having a different public network address, the network traffic being routed as data ~~includes~~ packets having a source address which is the virtual network address of the first device ~~member~~ and a destination address which is the virtual network address of the second device, ~~member,~~ the data packets ~~are~~ being encapsulated to include ~~in packets having~~ a second source address which is ~~the~~ a public network address of the first device and a second destination address which is the different public network address of the second device.

74. (currently amended) The method of claim 64 further comprising ~~wherein the step of~~ routing network traffic ~~includes routing traffic~~ from a first ~~member accessing the public network on a first~~ device in a private physical network having a private network address to a second ~~member accessing the public network on a second~~ device having a public network address, the network traffic being routed as data ~~includes~~ packets having a source address which is the virtual network address of the first device, ~~member,~~ a destination address which is the virtual network address of the second device, ~~member,~~ and a shim which includes the private network address, the data packets ~~are~~

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being encapsulated to include ~~in packets having~~ a second destination address which is the public network address of the second device.

75. (currently amended) The method of claim 64 further comprising ~~wherein the step of~~ routing network traffic ~~includes routing traffic~~ from a first ~~member accessing the public network on a~~ device in a private physical network having a first private ~~physical~~ network address to a second ~~member accessing the public network on a~~ device in a different private physical network having a second private ~~physical~~ network address, the network traffic being routed as ~~includes~~ encapsulated packets having a source address which is the virtual network address of the first device, ~~member, and~~ a destination address which is the virtual network address of the second device, ~~member,~~ and ~~the traffic also includes~~ a shim which includes the first and second private ~~physical~~ network addresses.

76. (currently amended) The method of claim 75 wherein the first private ~~physical~~ network address and the second private ~~physical~~ network address are identical.

77. (currently amended) The method of claim 64 further ~~including the step of~~ comprising responding to DNS requests ~~for~~ received from the devices that are the members in the virtual network.

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78. (currently amended) The method of claim 64 further ~~including the step of~~ comprising:

receiving a join status request from a first device in the virtual network as a query to determine the status of a second device in the virtual network; and

responding to the join status request to indicate ~~joined status requests for registered received from the devices that are the~~ members ~~registered in the virtual network, a first registered member provides a joined status request as a query to the virtual network manager regarding a status of a second registered member, the status indicating~~ whether or not the second device ~~registered member~~ is joined to the virtual network for data communication. ~~community and therefore available to participate in the virtual community.~~

79. (currently amended) The method of claim 64 further ~~including~~ comprising applying a group policy to the devices that are registered as the members of the virtual network ~~community~~.

80. (currently amended) One or more processor readable storage media comprising ~~devices having~~ processor readable code ~~embodied thereon , said processor readable code for programming one or more processors to perform a method comprising the steps of~~ that, when executed, initiates a virtual network manager to:

receive registration requests from devices that request to be registered as members of a virtual network that is defined by a domain name having an associated public network address in a public network, each of the devices having an associated private network address; and

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distribute a virtual network address to a device to register the device as a member in the virtual network, each device in the virtual network being identified to the other devices by the virtual network address that is associated with the device.

~~managing a virtual community network realm;~~

~~defining a member set of users entitled to communicate in the virtual community using associated processing devices which each have at least one physical address which is a private network address;~~

~~registering users with the virtual community to allow the users to communicate with one another via the associated processing devices;~~

~~assigning each user a virtual address which is not directly routable, the virtual addresses are unique among the users and do not conflict with the private network addresses;~~

~~configuring each of said processing devices with the virtual address assigned to the associated user; and~~

~~routing network traffic between the users in the virtual community.~~

81. (currently amended) One or more processor readable storage media as recited ~~devices as defined~~ in claim 80 further ~~including~~ comprising processor readable code that, when executed, initiates the virtual network manager to provide the devices in the virtual network ~~for programming one or more processors to perform a step of providing users in said member set~~ with a communication agent.

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82. (currently amended) One or more processor readable storage media as recited ~~devices as defined~~ in claim 81 wherein the virtual network manager provides the ~~said step of providing users with a~~ communication agent ~~includes providing~~ as a proxy agent.

83. (currently amended) One or more processor readable storage media as recited ~~devices as defined~~ in claim 80 further comprising processor readable code that, when executed, initiates the virtual network manager to define ~~wherein the step of defining~~ a member set of the virtual network that includes one or more of the devices, and ~~the step of assigning a~~ the domain name that defines the virtual network ~~for the community~~.

84. (currently amended) One or more processor readable storage media as recited ~~devices as defined~~ in claim 80 wherein the virtual network address includes a non-routable IPV4 compliant address.

85. (currently amended) One or more processor readable storage media as recited ~~devices as defined~~ in claim 80 further comprising processor readable code that, when executed, initiates the virtual network manager to route ~~wherein the step of routing~~ network traffic via the public network ~~includes routing traffic~~ from a ~~first member accessing the public address realm on a~~ first device having a public network address to a ~~second member accessing the public address realm on a~~ second device having a different public network address.

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86. (currently amended) One or more processor readable storage media as recited ~~devices as defined~~ in claim 80 further comprising processor readable code that, when executed, initiates the virtual network manager to route ~~wherein the step of routing~~ network traffic ~~includes routing traffic~~ from a first ~~member accessing the public address realm on a first~~ device in a private physical network having a private network address to a second ~~member accessing the public address realm on a second~~ device having a public network address.

87. (currently amended) One or more processor readable storage media as recited ~~devices as defined~~ in claim 80 further comprising processor readable code that, when executed, initiates the virtual network manager to route ~~wherein the step of routing~~ network traffic ~~includes routing traffic~~ from a first ~~member accessing the public address realm on a~~ device in a private physical network having a first private ~~physical~~ network address to a second ~~member accessing the public address realm on a~~ device in a different private physical network having a second private ~~physical~~ network address.

88. (currently amended) One or more processor readable storage media as recited ~~devices as defined~~ in claim 87 wherein ~~the step of routing~~ the network traffic is routed ~~includes routing traffic~~ to the first or second ~~member~~ device via a NAT device.

89. (currently amended) One or more processor readable storage media as recited ~~devices as defined~~ in claim 87 wherein the first private ~~physical~~ network address and the second private ~~physical~~ network address are identical.

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90. (currently amended) One or more processor readable storage media as recited in claim 85 wherein the network traffic is routed as encapsulated data packets. ~~devices as defined in claim 80 85 wherein the step of said routing includes routing encapsulated traffic.~~

91. (currently amended) One or more processor readable storage media as recited in claim 85 wherein the network traffic is routed as ~~devices as defined in claim 80 wherein the step of routing includes routing~~ encrypted data traffic.

92. (currently amended) One or more processor readable storage media as recited ~~devices as defined~~ in claim 80 further comprising processor readable code that, when executed, initiates the virtual network manager to apply ~~further including applying~~ a group policy to the devices that are registered as the members of the virtual network ~~community~~.

93. (currently amended) A virtual ~~community~~ network system, comprising:

a virtual network manager having a network interface coupled to a virtual network, the virtual network manager including at least one virtual community definition that is defined by ~~comprising at least~~ a domain name having an associated public network address and a user set of one or more devices that are registered in the virtual network, each device in the virtual network being identified to the other devices by a virtual network address that is associated with the device, the virtual network manager configured to exchange virtual network information with the one or more devices of the user set, and the virtual network being accessible by ~~users~~ devices in the user set and

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~~users~~ devices outside of the user set~~, the manager exchanging virtual community network information with users in the user set~~.

94. (original) The system of claim 93 wherein the virtual network manager includes a member register module.

95. (original) The system of claim 93 wherein the virtual network manager includes a member join module.

96. (currently amended) The system of claim 95 wherein the member join module provides a virtual network address to a device that is registered as a member of the network.

97. (currently amended) The system of claim 93 wherein the virtual network manager ~~maintains~~ is further configured to maintain data on an association between at least one virtual network address with at least one device that is registered as a member of the network.

98. (currently amended) The system of claim 93 wherein the virtual network manager includes a DNS server for the virtual community network.

99. (currently amended) The system of claim 93 wherein the virtual network manager includes a NAT device detector for ~~users~~ devices connecting with the virtual network manager ~~using a processing device~~ behind a NAT device.

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100. (previously presented) The system of claim 93 wherein the virtual network manager includes at least a second virtual community definition.

101. (canceled)

102. (original) The system of claim 93 wherein the virtual network manager includes a member authenticator.

103. (currently amended) The system of claim 93 wherein the virtual network manager includes a DNS server ~~providing~~ configured to provide authoritative responses for DNS queries from ~~users~~ devices in the virtual community.

104. (currently amended) The system of claim 93 further comprising at least one route director ~~capable of communicating with users~~ configured to communicate with the one or more devices in the user set.

105. (currently amended) The system of claim 93 wherein each device registered in the network is configured to communicate ~~user communicates~~ with the virtual network manager and other ~~users~~ devices in the user set via at least one agent.

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106. (currently amended) The system of claim 93 wherein the user set includes at least a first ~~user~~ device and a second ~~user~~ device, ~~said first device configured to access user accesses other users in the virtual community using at least a first processing device, said second user accesses other users in the virtual community using at least a second processing device,~~ and wherein at least one of said first device and said second device is coupled to a first private network and accesses a public network via a NAT device.

107. (original) The system of claim 106 wherein said first device is coupled to said first private network, and said second device is coupled to a second private network and accesses the public network via a second NAT device.

108. (currently amended) The system of claim 93 wherein communications between ~~users~~ the one or more devices in the user set are encrypted.

109. (currently amended) The system of claim 108 wherein the virtual network manager is configured to provide a shared message to the one or more devices ~~provides a shared secret to users~~ in the user set to establish encrypted communications.

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REMARKS

Applicant filed a Response on Nov.05, 2007 to a Final Office Action dated Jun.05, 2007 in which the Office rejected all pending claims under 35 U.S.C. §102(e) and/or 35 U.S.C. §103(a). The Office issued an Advisory Action on Nov.19, 2007 indicating that the Response did not address the patentability of the independent claims.

Applicant then filed a Response along with an RCE on Dec.04, 2007. The Office has now issued an Office Communication (*i.e.*, Notice of Non-Responsive Amendment) dated Feb.13, 2008 indicating that the Response filed on Dec.04, 2007 is not fully responsive because the Response does not address why independent claim 93 is patentable over the cited references.

Accordingly, this Response addresses the 35 U.S.C. §102(e) and 35 U.S.C. §103(a) rejections issued in the Final Office Action dated Jun.05, 2007, and all page number references herein refer to the Final Office Action.

Applicant respectfully requests reconsideration and allowance of the subject application. Claims 37-40, 45-52, and 67 have been canceled. Claims 1-24, 26-36, 41-44, 53-66, 68-100, and 102-109 are pending, of which claims 1-18, 20-24, 26-36, 41-44, 53-66, 68-93, 96-99, 103-106, and 108-109 have been amended. The amendments to the claims are simply to provide clarification and/or to correct informalities noted by the Applicant.

Note that a copy of the claims as amended herein, but without the amendment mark-ups, is provided in the Appendix for ease of review and convenience of the Office.

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35 U.S.C. §102 Claim Rejection

Claims 93-100 and 102-109 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Publication No. 2003/0041136 to Cheline *et al.* (hereinafter, "Cheline") (*Office Action* p.2). Applicant respectfully traverses the rejection of the claims as pending prior to the amendments included herein.

Claim 93 recites a virtual network system, comprising:

> a virtual network manager having a network interface coupled to a virtual network, the virtual network manager including at least one virtual community definition that is defined by a domain name having an associated public network address and a user set of one or more devices that are registered in the virtual network, each device in the virtual network being identified to the other devices by a virtual network address that is associated with the device, the virtual network manager configured to exchange virtual network information with the one or more devices of the user set, and the virtual network being accessible by devices in the user set and devices outside of the user set.

Cheline does not show or disclose "a virtual community definition that is defined by a domain name having an associated public network address", or that "each device in the virtual network is identified to the other devices by a virtual network address that is associated with the device", as recited in claim 1. The Office recognizes that Cheline does not teach a device in a virtual network being identified to the other devices by a virtual network address (*Office Action* p.5).

Accordingly, claim 93 along with dependent claims 94-100 and 102-109 are allowable over Cheline for at least the reasons described above, and Applicant requests that the §102 rejection be withdrawn.

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35 U.S.C. §103 Claim Rejections

Claims 1-92 are rejected under 35 U.S.C. §103(a) for obviousness over Cheline, in view of U.S. Patent Publication No. 2004/0006708 to Mukherjee et al. (hereinafter, "Mukherjee") (*Office Action* p.5). Claim 25 has been canceled. Applicant respectfully traverses the rejection of the claims as pending prior to the amendments included herein.

Claim 1 recites a virtual network system, comprising:

> a virtual network manager configured to register devices in a virtual network that is defined by a domain name, each device in the virtual network being identified to the other devices by a virtual network address that is unique for each device and not directly routable via a public network, the virtual network manager further configured to distribute a virtual network address to a device when the device is registered in the virtual network; and
>
> a route director configured to communicate data between the devices that are registered in the virtual network, the data being communicated as encapsulated packets from a source device to a destination device, an encapsulated packet including a first virtual network address that corresponds to the source device and a second virtual network address that corresponds to the destination device.

Cheline and/or Mukherjee do not teach or suggest the combination of feature(s) recited in claim 1, such as "each device in the virtual network being identified to the other devices by a virtual network address". The Office recognizes that Cheline does not teach a device in a virtual network being identified to the other devices by a virtual network address (*Office Action* p.5). The Office cites to Mukherjee ¶[0046] for virtual network addresses (*Office Action* p.6). However, Mukherjee only describes conventional IP addresses in different address classes that define the size of a network and the number of devices, such as Class-A, Class-B, and Class-C IP addresses. Mukherjee describes that a subnet address is formed for a VPN network and host addresses are assigned to

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user devices (*Mukherjee* ¶[0044]-¶[0046]). The IP addresses described in Mukherjee are not virtual network addresses as recited in claim 1.

The Office also cites to Mukherjee ¶[0056] for devices being identified in a virtual network by their virtual network address (*Office Action* p.6). However, the cited section of Mukherjee only describes VPN tunnels in a communications network that extend from user devices to a router device. There is no indication or discussion in the cited ¶[0056] of a virtual network, virtual network addresses, or devices in a virtual network being identified to the other devices by their virtual network addresses, as recited in claim 1.

Cheline and/or Mukherjee also do not teach or suggest "a virtual network that is defined by a domain name", or "an encapsulated packet including a first virtual network address that corresponds to the source device and a second virtual network address that corresponds to the destination device", as recited in claim 1. Accordingly, claim 1 is allowable over the Cheline-Mukherjee combination for at least the reasons described above, and Applicant requests that the §103 rejection be withdrawn.

Claims 2-24 and 26-31 are allowable by virtue of their dependency upon claim 1 (either directly or indirectly). Accordingly, the §103 rejection should be withdrawn. Additionally, some or all of claims 2-24 and 26-31 are allowable over the Cheline-Mukherjee combination for independent reasons. For example:

Claim 3 recites that "each of the devices include an agent configured to communicate with the virtual network manager and agents of the other devices in the virtual network". Cheline and/or Mukherjee do not teach or suggest that the devices in a virtual network include an agent, as recited in claim 3.

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Cheline describes a VPN system in which "the client VPN software resides on the user's modem instead of on the user's client computer" (*Cheline* ¶[0028]). A client-side system (108) of the VPN described in Cheline includes client computers and a modem (106) that includes the VPN software to interface the client computers with a server-side system (130) (*Cheline* ¶[0031], Figs.1-2). Mukherjee describes a VPN communications network environment that includes access networks each including various end-user devices. Each access network has an associated controller that includes an IP service agent for the end-user devices of a particular access network (*Mukherjee* ¶[0025], Figs.1-2). Accordingly, claim 3 is allowable over the Cheline-Mukherjee combination and the §103 rejection should be withdrawn.

Claim 32 recites a virtual network manager, comprising:

> a network interface configured for data communication via a virtual network that is defined by a domain name having an associated public network address;
>
> a register module configured to register devices in the virtual network, the register module further configured to:
>
> receive a registration request from an agent associated with a device; and
>
> distribute a virtual network address to the device when the device is registered in the virtual network, the device being identified to other devices in the virtual network by the virtual network address.

Cheline and/or Mukherjee do not teach or suggest the combination of feature(s) recited in claim 32, such as "the device being identified to other devices in the virtual network by the virtual network address". As described above in response to the rejection

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of claim 1, Cheline and/or Mukherjee do not teach a virtual network address, or a device being identified in a virtual network by a virtual network address, as recited in claim 32.

Cheline and/or Mukherjee also do not teach or suggest a virtual network manager of a virtual network that is defined by a domain name having an associated public network address, as recited in claim 32. Cheline describes a VPN concentrator for VPN connections in a private server-side system (*Cheline* ¶[0042], Fig.1), but not a virtual network manager in a public realm as described in claim 32. Mukherjee describes a need for multiple, independent controllers of access networks in a VPN communications system (*Mukherjee* ¶[0031]-¶[0035], Figs.1-2), but not a global virtual network manager.

Accordingly, claim 32 is allowable over the Cheline-Mukherjee combination for at least the reasons described above, and Applicant requests that the §103 rejection be withdrawn.

Claims 33-36 and 41-44 are allowable by virtue of their dependency upon claim 32 (either directly or indirectly). Accordingly, the §103 rejection should be withdrawn. Additionally, some or all of claims 33-36 and 41-44 are allowable over the Cheline-Mukherjee combination for independent reasons. For example:

Claim 35 recites the network interface is a UDP port configured for data communication via the virtual network, and the additional network interface is a TCP port configured for registration communications via the public network. Cheline and/or Mukherjee do not teach or suggest a virtual network manager that includes both a TCP port for communications via a public network and a UDP port for data communication via a virtual network, as recited in claim 35. Accordingly, claims 35 is allowable over the Cheline-Mukherjee combination and the §103 rejection should be withdrawn.

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Claim 36 recites to receive the registration request from the agent that is installed on the device for data communication via the virtual network. As described above in response to the rejection of claim 3, Cheline and/or Mukherjee do not teach or suggest that a device in a virtual network includes an agent installed for data communication via a virtual network, as recited in claim 36.

Cheline describes a VPN system in which "the client VPN software resides on the user's modem instead of on the user's client computer" (*Cheline* ¶[0028], Figs.1-2). Mukherjee describes a VPN communications network environment that includes access networks each including various end-user devices that are associated with an IP service agent at an independent controller of an access network (*Mukherjee* ¶[0025], Figs.1-2). Accordingly, claim 36 is allowable over the Cheline-Mukherjee combination and the §103 rejection should be withdrawn.

Claim 53 recites a virtual network system, comprising:

> a network manager of a virtual network that is defined by a public domain name, the network manager configured to distribute virtual network addresses to devices that register as members in the virtual network, each device in the virtual network being identified to the other devices by a virtual network address associated with the device;
>
> a first virtual network agent associated with a first device that is registered as a member in the virtual network;
>
> at least a second virtual network agent associated with at least a second device that is registered as a member in the virtual network; and
>
> a route director configured to route communications between the first device and the at least second device in the virtual network via the respective first and second virtual network agents.

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Cheline and/or Mukherjee do not teach or suggest the combination of feature(s) recited in claim 53, such as "each device in the virtual network being identified to the other devices by a virtual network address associated with the device". As described above in response to the rejection of claim 1, Cheline and/or Mukherjee do not teach a virtual network address, or a device being identified in a virtual network by a virtual network address, as recited in claim 53.

Cheline and/or Mukherjee also do not teach or suggest a network manager of a virtual network that is defined by a public domain name, as recited in claim 53. Accordingly, claim 53 is allowable over the Cheline-Mukherjee combination for at least the reasons described above, and Applicant requests that the §103 rejection be withdrawn.

Claims 54-63 are allowable by virtue of their dependency upon claim 53 (either directly or indirectly). Accordingly, the §103 rejection should be withdrawn. Additionally, some or all of claims 54-63 are allowable over the Cheline-Mukherjee combination for independent reasons. For example:

Claim 56 recites that "the first virtual network agent is installed on the first device for data communication via the virtual network". As described above in response to the rejection of claim 3, Cheline and/or Mukherjee do not teach or suggest that a virtual network agent is installed on a device in a virtual network, as recited in claim 56. Accordingly, claim 56 is allowable over the Cheline-Mukherjee combination and the §103 rejection should be withdrawn.

Claim 64 recites a method, comprising:

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receiving registration requests from devices that request to be registered as members of a virtual network that is defined by a domain name having an associated public network address in a public network, each of the devices having an associated private network address; and

distributing a virtual network address to a device to register the device as a member in the virtual network, each device in the virtual network being identified to the other devices by the virtual network address that is associated with the device.

Claim 80 recites:

One or more processor readable storage media comprising processor readable code that, when executed, initiates a virtual network manager to:

receive registration requests from devices that request to be registered as members of a virtual network that is defined by a domain name having an associated public network address in a public network, each of the devices having an associated private network address; and

distribute a virtual network address to a device to register the device as a member in the virtual network, each device in the virtual network being identified to the other devices by the virtual network address that is associated with the device.

Cheline and/or Mukherjee do not teach or suggest the combination of feature(s) recited in claims 64 and 80, such as "each device in the virtual network being identified to the other devices by a virtual network address associated with the device". As described above in response to the rejection of claim 1, Cheline and/or Mukherjee do not teach a virtual network address, or a device being identified in a virtual network by a virtual network address, as recited in claims 64 and 80.

Cheline and/or Mukherjee also do not teach or suggest a virtual network that is defined by a domain name having an associated public network address in a public network, as recited in claims 64 and 80. Cheline and/or Mukherjee also do not teach or suggest a device that is registered as member of a virtual network having both an

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associated private network address and a virtual network address, as recited in claims 64 and 80.

Accordingly, claim 64 along with dependent claims 65-66 and 68-79, as well as claim 80 along with dependent claims 81-92, are allowable over the Cheline-Mukherjee combination for at least the reasons described above, and Applicant requests that the §103 rejection be withdrawn.

Conclusion

Pending claims 1-24, 26-36, 41-44, 53-66, 68-100, and 102-109 are in condition for allowance, and Applicant respectfully requests issuance of the subject application. If any issues remain that preclude issuance of the application, the Examiner is urged to contact the undersigned attorney before issuing a subsequent Action.

Respectfully Submitted,

Dated: Mar.14, 2008

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APPENDIX OF CLAIMS AS AMENDED HEREIN WITHOUT MARK-UPS

1. (currently amended) A virtual network system, comprising:

a virtual network manager configured to register devices in a virtual network that is defined by a domain name, each device in the virtual network being identified to the other devices by a virtual network address that is unique for each device and not directly routable via a public network, the virtual network manager further configured to distribute a virtual network address to a device when the device is registered in the virtual network; and

a route director configured to communicate data between the devices that are registered in the virtual network, the data being communicated as encapsulated packets from a source device to a destination device, an encapsulated packet including a first virtual network address that corresponds to the source device and a second virtual network address that corresponds to the destination device.

2. (currently amended) The system of claim 1 wherein each of the devices communicate with the virtual network manager and the other devices in the virtual network via an associated agent.

3. (currently amended) The system of claim 1 wherein each of the devices include an agent configured to communicate with the virtual network manager and agents of the other devices in the virtual network.

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4. (currently amended) The system of claim 2 wherein the associated agent is installed on a proxy device which is a proxy agent for one or more of the devices in the virtual network with respect to the virtual network manager and the route director.

5. (currently amended) The system of claim 2 wherein the virtual network manager is further configured to:

receive a request from the agent associated with a device in a private network to register the device in the virtual network; and

detect a presence of a NAT device via which the request is routed from the agent to the virtual network manager.

6. (currently amended) The system of claim 1 wherein the virtual network manager is coupled to the public network and has an associated public network address.

7. (currently amended) The system of claim 1 wherein the route director is further configured to receive the encapsulated packets when routed to a public network address corresponding to the route director.

8. (currently amended) The system of claim 1 wherein each of the devices in the virtual network are further identified by at least one physical network address.

9. (currently amended) The system of claim 8 wherein the physical network addresses that are associated with the devices in the virtual network are dynamic.

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10. (currently amended) The system of claim 8 wherein the physical network addresses that are associated with the devices in the virtual network are static.

11. (currently amended) The system of claim 8 wherein the physical network addresses that are associated with the devices in the virtual network are private network addresses, and wherein the virtual network addresses are unique in the virtual network so as not to conflict with the private network addresses.

12. (currently amended) The system of claim 8 wherein the source device is coupled to a first private network and accesses a public network via a first NAT device configured to transmit the encapsulated packets, an encapsulated packet further including the physical network address of the source device as a private network address in the first private network.

13. (currently amended) The system of claim 12 wherein the physical network address of the source device is dynamic.

14. (currently amended) The system of claim 12 wherein the physical network address of the source device is static.

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15. (currently amended) The system of claim 12 wherein the destination device is coupled to a second private network and accesses the public network via a second NAT device, the encapsulated packet further including the physical network address of the destination device as a private network address in the second private network.

16. (currently amended) The system of claim 1 wherein the virtual network manager is further configured to receive a DNS request from the source device, and return a public network address of the route director, a private network address for the destination device, and the second virtual network address that corresponds to the destination device.

17. (currently amended) The system of claim 15 wherein the physical network address of the destination device is dynamic.

18. (currently amended) The system of claim 15 wherein the physical network address of the destination device is static.

19. (previously presented) The system of claim 15 wherein said first private network and said second private network share at least one network address.

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20. (currently amended) The system of claim 1 wherein the route director is further configured to:

provide a device-specific pseudo address assignment for the device in the virtual network when the device communicates with the route director via a NAT device; and

store an association of the device-specific pseudo address with a public network address of the NAT device and a port number of the NAT device.

21. (currently amended) The system of claim 1 wherein the route director includes a translator for virtual network address information for a device in the virtual network that is implemented in a private network.

22. (currently amended) The system of claim 1 wherein the virtual network manager is coupled to the public network and includes a public network address.

23. (currently amended) The system of claim 22 wherein the route director is coupled to the public network and includes a different public network address than the public network address of the virtual network manager.

24. (currently amended) The system of claim 22 wherein the route director is coupled to a private network and includes a private network address.

25. (canceled)

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26. (currently amended) The system of claim 1 wherein the encapsulated packets further include virtual IP packets configured for communication of the data, the virtual IP packets being encrypted prior to being encapsulated.

27. (currently amended) The system of claim 26 wherein the virtual IP packets are encrypted using IPSEC.

28. (currently amended) The system of claim 26 wherein the virtual IP packets are encrypted using DES or triple DES.

29. (currently amended) The system of claim 5 wherein the virtual network manager is further configured to receive the request from the agent as a message, and detect the presence of the NAT device by comparing a field in a payload of the message with a source address in a header of the message.

30. (currently amended) The system of claim 1 wherein the virtual network manager includes a virtual community definition that is defined by the domain name, and includes one or more of the devices that are registered in the virtual network.

31. (currently amended) The system of claim 1 wherein the route director is a public route director in the public network, the system further comprising a private route director in a private network configured to enable access to devices of the private network that are also in the virtual network from devices of the public network that are also in the virtual network.

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32. (currently amended) A virtual network manager, comprising:

a network interface configured for data communication via a virtual network that is defined by a domain name having an associated public network address;

a register module configured to register devices in a virtual network, the register module further configured to:

receive a registration request from an agent associated with a device; and

distribute a virtual network address to the device when the device is registered in the virtual network, the device being identified to other devices in the virtual network by the virtual network address.

33. (currently amended) The virtual network manager of claim 32 further comprising an additional network interface configured for data communication via a public network.

34. (currently amended) The virtual network manager of claim 32 wherein the network interface is a UDP port configured for data communication via the virtual network.

35. (currently amended) The virtual network manager of claim 33 wherein the network interface is a UDP port configured for data communication via the virtual network, and wherein the additional network interface is a TCP port configured for registration communications via the public network.

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36. (currently amended) The virtual network manager of claim 32 wherein the register module is further configured to receive the registration request from the agent that is installed on the device for data communication via the virtual network.

37-40. (canceled)

41. (currently amended) The virtual network manager of claim 32 further comprising a join module configured to receive a join request from the agent associated with the device to indicate that the device is connected for data communication within the virtual network, the join module further configured to receive a leave request from the agent associated with the device to indicate that the device will be disconnected from data communication within the virtual network.

42. (currently amended) The virtual network manager of claim 41 wherein the join module is further configured to provide virtual network addresses to the devices that are registered in the virtual network.

43. (currently amended) The virtual network manager of claim 41 wherein the join module is further configured to maintain data to associate a virtual network address with a device in the virtual network.

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44. (currently amended) The virtual network manager of claim 32 further comprising a DNS server for the virtual network, the DNS server configured to receive a DNS request from a first device in the virtual network, and return a network address associated with a network route director, a private network address associated with a second device in the virtual network, and a virtual network address associated with the second device.

45-52. (canceled)

53. (currently amended) A virtual network system, comprising:

a network manager of a virtual network that is defined by a public domain name, the network manager configured to distribute virtual network addresses to devices that register as members in the virtual network, each device in the virtual network being identified to the other devices by a virtual network address associated with the device;

a first virtual network agent associated with a first device that is registered as a member in the virtual network;

at least a second virtual network agent associated with at least a second device that is registered as a member in the virtual network; and

a route director configured to route communications between the first device and the at least second device in the virtual network via the respective first and second virtual network agents.

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54. (currently amended) The system of claim 53 wherein the route director is a public network route director that includes a public network interface and an associated public network address by which the first and second virtual network agents communicate with the public network route director.

55. (currently amended) The system of claim 53 wherein the route director is a private route director that includes a private physical network interface and an associated private physical network address.

56. (currently amended) The system of claim 53 wherein the first virtual network agent is installed on the first device for data communication via the virtual network.

57. (currently amended) The system of claim 56 wherein the first device is in a private physical network, has an associated private network address, and has an associated virtual network address that is not directly routable and by which the first device can be identified by the at least second virtual network agent from outside of the private physical network.

58. (currently amended) The system of claim 56 wherein the first device is coupled to a public physical network, has an associated public network address, and has an associated virtual network address by which the first device can be identified by the at least second virtual network agent.

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59. (currently amended) The system of claim 53 wherein the first virtual network agent is a proxy agent for the first device with respect to the network manager and the route director.

60. (currently amended) The system of claim 53 wherein the first and second devices are configured to access the virtual network from separate private address physical realms.

61. (currently amended) The system of claim 53 wherein the network manager includes at least a first community definition and a second community definition, the first community definition being defined by the public domain name and includes one or more of the devices that are registered in the virtual network, and the second community definition being defined by a different public domain name and includes one or more different devices that are registered in the virtual network.

62. (currently amended) The system of claim 53 wherein the network manager includes a member authenticator configured to authenticate the devices that request to register with the network manager.

63. (currently amended) The system of claim 62 wherein the network manager includes a DNS server configured to provide authoritative responses for DNS queries in the virtual network, the DNS server further configured to receive a DNS query from the first device to obtain the virtual network address of the at least second device for use in communicating with the second device.

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64. (currently amended) A method, comprising:

receiving registration requests from devices that request to be registered as members of a virtual network that is defined by a domain name having an associated public network address in a public network, each of the devices having an associated private network address; and

distributing a virtual network address to a device to register the device as a member in the virtual network, each device in the virtual network being identified to the other devices by the virtual network address that is associated with the device.

65. (currently amended) The method of claim 64 further comprising providing the devices in the virtual network with a communication agent.

66. (currently amended) The method of claim 65 wherein said providing the devices in the virtual network with a communication agent includes providing a proxy agent.

67. (canceled)

68. (currently amended) The method of claim 64 further comprising authenticating the devices as the members in the virtual network.

69. (currently amended) The method of claim 64 further comprising defining a member set of the virtual network that includes one or more of the devices, and assigning the domain name that defines the virtual network.

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70. (currently amended) The method of claim 64 further comprising defining at least two member sets of the virtual network that each include one or more of the devices, the at least two member sets having at least one different device.

71. (currently amended) The method of claim 64 further comprising assigning the virtual network address to the device as an IPV4 compliant address.

72. (currently amended) The method of claim 71 wherein the IPV4 compliant address is non-routable.

73. (currently amended) The method of claim 64 further comprising routing network traffic via the public network from a first device having a public network address to a second device having a different public network address, the network traffic being routed as data packets having a source address which is the virtual network address of the first device and a destination address which is the virtual network address of the second device, the data packets being encapsulated to include a second source address which is a public network address of the first device and a second destination address which is the different public network address of the second device.

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74. (currently amended) The method of claim 64 further comprising routing network traffic from a first device in a private physical network having a private network address to a second device having a public network address, the network traffic being routed as data packets having a source address which is the virtual network address of the first device, a destination address which is the virtual network address of the second device, and a shim which includes the private network address, the data packets being encapsulated to include a second destination address which is the public network address of the second device.

75. (currently amended) The method of claim 64 further comprising routing network traffic from a first device in a private physical network having a first private network address to a second device in a different private physical network having a second private network address, the network traffic being routed as encapsulated packets having a source address which is the virtual network address of the first device, a destination address which is the virtual network address of the second device, and a shim which includes the first and second private network addresses.

76. (currently amended) The method of claim 75 wherein the first private network address and the second private network address are identical.

77. (currently amended) The method of claim 64 further comprising responding to DNS requests received from the devices that are the members in the virtual network.

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78. (currently amended) The method of claim 64 further comprising:

receiving a join status request from a first device in the virtual network as a query to determine the status of a second device in the virtual network; and

responding to the join status request to indicate whether or not the second device is joined to the virtual network for data communication.

79. (currently amended) The method of claim 64 further comprising applying a group policy to the devices that are registered as the members of the virtual network.

80. (currently amended) One or more processor readable storage media comprising processor readable code that, when executed, initiates a virtual network manager to:

receive registration requests from devices that request to be registered as members of a virtual network that is defined by a domain name having an associated public network address in a public network, each of the devices having an associated private network address; and

distribute a virtual network address to a device to register the device as a member in the virtual network, each device in the virtual network being identified to the other devices by the virtual network address that is associated with the device.

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81. (currently amended) One or more processor readable storage media as recited in claim 80 further comprising processor readable code that, when executed, initiates the virtual network manager to provide the devices in the virtual network with a communication agent.

82. (currently amended) One or more processor readable storage media as recited in claim 81 wherein the virtual network manager provides the as a proxy agent.

83. (currently amended) One or more processor readable storage media as recited in claim 80 further comprising processor readable code that, when executed, initiates the virtual network manager to define a member set of the virtual network that includes one or more of the devices, and the domain name that defines the virtual network.

84. (currently amended) One or more processor readable storage media as recited in claim 80 wherein the virtual network address includes a non-routable IPV4 compliant address.

85. (currently amended) One or more processor readable storage media as recited in claim 80 further comprising processor readable code that, when executed, initiates the virtual network manager to route network traffic via the public network from a first device having a public network address to a second device having a different public network address.

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86. (currently amended) One or more processor readable storage media as recited in claim 80 further comprising processor readable code that, when executed, initiates the virtual network manager to route network traffic from a first device in a private physical network having a private network address to a second device having a public network address.

87. (currently amended) One or more processor readable storage media as recited in claim 80 further comprising processor readable code that, when executed, initiates the virtual network manager to route network traffic from a first device in a private physical network having a first private network address to a second device in a different private physical network having a second private network address.

88. (currently amended) One or more processor readable storage media as recited in claim 87 wherein the network traffic is routed to the first or second device via a NAT device.

89. (currently amended) One or more processor readable storage media as recited in claim 87 wherein the first private network address and the second private network address are identical.

90. (currently amended) One or more processor readable storage media as recited in claim 85 wherein the network traffic is routed as encapsulated data packets.

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91. (currently amended) One or more processor readable storage media as recited in claim 85 wherein the network traffic is routed as encrypted data traffic.

92. (currently amended) One or more processor readable storage media as recited in claim 80 further comprising processor readable code that, when executed, initiates the virtual network manager to apply a group policy to the devices that are registered as the members of the virtual network.

93. (currently amended) A virtual network system, comprising:

a virtual network manager having a network interface coupled to a virtual network, the virtual network manager including at least one virtual community definition that is defined by a domain name having an associated public network address and a user set of one or more devices that are registered in the virtual network, each device in the virtual network being identified to the other devices by a virtual network address that is associated with the device, the virtual network manager configured to exchange virtual network information with the one or more devices of the user set, and the virtual network being accessible by devices in the user set and devices outside of the user set.

94. (original) The system of claim 93 wherein the virtual network manager includes a member register module.

95. (original) The system of claim 93 wherein the virtual network manager includes a member join module.

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96. (currently amended) The system of claim 95 wherein the member join module provides a virtual network address to a device that is registered as a member of the network.

97. (currently amended) The system of claim 93 wherein the virtual network manager is further configured to maintain data on an association between at least one virtual network address with at least one device that is registered as a member of the network.

98. (currently amended) The system of claim 93 wherein the virtual network manager includes a DNS server for the virtual community network.

99. (currently amended) The system of claim 93 wherein the virtual network manager includes a NAT device detector for devices connecting with the virtual network manager behind a NAT device.

100. (previously presented) The system of claim 93 wherein the virtual network manager includes at least a second virtual community definition.

101. (canceled)

102. (original) The system of claim 93 wherein the virtual network manager includes a member authenticator.

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103. (currently amended) The system of claim 93 wherein the virtual network manager includes a DNS server configured to provide authoritative responses for DNS queries from devices in the virtual community.

104. (currently amended) The system of claim 93 further comprising at least one route director configured to communicate with the one or more devices in the user set.

105. (currently amended) The system of claim 93 wherein each device registered in the network is configured to communicate with the virtual network manager and other devices in the user set via at least one agent.

106. (currently amended) The system of claim 93 wherein the user set includes at least a first device and a second device, and wherein at least one of said first device and said second device is coupled to a first private network and accesses a public network via a NAT device.

107. (original) The system of claim 106 wherein said first device is coupled to said first private network, and said second device is coupled to a second private network and accesses the public network via a second NAT device.

108. (currently amended) The system of claim 93 wherein communications between the one or more devices in the user set are encrypted.

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109. (currently amended) The system of claim 108 wherein the virtual network manager is configured to provide a shared message to the one or more devices in the user set to establish encrypted communications.

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Electronic Acknowledgement Receipt	
EFS ID:	3005088
Application Number:	10403818
International Application Number:	
Confirmation Number:	2698
Title of Invention:	Secure virtual community network system
First Named Inventor/Applicant Name:	Hasan S. Alkhatib
Customer Number:	75671
Filer:	William Breen/Melissa Nelson
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Application Type:	Utility under 35 USC 111(a)

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File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1		ResponseasFiled.pdf	362909 e3e09802e8052c9f84e5b7499a9c126b24163468	yes	64

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Supplemental Response or Supplemental Amendment	1	1
	Specification	2	7
	Claims	8	33
	Applicant Arguments/Remarks Made in an Amendment	34	43
	Claims	44	64
Warnings:			
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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 10/403,818	Filing Date 03/31/2003	☐ To be Mailed

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☐		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	03/14/2008	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 90	Minus	** 109	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	* 6	Minus	***8	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/ELMIRA HALL/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Hasan S Alkhatib et al.	Examiner:	Douglas B Blair
Serial No.:	10/403,818	Group Art Unit:	2142
Filed:	March 31, 2003	Docket:	INNF0017
Title:	Secure virtual community network system		

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

In compliance with the duty imposed by 37 C.F.R. § 1.56, and in accordance with 37 C.F.R. §§ 1.97 *et. seq*., the referenced materials are brought to the attention of the Examiner for consideration in connection with the above-identified patent application. Applicants respectfully request that this Supplemental Information Disclosure Statement be entered and the documents listed on the attached Form 1449 be considered by the Examiner and made of record. Pursuant to the provisions of MPEP 609, Applicants request that a copy of the 1449 form, initialed as being considered by the Examiner, be returned to the Applicants with the next official communication.

Pursuant to 37 C.F.R. §1.97(c)(2), Applicants have included the fee of $180.00 as set forth in 37 C.F.R. §1.17(p). Please charge any additional fees or credit any overpayment to Deposit Account No. 50-4143. The Examiner is invited to contact the Applicants' Representative at the below-listed telephone number if there are any questions regarding this communication.

Pursuant to 37 C.F.R. 1.98(a)(2), Applicant believes that copies of cited U.S. Patents and Published Applications are no longer required to be provided to the Office. Notification of this change was provided in the United States Patent and Trademark Office OG Notices dated October 12, 2004. Thus, Applicant has not included copies of any US Patents or Published Applications cited with this submission. Should the Office require copies to be provided, Applicant respectfully requests that notice of such requirement be directed to Applicant's below-signed representative. Applicant acknowledges the requirement to submit copies of foreign patent documents and non-patent literature in accordance with 37 C.F.R. 1.98(a)(2).

Respectfully submitted,

HASAN S ALKHATIB ET AL.

By their Representatives,

Date Aug.21, 2008 By / Dave Morasch 42905 /
David A. Morasch
Reg. No. 42,905

PTO/SB/08a (04-07)
Approved for use through 09/30/2007. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet | | of | |

Complete if Known	
Application Number	10/403,818
Filing Date	March 31, 2003
First Named Inventor	Alkhatib, Hasan
Art Unit	2142
Examiner Name	Blair, Douglas
Attorney Docket Number	INNF0017

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US- 7068655	06/27/2006	March et al.	
		US- 7058052	06/06/2006	Westphal, Cedric	
		US- 7072337	07/04/2006	Arutyunov et al.	
		US- 7085854	08/01/2006	Keane et al.	
		US- 7110375	09/19/2006	Khalil et al.	
		US- 7028334	04/11/2006	Tuomenoksa, Mark et al.	
		US- 7028333	04/11/2006	Tuomenoksa et al.	
		US- 6154777	11/28/2000	Ebrahim	
		US- 20030123421	07/03/2003	Feige	
		US- 6421732	07/16/2002	Alkhatib	
		US- 6510154	01/21/2003	Mayers	
		US- 6708219	05/04/2004	Borella	
		US- 6731642	05/04/2004	Borella	
		US- 6722210	04/20/2004	Armstrong	
		US- 7054322	05/30/2006	D'Annunzio	
		US- 20030065785	04/03/2003	Jain, Nikhil	
		US- 2003/0219000	02/15/2005	Magret, Vincent	
		US-			

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3] Number[4] Kind Code[5] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Electronic Patent Application Fee Transmittal	
Application Number:	10403818
Filing Date:	31-Mar-2003
Title of Invention:	Secure virtual community network system
First Named Inventor/Applicant Name:	Hasan S. Alkhatib
Filer:	William Breen/Travis Henderson
Attorney Docket Number:	TTCC-01021US0
Filed as Large Entity	

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	180	180
		Total in USD ($)		**180**

Electronic Acknowledgement Receipt	
EFS ID:	3820422
Application Number:	10403818
International Application Number:	
Confirmation Number:	2698
Title of Invention:	Secure virtual community network system
First Named Inventor/Applicant Name:	Hasan S. Alkhatib
Customer Number:	75671
Filer:	William Breen/Travis Henderson
Filer Authorized By:	William Breen
Attorney Docket Number:	TTCC-01021US0
Receipt Date:	21-AUG-2008
Filing Date:	31-MAR-2003
Time Stamp:	17:32:05
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$180
RAM confirmation Number	2626
Deposit Account	504143
Authorized User	BREEN,WILLIAM J.
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		IDS.pdf	246840 9990834dc24c8bf2008e7476b8daa588283457f8	yes	3
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Information Disclosure Statement Letter		1	2	
	Information Disclosure Statement (IDS) Filed (SB/08)		3	3	
Warnings:					
Information:					
2	Fee Worksheet (PTO-06)	fee-info.pdf	30020 1b0247e3a8698c8af4e95bbc90f6c09283697746	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	276860		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Electronic Acknowledgement Receipt	
EFS ID:	3820422
Application Number:	10403818
International Application Number:	
Confirmation Number:	2698
Title of Invention:	Secure virtual community network system
First Named Inventor/Applicant Name:	Hasan S. Alkhatib
Customer Number:	75671
Filer:	William Breen/Travis Henderson
Filer Authorized By:	William Breen
Attorney Docket Number:	TTCC-01021US0
Receipt Date:	21-AUG-2008
Filing Date:	31-MAR-2003
Time Stamp:	17:32:05
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$180
RAM confirmation Number	2626
Deposit Account	504143
Authorized User	BREEN,WILLIAM J.
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		IDS.pdf	246840 9990834dc24c8bf2008e7476b8daa588283457f8	yes	3
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Information Disclosure Statement Letter		1	2	
	Information Disclosure Statement (IDS) Filed (SB/08)		3	3	
Warnings:					
Information:					
2	Fee Worksheet (PTO-06)	fee-info.pdf	30020 1b0247e3a8698c8af4e95bbc90f6c09283697746	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	276860		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Hasan S Alkhatib et al.	Examiner:	Douglas B Blair
Serial No.:	10/403,818	Group Art Unit:	2142
Filed:	March 31, 2003	Docket:	INNF0017
Title:	Secure virtual community network system		

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

In compliance with the duty imposed by 37 C.F.R. § 1.56, and in accordance with 37 C.F.R. §§ 1.97 *et. seq*., the referenced materials are brought to the attention of the Examiner for consideration in connection with the above-identified patent application. Applicants respectfully request that this Supplemental Information Disclosure Statement be entered and the documents listed on the attached Form 1449 be considered by the Examiner and made of record. Pursuant to the provisions of MPEP 609, Applicants request that a copy of the 1449 form, initialed as being considered by the Examiner, be returned to the Applicants with the next official communication.

Pursuant to 37 C.F.R. §1.97(b), it is believed that no fee or statement is required with the Supplemental Information Disclosure Statement. However, if an Office Action on the merits has been mailed, the Commissioner is hereby authorized to charge the required fees to Deposit Account No. 50-4143 in order to have this Supplemental Information Disclosure Statement considered. The Examiner is invited to contact the Applicants' Representative at the below-listed telephone number if there are any questions regarding this communication.

Pursuant to 37 C.F.R. 1.98(a)(2), Applicant believes that copies of cited U.S. Patents and Published Applications are no longer required to be provided to the Office. Notification of this change was provided in the United States Patent and Trademark Office OG Notices dated October 12, 2004. Thus, Applicant has not included copies of any US Patents or Published Applications cited with this submission. Should the Office require copies to be provided, Applicant respectfully requests that notice of such requirement be directed to Applicant's below-signed representative. Applicant acknowledges the requirement to submit copies of foreign patent documents and non-patent literature in accordance with 37 C.F.R. 1.98(a)(2).

Respectfully submitted,

HASAN S ALKHATIB ET AL.

By their Representatives,

Date Oct. 18, 2008 By / Dave Morasch 42905 /
David A. Morasch
Reg. No. 42,905

PTO/SB/08a(04-07)
Approved for use through 7/31/2006. OMB 0651-0031
US Patent & Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

	Complete if Known
Application Number	10/403,818
Filing Date	March 31, 2003
First Named Inventor	Alkhatib, Hasan
Art Unit	2142
Examiner Name	Blair, Douglas

Sheet	1	of	1	Attorney Docket No: INNF0017

US PATENT DOCUMENTS

Examiner Initial *	Cite No	Document Number	Publication Date	Name of Patentee or Applicant of Cited Document	Filing Date If Appropriate
		US-7133368	11/07/2006	Zhang, Qian et al.	02/01/2002
		US-7227864	06/05/2007	Collins, Leonard et al.	12/17/2001
		US-20030212795	11/13/2003	Harris, Adam et al.	08/08/2002
		US-20030084162	05/01/2003	Johnson, Bruce et al.	10/31/2001
		US-20020078198	06/20/2004	Buchbinder, John et al.	02/15/2002

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No	Foreign Patent Document	Publication Date	Name of Patentee or Applicant of cited Document	T[2]

OTHER DOCUMENTS -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No [1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]

EXAMINER **DATE CONSIDERED**

Substitute Disclosure Statement Form (PTO-1449)
* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional) 2 Applicant is to place a check mark here if English language Translation is attached

Electronic Acknowledgement Receipt	
EFS ID:	4148694
Application Number:	10403818
International Application Number:	
Confirmation Number:	2698
Title of Invention:	Secure virtual community network system
First Named Inventor/Applicant Name:	Hasan S. Alkhatib
Customer Number:	75671
Filer:	William Breen/Travis Henderson
Filer Authorized By:	William Breen
Attorney Docket Number:	INNF0017
Receipt Date:	21-OCT-2008
Filing Date:	31-MAR-2003
Time Stamp:	14:31:15
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		INNF0017IDSforfiling.pdf	52618 dcf18961f5d5dfdecc6a064c0c45fba371444dac	yes	3

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Information Disclosure Statement Letter	1	2
	Information Disclosure Statement (IDS) Filed (SB/08)	3	3
Warnings:			
Information:			
	Total Files Size (in bytes):	52618	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/403,818	03/31/2003	Hasan S. Alkhatib	INNF0017	2698

75671 7590 02/04/2009

Sadler, Breen, Morasch & Colby, ps
422 W. Riverside Ave, Suite 424
Spokane, WA 99201

EXAMINER	
BLAIR, DOUGLAS B	
ART UNIT	PAPER NUMBER
2442	

MAIL DATE	DELIVERY MODE
02/04/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

AA/SWA Ex. 1002, p.391 of 833
American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

Office Action Summary	Application No.	Applicant(s)	
	10/403,818	ALKHATIB ET AL.	
	Examiner	Art Unit	
	DOUGLAS B. BLAIR	2442	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 March 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24,26-36,41-44,53-66,68-100 and 102-109* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24,26-36,41-44,53-66,68-100 and 102-109* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/5/07,8/21/08, 10/21/08* .
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

AA/SWA Ex. 1002, p.392 of 833
American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/14/2008 has been entered.

Response to Arguments

Applicant's arguments with respect to claims 1-24, 26-36, 41-44, 53-66, 68-100, and 102-109 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-24, 26-36, 41-44, 53-66, 68-79, 93-100, and 102-109 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1-24 and 26-31 are directed towards a virtual network system comprising a virtual network manager and a route director. Because these elements are disclosed as possibly being software elements they are treated as software per se. Claims 32-36, 41-44, 93-100, and 102-109 are directed towards the virtual network manager. Claims 53-63 are directed towards a system

comprising a virtual network manager, a route director, and software agents. Software per se does not fit into a statutory category of invention.

Claims 64-66 and 68-79 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. While the claims recite a series of steps or acts to be performed, a statutory "process" under 35 U.S.C. 101 must (1) be tied to particular machine, or (2) transform underlying subject matter (such as an article or material) to a different state or thing. See page 10 of In Re Bilski 88 USPQ2d 1385. The instant claims are neither positively tied to a particular machine that accomplishes the claimed method steps nor transform underlying subject matter, and therefore do not qualify as a statutory process.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-15, 17-24, 26, 29-43, 53-56, 59, 60-66, 68-87, 90-100, and 102-109 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Application Publication Number 2008/0232295 by Kreiner et al.

As to claim 1, Kreiner teaches a virtual network system, comprising: a virtual network manager configured to register devices in a virtual network that is defined by a domain name (paragraph 39), each device in the virtual network being identified to the other devices by a virtual network

address that is unique for each device and not directly routable via a public network, the virtual network manager further configured to distribute a virtual network address to a device when the device is registered in the virtual network (paragraph 35); and a route director configured to communicate data between the devices that are registered in the virtual network, the data being communicated as encapsulated packets from a source device to a destination device, an encapsulated packet including a first virtual network address that corresponds to the source device and a second virtual network address that corresponds to the destination device (paragraph 38).

As to claim 2, Kreiner teaches the system of claim 1 wherein each of the devices communicate with the virtual network manager and the other devices in the virtual network via an associated agent (paragraphs 30-39).

As to claim 3, Kreiner teaches the system of claim 1 wherein each of the devices include an agent configured to communicate with the virtual network manager and agents of the other devices in the virtual network (paragraphs 30-39).

As to claim 4, Kreiner teaches the system of claim 2 wherein the associated agent is installed on a proxy device which is a proxy agent for one or more of the devices in the virtual network with respect to the virtual network manager and the route director (Figure 2, personal gateway).

As to claim 5, Kreiner teaches the system of claim 2 wherein the virtual network manager is further configured to: receive a request from the agent associated with a device in a private network to register the device in the virtual network; and detect a presence of a NAT device via which the request is routed from the agent to the virtual network manager (paragraphs 30-39).

As to claim 6, Kreiner teaches the system of claim 1 wherein the virtual network manager is

coupled to the public network and has an associated public network address (paragraphs 30-39).

As to claim 7, Kreiner teaches the system of claim 1 wherein the route director is further configured to receive the encapsulated packets when routed to a public network address corresponding to the route director (paragraphs 30-39).

As to claim 8, Kreiner teaches the system of claim 1 wherein each of the devices in the virtual network are further identified by at least one physical network address (paragraphs 30-39).

As to claim 9, Kreiner teaches the system of claim 8 wherein the physical network addresses that are associated with the devices in the virtual network are dynamic (paragraphs 30-39).

As to claim 10, Kreiner teaches the system of claim 8 wherein the physical network addresses that are associated with the devices in the virtual network are static (paragraphs 30-39).

As to claim 11, Kreiner teaches the system of claim 8 wherein the physical network addresses that are associated with the devices in the virtual network are private network addresses, and wherein the virtual network addresses are unique in the virtual network so as not to conflict with the private network addresses (paragraphs 30-39).

As to claim 12, Kreiner teaches the system of claim 8 wherein the source device is coupled to a first private network and accesses a public network via a first NAT device configured to transmit the encapsulated packets, an encapsulated packet further including the physical network address of the source device as a private network address in the first private network (paragraphs 30-39).

As to claim 13, Kreiner teaches the system of claim 12 wherein the physical network address of the source device is dynamic (paragraphs 30-39).

As to claim 14, Kreiner teaches the system of claim 12 wherein the physical network address of the source device is static (paragraphs 30-39).

As to claim 15, Kreiner teaches the system of claim 12 wherein the destination device is coupled to a second private network and accesses the public network via a second NAT device, the encapsulated packet further including the physical network address of the destination device as a private network address in the second private network (paragraphs 30-39).

As to claim 17, Kreiner teaches the system of claim 15 wherein the physical network address of the destination device is dynamic (paragraphs 30-39).

As to claim 18, Kreiner teaches the system of claim 15 wherein the physical network address of the destination device is static (paragraphs 30-39).

As to claim 19, Kreiner teaches the system of claim 15 wherein said first private network and said second private network share at least one network address (paragraphs 30-39).

As to claim 20, Kreiner teaches the system of claim 1 wherein the route director is further configured to: provide a device-specific pseudo address assignment for the device in the virtual network when the device communicates with the route director via a NAT device; and store an association of the device-specific pseudo address with a public network address of the NAT device and a port number of the NAT device (paragraphs 30-39).

As to claim 21, Kreiner teaches the system of claim 1 wherein the route director includes a translator for virtual network address information for a device in the virtual network that is implemented in a private network (paragraphs 30-39).

As to claim 22, Kreiner teaches the system of claim 1 wherein the virtual network manager is coupled to the public network and includes a public network address (paragraphs 30-39).

As to claim 23, Kreiner teaches the system of claim 22 wherein the route director is coupled to the public network and includes a different public network address than the public network address of the virtual network manager (paragraphs 30-39).

As to claim 24, Kreiner teaches the system of claim 22 wherein the route director is coupled to a private network and includes a private network address (paragraphs 30-39).

As to claim 26, Kreiner teaches the system of claim 1 wherein the encapsulated packets further include virtual IP packets configured for communication of the data, the virtual IP packets being encrypted prior to being encapsulated (paragraphs 30-39).

As to claim 29, Kreiner teaches the system of claim 5 wherein the virtual network manager is further configured to receive the request from the agent as a message, and detect the presence of the NAT device by comparing a field in a payload of the message with a source address in a header of the message (paragraphs 30-39).

As to claim 30, Kreiner teaches the system of claim 1 wherein the virtual network manager includes a virtual community definition that is defined by the domain name, and includes one or more of the devices that are registered in the virtual network (paragraphs 30-39).

As to claim 31, Kreiner teaches the system of claim 1 wherein the route director is a public route director in the public network, the system further comprising a private route director in a private network configured to enable access to devices of the private network that are also in

the virtual network from devices of the public network that are also in the virtual network (paragraphs 30-39).

As to the rest of the claims they are rejected for the same reasons.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication Number 2008/0232295 by Kreiner et al.

As to claims 27-28, official notice is taken that the claimed types of encryption are well known and the applicant has not disclosed anything novel related to them so they are not themselves patentable.

Allowable Subject Matter

Claims 16 and 44 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art does not teach he claimed relation between the elements claimed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DOUGLAS B. BLAIR whose telephone number is (571)272-3893. The examiner can normally be reached on 9:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Caldwell can be reached on (571) 272-3868. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Douglas B Blair/
Primary Examiner, Art Unit 2442

Notice of References Cited	Application/Control No. 10/403,818	Applicant(s)/Patent Under Reexamination ALKHATIB ET AL.	
	Examiner DOUGLAS B. BLAIR	Art Unit 2442	Page 1 of 2

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2003/0152068	08-2003	Balasaygun et al.	370/356
*	B	US-6,226,751	05-2001	Arrow et al.	726/15
*	C	US-5,754,938	05-1998	Herz et al.	725/116
*	D	US-7,107,614	09-2006	Boden et al.	726/15
*	E	US-7,107,464	09-2006	Shapira et al.	726/15
*	F	US-2006/0190607	08-2006	Lowery et al.	709/226
*	G	US-2003/0131131	07-2003	Yamada et al.	709/238
*	H	US-2001/0050914	12-2001	Akahane et al.	370/382
*	I	US-7,327,721	02-2008	Balasaygun et al.	370/352
*	J	US-2006/0212545	09-2006	Nichols et al.	709/219
*	K	US-2006/0195539	08-2006	Nichols et al.	709/206
*	L	US-2006/0195524	08-2006	Nichols et al.	709/204
*	M	US-2004/0088542	05-2004	Daude et al.	713/156

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

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	Examiner DOUGLAS B. BLAIR	Art Unit 2442	Page 2 of 2

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2002/0103931	08-2002	Mott, Charles J.	709/245
*	B	US-7,424,737	09-2008	Wesinger et al.	726/11
*	C	US-7,263,719	08-2007	Jemes et al.	726/12
*	D	US-6,961,783	11-2005	Cook et al.	709/245
*	E	US-2008/0232295	09-2008	Kreiner et al.	370/313
*	F	US-2007/0286189	12-2007	Kreiner et al.	370/389
	G	US-			
	H	US-			
	I	US-			
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	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
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Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10403818	ALKHATIB ET AL.
	Examiner	Art Unit
	DOUGLAS B BLAIR	2442

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

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	36	✓								

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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10403818	ALKHATIB ET AL.
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☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

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	Examiner	Art Unit
	DOUGLAS B BLAIR	2442

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
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☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
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	10403818	ALKHATIB ET AL.
	Examiner	Art Unit
	DOUGLAS B BLAIR	2442

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	01/29/2009								
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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10403818	ALKHATIB ET AL.
	Examiner	Art Unit
	DOUGLAS B BLAIR	2442

SEARCHED			
Class	Subclass	Date	Examiner
	update	1/28/2009	DBB

SEARCH NOTES		
Search Notes	Date	Examiner
update	1/28/2009	DBB
inventor name search	1/28/2009	DBB

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

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EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	33	"virtual community" near2 network$2	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:48
S2	19	S1 and @ad<"20030331"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/14 10:09
S3	5	S2 and ((private or public) with address)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/13 20:00
S4	45	((virtual near (community or network)) and (private near address$3) and (public near address$3) and (IP near address$2))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/13 20:04
S5	27	S4 and @ad<"20030331"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/13 20:04
S6	53	("6226751").URPN.	USPAT	OR	OFF	2006/09/13 20:30
S7	1	"20040249911".pn.	US-PGPUB; USPAT	OR	OFF	2006/09/14 09:59
S8	139	("domain name" or DNS) with (VPN)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/14 10:08
S9	74	S8 and @ad<"20030331"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/14 10:09
S10	22	S9 and (NAT with (public or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:59
S11	1801	709/245.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/14 11:02

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S12	454	"virtual community"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:49
S13	353	router same (public with address$3) same (private with address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:50
S14	353	S13 same S13	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:50
S15	0	S12 same S13	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:50
S16	3	S12 and S13	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:50
S17	0	S16 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:51
S18	387	router same (public with address$3) and router same (private with address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:50
S19	260	S18 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:52
S20	0	S19 and S12	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:51
S21	306	rout$3 with (public near address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:51
S22	0	S12 same S21	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:52

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S23	3	S12 and S21	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:52
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S25	1	S12 same public near address $3	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:53
S26	0	S12 same (rout$3 with internet)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:53
S27	1	S12 same private near address $3	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:54
S28	15	(community or group) same S13	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:54
S29	7	S28 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:59
S30	85	((group or community) with (member$4 or belong$3)) and (NAT with (public or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:00
S31	49	S30 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:01
S32	55	((group or community) with (member$4 or belong$3)) and ((group$1 or community) same rout$3) and (NAT with (public or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:25
S33	34	S32 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:27

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S34	272055	((group or community) with (member$4 or belong$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:25
S35	6111	S34 same server	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:25
S36	124	S35 and ((rout$3 near2 (messag$3 or communication $1)) same (firewall or NAT or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:26
S37	68	S36 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:27
S38	35	S37 and "domain name"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:27
S39	1	"20020152297".pn.	US-PGPUB; USPAT	OR	OFF	2007/05/25 18:47
S40	706	"virtual community"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S41	533	router same (public with address$3) same (private with address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S42	3	S40 and S41	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S43	0	S42 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S44	582	router same (public with address$3) and router same (private with address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57

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S45	321	S44 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S46	411	rout$3 with (public near address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S47	3	S40 and S46	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S48	0	S47 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S49	25	(community or group) same S41	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S50	12	S49 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S51	136	((group or community) with (member$4 or belong$3)) and (NAT with (public or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S52	64	S51 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S53	77	((group or community) with (member$4 or belong$3)) and ((group$1 or community) same rout$3) and (NAT with (public or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S54	42	S53 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S55	318137	((group or community) with (member$4 or belong$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57

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S56	8828	S55 same server	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S57	168	S56 and ((rout$3 near2 (messag$3 or communication $1)) same (firewall or NAT or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S58	89	S57 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S59	91	(S43 S45 S48 S50 S52 S54 S58) and @pd>"20070524"	US-PGPUB; USPAT	OR	OFF	2009/01/07 13:57
S60	1	"20040249911".pn.	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:00
S61	1008	(Vpn or "virtual private network") and (assign$5 near address$3) and domain$1	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:01
S62	25	(Vpn or "virtual private network") same (assign$5 near address$3) same domain $1	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:02
S63	8	S62 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 14:02
S64	196	("20020078198" | "20020133534" | "20030041091" | "20030041136" | "20030084162" | "20030212795" | "20040006708" | "20040111612" | "20040148439" | "5361256" | "5563878" | "5623605" | "5701427" | "5717687" | "5734651" | "5751961" | "5764906" | "5777989" | "5781550" | "5790548" | "5793763" | "5805818" | "5805820" | "5815664" | "5856974" | "5867667" | "5884246" | "5889953" | "5913210" | "5937162" | "5937163" | "6226751" | "6594704" | "6701437" | "6832322" | "6970941" | "6003084" | "6006272" | "6032196" | "6047325" | "6055575" | "6061738" |	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 14:04

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		"6119171" | "6353614" | "6353886" | "6381638" | "6430622" | "6430623" | "6438597" | "6438612" | "6452925" | "6457061" | "6480508" | "6490289" | "6496867" | "6507873" | "6523068" | "6556584" | "6557037" | "6557306" | "6591306" | "6618757" | "6629137" | "6631416" | "6651101" | "6657991" | "6662223" | "6697377" | "6742045" | "6747979" | "6754706" | "6772210" | "6778528" | "6779035" | "6781982" | "6948003" | "6973485" | "6981020" | "6982953" | "6983319" | "6993012" | "6993595" | "6996628" | "6996631" | "7010702" | "7092390" | "7107464" | "7107614" | "7133368" | "7227864" | "7003481" | "7032242" | "7139828").PN.				
S65	3296	(Vpn or "virtual private network") with rout$3	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:05
S66	559	(Vpn or "virtual private network") with regist$6	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:05
S67	268	S65 and S66	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:06
S68	267	S66 same address$3	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:06
S69	106	S66 same S65	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:06
S70	60	S68 same S65	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:06
S71	24	S70 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 14:07
S72	16	(Vpn or "virtual private network") with (public near3 domain$1)	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:29
S73	7	S72 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 14:29
S74	394	(Vpn or "virtual private network") and community with (public near$3 domain $1)	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:35

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S75	392	(Vpn or "virtual private network") and community with (public near$2 domain $1)	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:35
S76	210	S75 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 14:35
S77	5	S76 and S67	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 14:36
S78	2	(Vpn or "virtual private network") and community with (public adj domain$1)	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:37
S79	232	(Vpn or "virtual private network") and community with (domain$1)	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:38
S80	18	(Vpn or "virtual private network") and community with (domain$1 near name $1)	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:38
S81	9	S80 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 14:39
S82	25	(Vpn or "virtual private network") and domain$1 and S64	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:41
S83	106	(Vpn or "virtual private network") with communit$3	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:50
S84	4	S83 same domain	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:50
S85	1	S84 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 14:50
S86	19	S83 and domain adj name$1	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:52
S87	14	S86 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 14:53
S88	1442	(virtual near2 network) and (virtual near2 address$3) and regist$6	US-PGPUB; USPAT	OR	OFF	2009/01/28 10:36

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S89	226	(virtual near2 network) and (virtual near2 address$3) with regist$6	US-PGPUB; USPAT	OR	OFF	2009/01/28 10:36
S90	115	S89 and (encapsulat$3 or tunnel$3)	US-PGPUB; USPAT	OR	OFF	2009/01/28 10:38
S91	81	S90 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/28 10:40
S92	0	S91 and subdomain$1	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/28 10:41
S93	19	S91 and (virtual near2 domain $1)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/28 10:41
S94	33	(virtual near2 network) and (assign$3 near4 (virtual near2 address$3)) with regist$6	US-PGPUB; USPAT	OR	OFF	2009/01/28 10:55
S95	21	S94 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/28 10:55
S96	11	regist$6 with (p2p or "peer-to-peer" or "peer to peer") same (assign$5 near2 address$3)	US-PGPUB; USPAT	OR	OFF	2009/01/28 11:06
S97	11	S96 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/28 11:07
S98	200	regist$6 with (server$1 or manag$5) same (assign$5 near2 address$3) same domain$1	US-PGPUB; USPAT	OR	OFF	2009/01/28 11:09
S99	17536	(broadcast$3 or multicast$3) with ((new or join$3))	US-PGPUB; USPAT	OR	OFF	2009/01/28 11:10
S100	2	S98 same S99	US-PGPUB; USPAT	OR	OFF	2009/01/28 11:10
S101	19	S98 and S99	US-PGPUB; USPAT	OR	OFF	2009/01/28 11:12
S102	13	S101 and (virtual or vpn)	US-PGPUB; USPAT	OR	OFF	2009/01/28 11:12
S103	13	S102 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/28 11:12

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S104	156	((virtual near2 network) or vpn) with (domain$1 near2 (router$1 or manag$5 or server$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/28 11:18
S105	78	S104 and ((assign$5 or regist$6) with address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/28 11:19
S106	48	S105 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/28 11:19
S107	277	("20030005334" | "20030126467" | "20030196122" | "20040073812" | "20040088586" | "20040088706" | "20040098624" | "20040103321" | "20040103322" | "20050021595" | "20050022030" | "20050149747" | "20050229248" | "20050235346" | "20050235347" | "20050235348" | "20050235359" | "20060005236" | "20060021020" | "20060053486" | "20060075139" | "20060112276" | "20060112424" | "20060288408" | "20070101421" | "4713753" | "4727243" | "4799153" | "4799156" | "4802217" | "4823338" | "4893307" | "4896319" | "4914619" | "4926416" | "4985889" | "4991204" | "5023907" | "5048081" | "5067123" | "5084867" | "5091903" | "5101404" | "5115431" | "5124984" | "5138712" | "5166931" | "5168492" | "5185743" | "5185860" | "5191611" | "5204857" | "5204897" | "5208811" | "5214646" | "5216669" | "5218602" | "5231631" | "5233607" | "5241594" | "5249178" | "5253247" |	US-PGPUB; USPAT; USOCR	OR	OFF	2009/01/28 11:34

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		"5255266" | "5258752" |					
		"5258979" | "5260999" |					
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		"5282244" | "5285441" |					
		"5311509" | "5311596" |					
		"5321727" | "5323389" |					
		"5339318" | "5345443" |					
		"5345445" | "5345446" |					
		"5351146" | "5375206" |					
		"5392402" | "5394393" |					
		"5394398" | "5394402" |					
		"5412654" | "5414701" |					
		"5416842" | "5420857" |					
		"5420858" | "5422882" |					
		"5425090" | "5426636" |					
		"5428607" | "5428609" |					
		"5428771" | "5434852" |					
		"5434914" | "5434981" |					
		"5436727" | "5438508" |					
		"5442630" | "5444702" |					
		"5444703" | "5446738" |					
		"5448724" | "5450394" |					
		"5452297" | "5453980" |					
		"5453981" | "5455953" |					
		"5457681" | "5457684" |					
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		OR ("5477537" | "5479401" |					
		"5479402" | "5479407" |					
		"5483527" | "5483661" |					
		"5485455" | "5490252" |					
		"5491694" | "5491752" |					
		"5495411" | "5495533" |					
		"5509010" | "5511166" |					
		"5513178" | "5519707" |					
		"5522042" | "5526414" |					
		"5535336" | "5539884" |					
		"5541918" | "5541926" |					
		"5544152" | "5544161" |					
		"5546379" | "5548645" |					
		"5548721" | "5550816" |					
		"5550984" | "5566173" |					
		"5568475" | "5570368" |					
		"5577039" | "5577209" |					
		"5579222" | "5583862" |					
		"5583863" | "5586260" |					
		"5590199" | "5602918" |					
		"5606668" | "5608447" |					
		"5617540" | "5623011" |					
		"5623600" | "5623601" |					
		"5623605" | "5629980" |					
		"5631897" | "5632011" |					
		"5636371" | "5638448" |					
		"5644706" | "5657390" |					
		"5657452" | "5666487" |					
		"5668876" | "5671279" |					
		"5671354" | "5671412" |					
		"5673322" | "5680461" |					
		"5684799" | "5684800" |					

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		"5687235" | "5691973" | "5708659" | "5715397" | "5715403" | "5721908" | "5729689" | "5734865" | "5740371" | "5742604" | "5764626" | "5765152" | "5774660" | "5777989" | "5781550" | "5784450" | "5790664" | "5793964" | "5802047" | "5802053" | "5802320" | "5802366" | "5805820" | "5812671" | "5813863" | "5815664" | "5826014" | "5826029" | "5828833" | "5828893" | "5835726" | "5838918" | "5845267" | "5862348" | "5864683" | "5870550" | "5878212" | "5878231" | "5889943" | "5892900" | "5898830" | "5903718" | "5903732" | "5911776" | "5918017" | "5920697" | "5935245" | "5944795" | "5948069" | "5958052" | "5959990" | "5960086" | "5982773" | "5983350" | "5987140" | "5991301" | "6003084" | "6016318" | "6035105" | "6052788" | "6061346").PN. OR ("6061798" | "6064671" | "6088451" | "6115393" | "6119165" | "6119236" | "6141689" | "6157624" | "6195357" | "6208656" | "6321333" | "6324525" | "6360256" | "6363363" | "6366893" | "6453419" | "6484143" | "6654892" | "6658568" | "6687833" | "6728748" | "6751738" | "6754831" | "6792337" | "6795917" | "6804783" | "6931452" | "6947981" | "6954790" | "6973034" | "7028049" | "7028336" | "7116707" | "7249376" | "7249378" | "7269847").PN. OR ("7424737").URPN.				
S108	0	("7424737").URPN.	USPAT	OR	OFF	2009/01/28 11:34
S109	0	("7424737").URPN.	USPAT	OR	OFF	2009/01/28 11:34
S110	80	("7424737" "6751738" "6804783" "6052788" "5893830").URPN.	USPAT	OR	OFF	2009/01/28 11:36

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S111	1	"20020026525".pn.	US-PGPUB; USPAT	OR	OFF	2009/01/28 12:23
S112	915	private near rout$3	US-PGPUB; USPAT	OR	OFF	2009/01/28 15:53
S113	97	S112 with (encapsulat$4 or tunnel$3)	US-PGPUB; USPAT	OR	OFF	2009/01/28 15:53
S114	43	S113 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT	OR	OFF	2009/01/28 15:54
S115	11	S114 and ((domain$1 near name$1) or dns)	US-PGPUB; USPAT	OR	OFF	2009/01/28 15:55
S116	12	("20020055917" | "20020188689" | "20040059598" | "20040060056" | "5418628" | "5602843" | "5924074" | "6052442" | "6305007" | "6810429" | "7117246" | "7224698").PN. OR ("7474667").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2009/01/28 16:15
S117	34	("20020046292" | "20020055917" | "20020069261" | "20020136223" | "20020188689" | "20030212657" | "20030217333" | "20040059598" | "20040060056" | "20040100974" | "20040100975" | "20050111467" | "20060248208" | "5418628" | "5924074" | "6002689" | "6016307" | "6026091" | "6052442" | "6098138" | "6104718" | "6129449" | "6178170" | "6181703" | "6226686" | "6305007" | "6385198" | "6434403" | "6456594" | "6466236" | "6810429" | "6973479" | "7114171" | "7117246").PN. OR ("7379464").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2009/01/28 16:16
S118	30	("20020010758" | "20020055917" | "20020136223" | "20020188689" | "20040059598" | "20040060056" | "20040100974" | "20040100975" | "5418628" | "5924074" | "6002689" | "6016307" | "6026091" | "6052442" | "6098138" | "6104718" | "6129449" | "6178170" | "6181703" |	US-PGPUB; USPAT; USOCR	OR	OFF	2009/01/28 16:18

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IPR2025-00786

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American Airlines, et. al. v. Intellectual Ventures, et.al.
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Complete if Known	
Application Number	10/403,818
Filing Date	March 31, 2003
First Named Inventor	Alkhatib, Hasan
Art Unit	2142
Examiner Name	Blair, Douglas
Attorney Docket Number	INNF0017

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
/DB/		US- 7068655	06/27/2006	March et al.	
/DB/		US- 7058052	06/06/2006	Westphal, Cedric	
/DB/		US- 7072337	07/04/2006	Arutyunov et al.	
/DB/		US- 7085854	08/01/2006	Keane et al.	
/DB/		US- 7110375	09/19/2006	Khalil et al.	
/DB/		US- 7028334	04/11/2006	Tuomenoksa, Mark et al.	
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/DB/		US- 6154777	11/28/2000	Ebrahim	
/DB/		US- 20030123421	07/03/2003	Feige	
/DB/		US- 6421732	07/16/2002	Alkhatib	
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Art Unit	2142
Examiner Name	Blair, Douglas

US PATENT DOCUMENTS

Examiner Initial *	Cite No	Document Number	Publication Date	Name of Patentee or Applicant of Cited Document	Filing Date If Appropriate
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/DB/		US-7227864	06/05/2007	Collins, Leonard et al.	12/17/2001
/DB/		US-20030212795	11/13/2003	Harris, Adam et al.	08/08/2002
/DB/		US-20030084162	05/01/2003	Johnson, Bruce et al.	10/31/2001
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EXAMINER /Douglas Blair/ **DATE CONSIDERED** 01/29/2009

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	Application Number	10403818
	Filing Date	2003-03-31
	First Named Inventor	Alkhatib
	Art Unit	2142
	Examiner Name	Blair, Douglas B.
	Attorney Docket Number	TTCC-1021US0

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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/DB/	2	7032242		2006-04-18	Grabelsky	
/DB/	3	7139828		2006-11-21	Alkhatib	
/DB/	4	6353614		2002-03-05	Borella	
/DB/	5	6353886		2002-03-05	Howard	
/DB/	6	6981020		2005-12-27	Miloslavsky	
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/DB/	8	6438597		2002-08-20	Mosberger	

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	Filing Date	2003-03-31
	First Named Inventor	Alkhatib
	Art Unit	2142
	Examiner Name	Blair, Douglas B.
	Attorney Docket Number	TTCC-1021US0

/DB/	9	6438612		2002-08-20	Ylonen	
/DB/	10	6381638		2002-04-30	Mahler	
/DB/	11	6457061		2002-09-24	Bal	
/DB/	12	6993012		2006-01-31	Liu	
/DB/	13	6490289		2002-12-03	Zhang	
/DB/	14	6496867		2002-12-17	Beser	
/DB/	15	6507873		2003-01-14	Suzuki	
/DB/	16	6523068		2003-02-18	Beser	
/DB/	17	6556584		2003-04-29	Horsley	
/DB/	18	6993595		2006-01-31	Luptowski	
/DB/	19	6557306		2003-05-06	Sekiya	

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/DB/	20	6996628		2006-02-07	Keane	
/DB/	21	6430622		2002-08-06	Aiken, Jr.	
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/DB/	24	6631416		2003-10-07	Bendinelli	
/DB/	25	6772210		2004-08-03	Edholm	
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/DB/	27	6778528		2004-08-17	Blair	
/DB/	28	6697377		2004-02-24	Ju	
/DB/	29	6430623		2002-08-06	Alkhatib	
/DB/	30	6452925		2002-09-17	Sistanizadeh	

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	Application Number	10403818
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	First Named Inventor	Alkhatib
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	Attorney Docket Number	TTCC-1021US0

/DB/	31	6781982		2004-08-24	Borella	
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/DB/	38	6629137		2003-09-30	Wynn	
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	Art Unit	2142
	Examiner Name	Blair, Douglas B.
	Attorney Docket Number	TTCC-1021US0

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/DB/	1	5864666		1999-01-26	Shrader	
/DB/	2	6058431		2000-05-02	Srisuresh	
/DB/	3	6128664		2000-10-13	Yanagidate	
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	First Named Inventor	Alkhatib
	Art Unit	2142
	Examiner Name	Blair, Douglas B.
	Attorney Docket Number	TTCC-1021US0

/DB/	9	5701427		1997-12-23	Lathrop	
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	Art Unit	2142
	Examiner Name	Blair, Douglas B.
	Attorney Docket Number	TTCC-1021US0

/DB/	20	5805820		1998-09-08	Bellovin	
/DB/	21	5815664		1998-09-29	Asano	
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	Art Unit	2142
	Examiner Name	Blair, Douglas B.
	Attorney Docket Number	TTCC-1021US0

/DB/	31	5937162		1999-08-10	Funk	
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/DB/	39	6061349		2000-05-09	Coile	
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/DB/	42	6119171		2000-09-12	Alkhatib	
/DB/	43	6122276		2000-09-19	Boe	
/DB/	44	6137791		2000-10-24	Frid	
/DB/	45	6154839		2000-11-28	Arrow	
/DB/	46	6219715		2001-04-17	Ohno	
/DB/	47	6243749		2001-06-05	Sitaraman	
/DB/	48	6249801		2001-06-19	Zisapel	
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/DB/	1	KESSLER, Gary C., "Mobile IP: Harbiner of Untethered Computing," http://www.garykessler,net/librarymobileip.htm, 1/20/2004	☐
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/DB/	5	Excerpts from the Help section of Microsoft Outlook pertaining to rules and forwarding email. Microsoft Corporation.	☐

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	Attorney Docket Number	TTCC-1021US0

/DB/	6	K. EGEVANG and P. FRANCIS, RFC 1631, The IP Network Address Translator (NAT), May 1994.	☐

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American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application Serial No. 10/403,818
Filing Date 03/31/2003
Inventorship ..... Alkhatib *et al.*
Applicant ..... Inpro Network Facility, LLC
Group Art Unit 2442
Examiner ..... Blair, Douglas B.
Confirmation No. 2698
Attorney's Docket No. INNF0017
Title: Secure Virtual Community Network System

RESPONSE TO OFFICE ACTION DATED FEBRUARY 4, 2009

To: Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

From: David A. Morasch Tel. 509-755-7250
Fax 509-755-7252
Customer # 75671

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IPR2025-00786

LIST OF CLAIMS / AMENDMENTS

Claims 25, 37-40, 45-52, 67, and 101 were previously canceled.

Please cancel claims 16 and 44 without prejudice.

Please amend claims 1, 32, 53, 57, 58, 64, 80, 81, 83, 85-87, 92, and 93 as shown herein.

Claims 1-15, 17-24, 26-36, 41-43, 53-66, 68-100, and 102-109 are pending:

1. (currently amended) A virtual network system, comprising:

a virtual network manager implemented as a first computing device, the virtual network manager configured to register devices in a virtual network that is defined by a domain name, each device in the virtual network being identified to the other devices by a virtual network address that is unique for each device and not directly routable via a public network, the virtual network manager further configured to distribute a virtual network address to a device when the device is registered in the virtual network; ~~and~~

a route director implemented as a second computing device, the route director configured to communicate data between the devices that are registered in the virtual network, the data being communicated as encapsulated packets from a source device to a destination device, an encapsulated packet including a first virtual network address that corresponds to the source device and a second virtual network address that corresponds to the destination device; and

the virtual network manager further configured to receive a DNS request from the source device, and return a public network address of the route director, a private network address for the destination device, and the second virtual network address that corresponds to the destination device.

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2. (previously presented) The system of claim 1 wherein each of the devices communicate with the virtual network manager and the other devices in the virtual network via an associated agent.

3. (previously presented) The system of claim 1 wherein each of the devices include an agent configured to communicate with the virtual network manager and agents of the other devices in the virtual network.

4. (previously presented) The system of claim 2 wherein the associated agent is installed on a proxy device which is a proxy agent for one or more of the devices in the virtual network with respect to the virtual network manager and the route director.

5. (previously presented) The system of claim 2 wherein the virtual network manager is further configured to:

receive a request from the agent associated with a device in a private network to register the device in the virtual network; and

detect a presence of a NAT device via which the request is routed from the agent to the virtual network manager.

6. (previously presented) The system of claim 1 wherein the virtual network manager is coupled to the public network and has an associated public network address.

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7. (previously presented) The system of claim 1 wherein the route director is further configured to receive the encapsulated packets when routed to a public network address corresponding to the route director.

8. (previously presented) The system of claim 1 wherein each of the devices in the virtual network are further identified by at least one physical network address.

9. (previously presented) The system of claim 8 wherein the physical network addresses that are associated with the devices in the virtual network are dynamic.

10. (previously presented) The system of claim 8 wherein the physical network addresses that are associated with the devices in the virtual network are static.

11. (previously presented) The system of claim 8 wherein the physical network addresses that are associated with the devices in the virtual network are private network addresses, and wherein the virtual network addresses are unique in the virtual network so as not to conflict with the private network addresses.

12. (previously presented) The system of claim 8 wherein the source device is coupled to a first private network and accesses a public network via a first NAT device configured to transmit the encapsulated packets, an encapsulated packet further including the physical network address of the source device as a private network address in the first private network.

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13. (previously presented) The system of claim 12 wherein the physical network address of the source device is dynamic.

14. (previously presented) The system of claim 12 wherein the physical network address of the source device is static.

15. (previously presented) The system of claim 12 wherein the destination device is coupled to a second private network and accesses the public network via a second NAT device, the encapsulated packet further including the physical network address of the destination device as a private network address in the second private network.

16. (canceled)

17. (previously presented) The system of claim 15 wherein the physical network address of the destination device is dynamic.

18. (previously presented) The system of claim 15 wherein the physical network address of the destination device is static.

19. (previously presented) The system of claim 15 wherein said first private network and said second private network share at least one network address.

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20. (previously presented) The system of claim 1 wherein the route director is further configured to:

provide a device-specific pseudo address assignment for the device in the virtual network when the device communicates with the route director via a NAT device; and

store an association of the device-specific pseudo address with a public network address of the NAT device and a port number of the NAT device.

21. (previously presented) The system of claim 1 wherein the route director includes a translator for virtual network address information for a device in the virtual network that is implemented in a private network.

22. (previously presented) The system of claim 1 wherein the virtual network manager is coupled to the public network and includes a public network address.

23. (previously presented) The system of claim 22 wherein the route director is coupled to the public network and includes a different public network address than the public network address of the virtual network manager.

24. (previously presented) The system of claim 22 wherein the route director is coupled to a private network and includes a private network address.

25. (canceled)

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26. (previously presented) The system of claim 1 wherein the encapsulated packets further include virtual IP packets configured for communication of the data, the virtual IP packets being encrypted prior to being encapsulated.

27. (previously presented) The system of claim 26 wherein the virtual IP packets are encrypted using IPSEC.

28. (previously presented) The system of claim 26 wherein the virtual IP packets are encrypted using DES or triple DES.

29. (previously presented) The system of claim 5 wherein the virtual network manager is further configured to receive the request from the agent as a message, and detect the presence of the NAT device by comparing a field in a payload of the message with a source address in a header of the message.

30. (previously presented) The system of claim 1 wherein the virtual network manager includes a virtual community definition that is defined by the domain name, and includes one or more of the devices that are registered in the virtual network.

31. (previously presented) The system of claim 1 wherein the route director is a public route director in the public network, the system further comprising a private route director in a private network configured to enable access to devices of the private network that are also in the virtual network from devices of the public network that are also in the virtual network.

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32. (currently amended) A virtual network manager, comprising:

a network interface configured for data communication via a virtual network that is defined by a domain name having an associated public network address;

a register module configured to register devices in a virtual network, the register module further configured to:

receive a registration request from an agent associated with a device; ~~and~~

distribute a virtual network address to the device when the device is registered in the virtual network, the device being identified to other devices in the virtual network by the virtual network address; and

a DNS server for the virtual network, the DNS server configured to receive a DNS request from a first device in the virtual network, and return a network address associated with a network route director, a private network address associated with a second device in the virtual network, and a virtual network address associated with the second device.

33. (previously presented) The virtual network manager of claim 32 further comprising an additional network interface configured for data communication via a public network.

34. (previously presented) The virtual network manager of claim 32 wherein the network interface is a UDP port configured for data communication via the virtual network.

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35. (previously presented) The virtual network manager of claim 33 wherein the network interface is a UDP port configured for data communication via the virtual network, and wherein the additional network interface is a TCP port configured for registration communications via the public network.

36. (previously presented) The virtual network manager of claim 32 wherein the register module is further configured to receive the registration request from the agent that is installed on the device for data communication via the virtual network.

37-40. (canceled)

41. (previously presented) The virtual network manager of claim 32 further comprising a join module configured to receive a join request from the agent associated with the device to indicate that the device is connected for data communication within the virtual network, the join module further configured to receive a leave request from the agent associated with the device to indicate that the device will be disconnected from data communication within the virtual network.

42. (previously presented) The virtual network manager of claim 41 wherein the join module is further configured to provide virtual network addresses to the devices that are registered in the virtual network.

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43. (previously presented) The virtual network manager of claim 41 wherein the join module is further configured to maintain data to associate a virtual network address with a device in the virtual network.

44-52. (canceled)

53. (currently amended) A virtual network system, comprising:

a computing device that includes at least a memory and a processor configured to implement a network manager of a virtual network that is defined by a public domain name, the network manager configured to distribute virtual network addresses to devices that register as members in the virtual network, each device in the virtual network being identified to the other devices by a virtual network address associated with the device;

a first virtual network agent associated with a first device that is registered as a member in the virtual network;

at least a second virtual network agent associated with at least a second device that is registered as a member in the virtual network; and

a route director configured to route communications between the first device and the at least second device in the virtual network via the respective first and second virtual network agents, the communications configured for routing as encapsulated packets that include a first virtual network address that is not directly routable corresponding to the first device and a second virtual network address that is not directly routable corresponding to the at least second device.

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54. (previously presented) The system of claim 53 wherein the route director is a public network route director that includes a public network interface and an associated public network address by which the first and second virtual network agents communicate with the public network route director.

55. (previously presented) The system of claim 53 wherein the route director is a private route director that includes a private physical network interface and an associated private physical network address.

56. (previously presented) The system of claim 53 wherein the first virtual network agent is installed on the first device for data communication via the virtual network.

57. (currently amended) The system of claim 56 wherein the first device is in a private physical network, has an associated private network address, and has [[an]] the associated virtual network address that is not directly routable ~~and~~ by which the first device can be identified by the at least second virtual network agent from outside of the private physical network.

58. (currently amended) The system of claim 56 wherein the first device is coupled to a public physical network, has an associated public network address, and has [[an]] the associated virtual network address by which the first device can be identified by the at least second virtual network agent.

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59. (previously presented) The system of claim 53 wherein the first virtual network agent is a proxy agent for the first device with respect to the network manager and the route director.

60. (previously presented) The system of claim 53 wherein the first and second devices are configured to access the virtual network from separate private address physical realms.

61. (previously presented) The system of claim 53 wherein the network manager includes at least a first community definition and a second community definition, the first community definition being defined by the public domain name and includes one or more of the devices that are registered in the virtual network, and the second community definition being defined by a different public domain name and includes one or more different devices that are registered in the virtual network.

62. (previously presented) The system of claim 53 wherein the network manager includes a member authenticator configured to authenticate the devices that request to register with the network manager.

63. (previously presented) The system of claim 62 wherein the network manager includes a DNS server configured to provide authoritative responses for DNS queries in the virtual network, the DNS server further configured to receive a DNS query from the first device to obtain the virtual network address of the at least second device for use in communicating with the second device.

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64. (currently amended) A computer-implemented method, comprising:

receiving registration requests from devices that request to be registered as members of a virtual network that is defined by a domain name having an associated public network address in a public network, each of the devices having an associated private network address; ~~and~~

distributing a virtual network address to a device to register the device as a member in the virtual network, each device in the virtual network being identified to the other devices by the virtual network address that is associated with the device; and

routing communications between the devices that are registered in the virtual network, the communications being routed as encapsulated packets from a source device to a destination device, an encapsulated packet including a first virtual network address that corresponds to the source device and a second virtual network address that corresponds to the destination device.

65. (previously presented) The method of claim 64 further comprising providing the devices in the virtual network with a communication agent.

66. (previously presented) The method of claim 65 wherein said providing the devices in the virtual network with a communication agent includes providing a proxy agent.

67. (canceled)

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68. (previously presented) The method of claim 64 further comprising authenticating the devices as the members in the virtual network.

69. (previously presented) The method of claim 64 further comprising defining a member set of the virtual network that includes one or more of the devices, and assigning the domain name that defines the virtual network.

70. (previously presented) The method of claim 64 further comprising defining at least two member sets of the virtual network that each include one or more of the devices, the at least two member sets having at least one different device.

71. (previously presented) The method of claim 64 further comprising assigning the virtual network address to the device as an IPV4 compliant address.

72. (previously presented) The method of claim 71 wherein the IPV4 compliant address is non-routable.

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73. (previously presented) The method of claim 64 further comprising routing network traffic via the public network from a first device having a public network address to a second device having a different public network address, the network traffic being routed as data packets having a source address which is the virtual network address of the first device and a destination address which is the virtual network address of the second device, the data packets being encapsulated to include a second source address which is a public network address of the first device and a second destination address which is the different public network address of the second device.

74. (previously presented) The method of claim 64 further comprising routing network traffic from a first device in a private physical network having a private network address to a second device having a public network address, the network traffic being routed as data packets having a source address which is the virtual network address of the first device, a destination address which is the virtual network address of the second device, and a shim which includes the private network address, the data packets being encapsulated to include a second destination address which is the public network address of the second device.

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75. (previously presented) The method of claim 64 further comprising routing network traffic from a first device in a private physical network having a first private network address to a second device in a different private physical network having a second private network address, the network traffic being routed as encapsulated packets having a source address which is the virtual network address of the first device, a destination address which is the virtual network address of the second device, and a shim which includes the first and second private network addresses.

76. (previously presented) The method of claim 75 wherein the first private network address and the second private network address are identical.

77. (previously presented) The method of claim 64 further comprising responding to DNS requests received from the devices that are the members in the virtual network.

78. (previously presented) The method of claim 64 further comprising:

receiving a join status request from a first device in the virtual network as a query to determine the status of a second device in the virtual network; and

responding to the join status request to indicate whether or not the second device is joined to the virtual network for data communication.

79. (previously presented) The method of claim 64 further comprising applying a group policy to the devices that are registered as the members of the virtual network.

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80. (currently amended) One or more processor readable storage media comprising processor readable code that, ~~when~~ if executed by a computer device, ~~initiates~~ implements a virtual network manager to:

receive registration requests from devices that request to be registered as members of a virtual network that is defined by a domain name having an associated public network address in a public network, each of the devices having an associated private network address; ~~and~~

distribute a virtual network address to a device to register the device as a member in the virtual network, each device in the virtual network being identified to the other devices by the virtual network address that is associated with the device; and

manage communications routed between the devices that are registered in the virtual network, the communications routed as encapsulated packets from a source device to a destination device, an encapsulated packet including a first virtual network address that corresponds to the source device and a second virtual network address that corresponds to the destination device.

81. (currently amended) One or more processor readable storage media as recited in claim 80 further comprising processor readable code that, ~~when~~ if executed, ~~initiates~~ implements the virtual network manager to provide the devices in the virtual network with a communication agent.

82. (previously presented) One or more processor readable storage media as recited in claim 81 wherein the virtual network manager provides the as a proxy agent.

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83. (currently amended) One or more processor readable storage media as recited in claim 80 further comprising processor readable code that, ~~when~~ if executed, ~~initiates~~ implements the virtual network manager to define a member set of the virtual network that includes one or more of the devices, and the domain name that defines the virtual network.

84. (previously presented) One or more processor readable storage media as recited in claim 80 wherein the virtual network address includes a non-routable IPV4 compliant address.

85. (currently amended) One or more processor readable storage media as recited in claim 80 further comprising processor readable code that, ~~when~~ if executed, ~~initiates~~ implements the virtual network manager to route network traffic via the public network from a first device having a public network address to a second device having a different public network address.

86. (currently amended) One or more processor readable storage media as recited in claim 80 further comprising processor readable code that, ~~when~~ if executed, ~~initiates~~ implements the virtual network manager to route network traffic from a first device in a private physical network having a private network address to a second device having a public network address.

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87. (currently amended) One or more processor readable storage media as recited in claim 80 further comprising processor readable code that, ~~when~~ if executed, ~~initiates~~ implements the virtual network manager to route network traffic from a first device in a private physical network having a first private network address to a second device in a different private physical network having a second private network address.

88. (previously presented) One or more processor readable storage media as recited in claim 87 wherein the network traffic is routed to the first or second device via a NAT device.

89. (previously presented) One or more processor readable storage media as recited in claim 87 wherein the first private network address and the second private network address are identical.

90. (previously presented) One or more processor readable storage media as recited in claim 85 wherein the network traffic is routed as encapsulated data packets.

91. (previously presented) One or more processor readable storage media as recited in claim 85 wherein the network traffic is routed as encrypted data traffic.

92. (currently amended) One or more processor readable storage media as recited in claim 80 further comprising processor readable code that, ~~when~~ if executed, ~~initiates~~ implements the virtual network manager to apply a group policy to the devices that are registered as the members of the virtual network.

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93. (currently amended) A virtual network system, comprising:

a virtual network manager having a network interface coupled to a virtual network, the virtual network manager including at least one virtual community definition that is defined by a domain name having an associated public network address and a user set of one or more devices that are registered in the virtual network, each device in the virtual network being identified to the other devices by a virtual network address that is associated with the device, the virtual network manager configured to exchange virtual network information with the one or more devices of the user set, ~~and~~ the virtual network being accessible by devices in the user set and devices outside of the user set, and the virtual network manager further configured to receive a DNS request from a source device, and return a public network address of a route director, a private network address for a destination device, and a virtual network address that corresponds to the destination device.

94. (original) The system of claim 93 wherein the virtual network manager includes a member register module.

95. (original) The system of claim 93 wherein the virtual network manager includes a member join module.

96. (previously presented) The system of claim 95 wherein the member join module provides a virtual network address to a device that is registered as a member of the network.

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97. (previously presented) The system of claim 93 wherein the virtual network manager is further configured to maintain data on an association between at least one virtual network address with at least one device that is registered as a member of the network.

98. (previously presented) The system of claim 93 wherein the virtual network manager includes a DNS server for the virtual community network.

99. (previously presented) The system of claim 93 wherein the virtual network manager includes a NAT device detector for devices connecting with the virtual network manager behind a NAT device.

100. (previously presented) The system of claim 93 wherein the virtual network manager includes at least a second virtual community definition.

101. (canceled)

102. (original) The system of claim 93 wherein the virtual network manager includes a member authenticator.

103. (previously presented) The system of claim 93 wherein the virtual network manager includes a DNS server configured to provide authoritative responses for DNS queries from devices in the virtual community.

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104. (previously presented) The system of claim 93 further comprising at least one route director configured to communicate with the one or more devices in the user set.

105. (previously presented) The system of claim 93 wherein each device registered in the network is configured to communicate with the virtual network manager and other devices in the user set via at least one agent.

106. (previously presented) The system of claim 93 wherein the user set includes at least a first device and a second device, and wherein at least one of said first device and said second device is coupled to a first private network and accesses a public network via a NAT device.

107. (original) The system of claim 106 wherein said first device is coupled to said first private network, and said second device is coupled to a second private network and accesses the public network via a second NAT device.

108. (previously presented) The system of claim 93 wherein communications between the one or more devices in the user set are encrypted.

109. (previously presented) The system of claim 108 wherein the virtual network manager is configured to provide a shared message to the one or more devices in the user set to establish encrypted communications.

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REMARKS

Applicant respectfully requests reconsideration and allowance of the subject application. Claims 16 and 44 have been canceled. Claims 1-15, 17-24, 26-36, 41-43, 53-66, 68-100, and 102-109 are pending, of which claims 1, 32, 53, 57, 58, 64, 80, 81, 83, 85-87, 92, and 93 have been amended.

Allowable Subject Matter

Claims 16 and 44 are indicated as being allowable if rewritten in independent form (*Office Action* p. 8). Applicant appreciates the indication of allowability. Claim 1 has been amended to incorporate the allowable subject matter of claim 16 (now canceled), and claim 32 has been amended to incorporate the allowable subject matter of claim 44 (now canceled). The objection to claims 16 and 44 has been obviated.

Accordingly, independent claim 1 along with dependent claims 2-15, 17-24, and 26-31 are in condition for allowance. Similarly, independent claim 32 along with dependent claims 33-36 and 41-43 are in condition for allowance.

35 U.S.C. §101 Rejections

Claims 1-24, 26-36, 41-44, 53-66, 68-79, 93-100, and 102-109 are 35 U.S.C. §101 as being directed to non-statutory subject matter (*Office Action* p. 2). Specifically, the Office rejects claims 1-24 and 26-31 as software *per se* for the recited "virtual network manager" and "route director". Claims 53-63 are also rejected as software *per se* for the recited software agents. Claims 64-66 and 68-79 are rejected because the recited process is not positively tied to a particular machine or does not transform underlying subject matter (*Office Action* p. 3).

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Appropriate amendments have been provided herein and Applicant requests that the §101 rejections be withdrawn.

35 U.S.C. §102 Claim Rejection

Claims 1-15, 17-24, 26, 29-43, 53-56, 59-66, 68-87, 90-100, and 102-109 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Publication No. 2008/0232295 to Kreiner *et al*. (hereinafter, "Kreiner") (*Office Action* p. 3). Applicant respectfully traverses the rejection in light of the claim amendments.

Applicant makes no representation that cited references are prior art. This response and any remarks or comments included herein are not intended to be, and are not to be interpreted as, an admission that the cited references are prior art. Applicant reserves the right to dispose of any cited references under 35 U.S.C. §102 and/or 35 U.S.C. §103, including but not limited to, antedating any one or more of the cited references.

Independent **Claim 1** along with dependent claims 2-15, 17-24, and 26-31, as well as independent **Claim 32** along with dependent claims 33-36 and 41-43 are in condition for allowance as described above.

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Claim 53 (as amended) recites a virtual network system, comprising:

> a computing device that includes at least a memory and a processor configured to implement a network manager of a virtual network that is defined by a public domain name, the network manager configured to distribute virtual network addresses to devices that register as members in the virtual network, each device in the virtual network being identified to the other devices by a virtual network address associated with the device;
>
> a first virtual network agent associated with a first device that is registered as a member in the virtual network;
>
> at least a second virtual network agent associated with at least a second device that is registered as a member in the virtual network; and
>
> a route director configured to route communications between the first device and the at least second device in the virtual network via the respective first and second virtual network agents, the communications configured for routing as encapsulated packets that include a first virtual network address that is not directly routable corresponding to the first device and a second virtual network address that is not directly routable corresponding to the at least second device.

While the Office makes no specific rejection with respect to claim 53, the Office states that all claims above 31 are rejected for the same reasons as 1-15, 17-24, and 25-31 (*Office Action* p. 8). Kreiner does not show or disclose a "network manager configured to distribute virtual network addresses to devices that register as members in the virtual network, each device in the virtual network being identified to the other devices by a virtual network address associated with the device", as recited in claim 53.

In rejecting claim 1, the Office cites to Kreiner at ¶[0039] for a virtual network manager configured to register devices in a virtual network (*Office Action* p. 3). Although the cited section of Kreiner describes "an exemplary framework of the data flow through a personal digital gateway, a connected communications device, and/or a connected network, Kreiner does not describe that the devices in the exemplary framework are ever ***registered in a virtual network***, as recited in claim 53.

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Kreiner also does not show or disclose "the communications configured for routing as encapsulated packets that include a first virtual network address that is not directly routable corresponding to the first device and a second virtual network address that is not directly routable corresponding to the at least second device", as recited in claim 53.

With reference to the rejection of claim 1, the Office cites to Kreiner at ¶[0038] for data being communicated as encapsulated packets from a source device to a destination device (*Office Action* p. 4). Kreiner only describes maintaining information about each communications device, such as network routing that provides a virtual private router that tunnels the user's network access to any communications device connected with the personal gateway (*Kreiner* ¶[0038]). However, there is no indication in Kreiner that data is being communicated between devices as encapsulated packets. Moreover, the virtual private router in Kreiner that tunnels access to any of the communication devices indicates that the only method of access for the devices is through the single user access. This single user access for multiple devices is contrary to a first virtual network address that corresponds to a first device and a second virtual network address that corresponds to a second device", as recited in claim 53.

Accordingly, claim 53 along with dependent claims 54-63 are allowable over Kreiner for at least the reasons described above, and Applicant requests that the §102 rejection be withdrawn.

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Claim 64 (as amended) recites a computer-implemented method, comprising:

> receiving registration requests from devices that request to be registered as members of a virtual network that is defined by a domain name having an associated public network address in a public network, each of the devices having an associated private network address;
>
> distributing a virtual network address to a device to register the device as a member in the virtual network, each device in the virtual network being identified to the other devices by the virtual network address that is associated with the device; and
>
> routing communications between the devices that are registered in the virtual network, the communications being routed as encapsulated packets from a source device to a destination device, an encapsulated packet including a first virtual network address that corresponds to the source device and a second virtual network address that corresponds to the destination device.

As described above in response to the rejection of claim 53, Kreiner does not show or disclose the features recited in claim 64, such as "devices that request to be registered as members of a virtual network" and "routing communications between the devices that are registered in the virtual network, the communications being routed as encapsulated packets from a source device to a destination device, an encapsulated packet including a first virtual network address that corresponds to the source device and a second virtual network address that corresponds to the destination device".

Accordingly, claim 64 along with dependent claims 65, 66, and 68-79 are allowable over Kreiner for at least the reasons described above, and Applicant requests that the §102 rejection be withdrawn.

Claim 80 (as amended) recites a virtual network manager to "receive registration requests from devices that request to be registered as members of a virtual network" and "manage communications routed between the devices that are registered in the virtual

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American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

network, the communications routed as encapsulated packets from a source device to a destination device, an encapsulated packet including a first virtual network address that corresponds to the source device and a second virtual network address that corresponds to the destination device".

As described above in response to the rejection of claim 53, Kreiner does not show or disclose the features recited in claim 80. Accordingly, claim 80 along with dependent claims 81-92 are allowable over Kreiner for at least the reasons described above, and Applicant requests that the §102 rejection be withdrawn.

Claim 93 recites virtual network manager "configured to receive a DNS request from a source device, and return a public network address of a route director, a private network address for a destination device, and a virtual network address that corresponds to the destination device."

Claim 93 recites allowable subject matter as incorporated into claims 1 and 32 as described above. Accordingly, claim 93 along with dependent claims 94-100 and 102-109 are allowable over Kreiner, and Applicant requests that the §102 rejection be withdrawn.

35 U.S.C. §103 Claim Rejection

Claims 27 and 28 are rejected under 35 U.S.C. §103(a) for obviousness over Kreiner (*Office Action* p. 8). The Office takes official notice that the claimed types of encryption are well known. Claims 27 and 28 depend from allowable claim 1 as described above. Accordingly, claims 27 and 28 are in condition for allowance, and Applicant requests that the §103 rejection be withdrawn.

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American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

Conclusion

Applicant submits that pending claims 1-15, 17-24, 26-36, 41-43, 53-66, 68-100, and 102-109 are in condition for allowance, and respectfully requests issuance of the subject application. If any issues remain that preclude issuance of the application, the Examiner is urged to contact the undersigned attorney before issuing a subsequent Action.

Respectfully Submitted,

Dated: May 29, 2009

By: / Dave Morasch 42905 /
David A. Morasch
SBMC, p.s.
Reg. No. 42,905
(509) 755-7250

AA/SWA Ex. 1002, p.465 of 833
American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Hasan S Alkhatib et al.	Examiner:	Douglas B Blair
Serial No.:	10/403,818	Group Art Unit:	2142
Filed:	March 31, 2003	Docket:	INNF0017
Title:	Secure Virtual Community Network System		

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

In compliance with the duty imposed by 37 C.F.R. § 1.56, and in accordance with 37 C.F.R. §§ 1.97 *et. seq*., the referenced materials are brought to the attention of the Examiner for consideration in connection with the above-identified patent application. Applicants respectfully request that this Supplemental Information Disclosure Statement be entered and the documents listed on the attached Form 1449 be considered by the Examiner and made of record. Pursuant to the provisions of MPEP 609, Applicants request that a copy of the 1449 form, initialed as being considered by the Examiner, be returned to the Applicants with the next official communication.

Pursuant to 37 C.F.R. §1.97(c)(2), Applicants have included the fee of $180.00 as set forth in 37 C.F.R. §1.17(p). Please charge any additional fees or credit any overpayment to Deposit Account No. 50-4143. The Examiner is invited to contact the Applicants' Representative at the below-listed telephone number if there are any questions regarding this communication.

Pursuant to 37 C.F.R. 1.98(a)(2), Applicant believes that copies of cited U.S. Patents and Published Applications are no longer required to be provided to the Office. Notification of this change was provided in the United States Patent and Trademark Office OG Notices dated October 12, 2004. Thus, Applicant has not included copies of any US Patents or Published Applications cited with this submission. Should the Office require copies to be provided, Applicant respectfully requests that notice of such requirement be directed to Applicant's below-signed representative. Applicant acknowledges the requirement to submit copies of foreign patent documents and non-patent literature in accordance with 37 C.F.R. 1.98(a)(2).

Respectfully submitted,

HASAN S ALKHATIB ET AL.

By their Representatives,

Date May 29, 2009 By / Dave Morasch 42905 /
David A. Morasch
Reg. No. 42,905

PTO/SB/08a(04-07)
Approved for use through 7/31/2006. OMB 0651-0031
US Patent & Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Complete if Known	
Application Number	10/403,818
Filing Date	March 31, 2003
First Named Inventor	Alkhatib, Hasan
Art Unit	2142
Examiner Name	Blair, Douglas

Sheet	1	of	1	Attorney Docket No: INNF0017

US PATENT DOCUMENTS

Examiner Initial *	Cite No	Document Number	Publication Date	Name of Patentee or Applicant of Cited Document	Filing Date If Appropriate
		US-20020026525	02/28/2002	Armitage, Grenville J.	04/03/2001

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No	Foreign Patent Document	Publication Date	Name of Patentee or Applicant of cited Document	T[2]

OTHER DOCUMENTS -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No [1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
		TANENBAUM, ANDREW S., "Computer Networks", Third Edition,(1996),1-37	
		"Excerpts from Help Section of Microsoft Outlook", pertaining to rules and forwarding email,1-3	
		CHATEL, M "Classical versus Transparent IP Proxies", Network Working Group Request for Comments, (March 1996),1-35	
		FINSETH, C "An Access Control Protocol , Sometimes Called TACACS", Network Working Group Request for Comments, (July 1993),1-18	
		FRANCIS, PAUL et al., "IPNL: A NAT-Extended Internet Architecture", SIGCOMM'01, (08/01/08),69-79	
		PERKINS, CHARLES E., "Mobile IP", IEEE Communications Magazine, Sun Microsystems,(May 1997),84-99	
		TERAOKA, FUMIO et al., "VIP: A Protocol Providing Host Mobility", Communications of the ACM, Volume 37, No. 8,(August 1994),67-75, 113	
		TSUCHIYA, PAUL F., et al., "Extending the IP Internet Through Address Reuse", ACM SIGCOMM Computer Communication Review, (January 1993),16-33	
		VENTERS, TRACY "Demystifying Protocols: A Comparison of Protocols Suitable for IP Telephony", Sonus Networks, (2000),1-11	
		YALAGANDULA, PRAVEEN et al., "Transparent Mobility with Minimal Infrastucture", University of Texas at Austin, (July 2001),1-14	

EXAMINER **DATE CONSIDERED**

Substitute Disclosure Statement Form (PTO-1449)
* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional) [2] Applicant is to place a check mark here if English language Translation is attached

PTO/SB/17 (10-07)
Approved for use through 06/30/2010. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Effective on 12/08/2004.
Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

FEE TRANSMITTAL
For FY 2008

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 0.00

Complete if Known	
Application Number	10/403,818
Filing Date	March 31, 2003
First Named Inventor	Hasan S. Alkhatib et.al
Examiner Name	Douglas B. Blair
Art Unit	2142
Attorney Docket No.	INNF0017

METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____

☑ Deposit Account Deposit Account Number: 50-4143 Deposit Account Name: Sadler, Breen, Morasch & Colby, ps

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

☐ Charge fee(s) indicated below ☐ Charge fee(s) indicated below, **except for the filing fee**

☑ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17 ☑ Credit any overpayments

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

Application Type	FILING FEES Fee ($)	FILING FEES Small Entity Fee ($)	SEARCH FEES Fee ($)	SEARCH FEES Small Entity Fee ($)	EXAMINATION FEES Fee ($)	EXAMINATION FEES Small Entity Fee ($)	Fees Paid ($)
Utility	310	155	510	255	210	105	
Design	210	105	100	50	130	65	
Plant	210	105	310	155	160	80	
Reissue	310	155	510	255	620	310	
Provisional	210	105	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee ($)	Small Entity Fee ($)
Each claim over 20 (including Reissues)	50	25
Each independent claim over 3 (including Reissues)	210	105
Multiple dependent claims	370	185

Total Claims	Extra Claims	Fee ($)	Fee Paid ($)
0 - 20 or HP =	0 x	52.00 =	0.00

HP = highest number of total claims paid for, if greater than 20.

Indep. Claims	Extra Claims	Fee ($)	Fee Paid ($)
0 - 3 or HP =	0 x	220.00 =	0.00

HP = highest number of independent claims paid for, if greater than 3.

Multiple Dependent Claims Fee ($)	Fee Paid ($)
0.00	0.00

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is $260 ($130 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee ($)	Fee Paid ($)
_____ - 100 =	_____ / 50 =	_____ (round **up** to a whole number) x	_____ =	_____

4. OTHER FEE(S)

	Fees Paid ($)
Non-English Specification, $130 fee (no small entity discount)	
Other (e.g., late filing surcharge): _____	

SUBMITTED BY

Signature	/ Dave Morasch 42905 /	Registration No. (Attorney/Agent) 42,905	Telephone 509-755-7250
Name (Print/Type)	David A. Morasch		Date 05/29/2009

This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Electronic Patent Application Fee Transmittal	
Application Number:	10403818
Filing Date:	31-Mar-2003
Title of Invention:	Secure virtual community network system
First Named Inventor/Applicant Name:	Hasan S. Alkhatib
Filer:	David Anthony Morasch/Travis R Henderson
Attorney Docket Number:	INNF0017
Filed as Large Entity	

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 1 month with $0 paid	1251	1	130	130

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	180	180
		Total in USD ($)		**310**

Electronic Acknowledgement Receipt	
EFS ID:	5424495
Application Number:	10403818
International Application Number:	
Confirmation Number:	2698
Title of Invention:	Secure virtual community network system
First Named Inventor/Applicant Name:	Hasan S. Alkhatib
Customer Number:	75671
Filer:	David Anthony Morasch/Travis R Henderson
Filer Authorized By:	David Anthony Morasch
Attorney Docket Number:	INNF0017
Receipt Date:	29-MAY-2009
Filing Date:	31-MAR-2003
Time Stamp:	18:26:17
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$310
RAM confirmation Number	4794
Deposit Account	504143
Authorized User	SADLER,LANCE R.
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees) Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees) Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)					
File Listing:					
Document Number	**Document Description**	**File Name**	**File Size(Bytes)/ Message Digest**	**Multi Part /.zip**	**Pages (if appl.)**
1		INNF0017OAResponse.pdf	205487 4076a8fd9791f208d07293b1ed98e548f7355633	yes	29
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Amendment/Req. Reconsideration-After Non-Final Reject		1	1	
	Claims		2	22	
	Applicant Arguments/Remarks Made in an Amendment		23	29	
Warnings:					
Information:					
2		INNF0017IDS.pdf	161583 9c39bd929387fd298ff387cc0c450291d246c95f	yes	3
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Transmittal Letter		1	2	
	Information Disclosure Statement (IDS) Filed (SB/08)		3	3	
Warnings:					
Information:					
3	Fee Worksheet (PTO-875)	BlankFeeTransmittal.pdf	63943 d81a3e7345111263614409100366a5bfba946582	no	1
Warnings:					
Information:					
4	NPL Documents	Chatel.pdf	1290554 88c76bcd63282a51bf2134a443ede1a6ddec9f5b	no	35
Warnings:					
Information:					
5	NPL Documents	ComputerNetworks.pdf	2404732 55e0de3edcab592c196bb25c6459ff6a971511bd	no	37

Warnings:					
Information:					
6	NPL Documents	Finseth.pdf	738727 925c627383ea6b184573ca0ffe51dbc403d1d863	no	18
Warnings:					
Information:					
7	NPL Documents	Francis.pdf	1066865 001f9774eb9d02f3c53c5e5210b1b91417a9418e	no	11
Warnings:					
Information:					
8	NPL Documents	HelpSectionExcerpts.pdf	114370 7e10cb3a5eaf1a50f9adb0eebaa7f0c7d8b3eb0a	no	3
Warnings:					
Information:					
9	NPL Documents	Perkins.pdf	1754642 706388f75f63724c6e4a91b75d5249e556886443	no	12
Warnings:					
Information:					
10	NPL Documents	Teraoka.pdf	1080737 9ccdc4b67f5a84bbd9bc0275b7e909bec638962a	no	11
Warnings:					
Information:					
11	NPL Documents	Tsuchiya.pdf	988720 8447c429d0e777c3b85770b9fea9414b7e8aa277	no	19
Warnings:					
Information:					
12	NPL Documents	Venters.pdf	1381557 5d775351f2fcf836bb1da1641a7c8575a84d44e4	no	12
Warnings:					
Information:					
13	NPL Documents	Yalagandula.pdf	1139013 3f2cc8bb9ba82eb25168103f694a46cd545e0e5c	no	15
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Information:					
14	Fee Worksheet (PTO-875)	fee-info.pdf	31735 0492ff68f0ada3ac4dd4d2140e9bb7448d3ce74d	no	2

Warnings:	
Information:	
Total Files Size (in bytes):	12422665

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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Electronic Acknowledgement Receipt	
EFS ID:	5424495
Application Number:	10403818
International Application Number:	
Confirmation Number:	2698
Title of Invention:	Secure virtual community network system
First Named Inventor/Applicant Name:	Hasan S. Alkhatib
Customer Number:	75671
Filer:	David Anthony Morasch/Travis R Henderson
Filer Authorized By:	David Anthony Morasch
Attorney Docket Number:	INNF0017
Receipt Date:	29-MAY-2009
Filing Date:	31-MAR-2003
Time Stamp:	18:26:17
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$310
RAM confirmation Number	4794
Deposit Account	504143
Authorized User	SADLER,LANCE R.
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees) Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees) Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)					
File Listing:					
Document Number	**Document Description**	**File Name**	**File Size(Bytes)/ Message Digest**	**Multi Part /.zip**	**Pages (if appl.)**
1		INNF0017OAResponse.pdf	205487 4076a8fd9791f208d07293b1ed98e548f7355633	yes	29
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Amendment/Req. Reconsideration-After Non-Final Reject		1	1	
	Claims		2	22	
	Applicant Arguments/Remarks Made in an Amendment		23	29	
Warnings:					
Information:					
2		INNF0017IDS.pdf	161583 9c39bd929387fd298ff387cc0c450291d246c95f	yes	3
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Transmittal Letter		1	2	
	Information Disclosure Statement (IDS) Filed (SB/08)		3	3	
Warnings:					
Information:					
3	Fee Worksheet (PTO-875)	BlankFeeTransmittal.pdf	63943 d81a3e7345111263614409100366a5bfba946582	no	1
Warnings:					
Information:					
4	NPL Documents	Chatel.pdf	1290554 88c76bcd63282a51bf2134a443ede1a6ddec9f5b	no	35
Warnings:					
Information:					
5	NPL Documents	ComputerNetworks.pdf	2404732 55e0de3edcab592c196bb25c6459ff6a971511bd	no	37

Warnings:					
Information:					
6	NPL Documents	Finseth.pdf	738727 925c627383ea6b184573ca0ffe51dbc403d1d863	no	18
Warnings:					
Information:					
7	NPL Documents	Francis.pdf	1066865 001f9774eb9d02f3c53c5e5210b1b91417a9418e	no	11
Warnings:					
Information:					
8	NPL Documents	HelpSectionExcerpts.pdf	114370 7e10cb3a5eaf1a50f9adb0eebaaa7f0c7d8b3eb0a	no	3
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Information:					
9	NPL Documents	Perkins.pdf	1754642 706388f75f63724c6e4a91b75d5249e556886443	no	12
Warnings:					
Information:					
10	NPL Documents	Teraoka.pdf	1080737 9ccdc4b67f5a84bbd9bc0275b7e909bec638962a	no	11
Warnings:					
Information:					
11	NPL Documents	Tsuchiya.pdf	988720 8447c429d0e777c3b85770b9fea9414b7e8aa277	no	19
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12	NPL Documents	Venters.pdf	1381557 5d775351f2fcf836bb1da1641a7c8575a84d44e4	no	12
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13	NPL Documents	Yalagandula.pdf	1139013 3f2cc8bb9ba82eb25168103f694a46cd545e0e5c	no	15
Warnings:					
Information:					
14	Fee Worksheet (PTO-875)	fee-info.pdf	31735 0492ff68f0ada3ac4dd4d2140e9bb7448d3ce74d	no	2

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New International Application Filed with the USPTO as a Receiving Office
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PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 10/403,818	Filing Date 03/31/2003	☐ To be Mailed

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☐		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	05/29/2009	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 92	Minus	** 109	= 0	X $ =		OR	X $52=	0
	Independent (37 CFR 1.16(h))	* 6	Minus	***8	= 0	X $ =		OR	X $220=	0
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	**0**

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/Theresa Dawkins/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/SB/08a(04-07)
Approved for use through 7/31/2006. OMB 0651-0031
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Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

	Complete if Known
Application Number	10/403,818
Filing Date	March 31, 2003
First Named Inventor	Alkhatib, Hasan
Art Unit	2142
Examiner Name	Blair, Douglas

Sheet	1	of	1	Attorney Docket No: INNF0017

US PATENT DOCUMENTS

Examiner Initial *	Cite No	Document Number	Publication Date	Name of Patentee or Applicant of Cited Document	Filing Date If Appropriate
		US-20060190607	08/24/2006	Lowery	
		US-20060195539	08/31/2006	Nichols et al.	
		US-20040088542	05/06/2004	Daude	
		US-20020103931	08/01/2002	Mott, Charles	
		US-20080232295	09/25/2008	Kreiner et al.	
		US-20070286189	12/13/2007	Kreiner et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No	Foreign Patent Document	Publication Date	Name of Patentee or Applicant of cited Document	T[2]

OTHER DOCUMENTS -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No [1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
		"Non Final Office Action", Application Serial No. 10/161,573, (5/26/2009),39 pages	
		"Non Final Office Action", Application Serial No. 10/403,829, (6/22/2009),26 pages	
		FRANCIS, GUMMADI "IPNL: A NAT-Extended Internet Architecture", SIGCOMM '01, (August 2001),69-79	

EXAMINER **DATE CONSIDERED**

Substitute Disclosure Statement Form (PTO-1449)
* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional) 2 Applicant is to place a check mark here if English language Translation is attached

Electronic Patent Application Fee Transmittal	
Application Number:	10403818
Filing Date:	31-Mar-2003
Title of Invention:	Secure virtual community network system
First Named Inventor/Applicant Name:	Hasan S. Alkhatib
Filer:	William Breen/Kenneth Linder
Attorney Docket Number:	INNF0017
Filed as Large Entity	

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	180	180
		Total in USD ($)		**180**

Electronic Acknowledgement Receipt	
EFS ID:	5851879
Application Number:	10403818
International Application Number:	
Confirmation Number:	2698
Title of Invention:	Secure virtual community network system
First Named Inventor/Applicant Name:	Hasan S. Alkhatib
Customer Number:	75671
Filer:	William Breen/Kenneth Linder
Filer Authorized By:	William Breen
Attorney Docket Number:	INNF0017
Receipt Date:	07-AUG-2009
Filing Date:	31-MAR-2003
Time Stamp:	17:07:26
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$180
RAM confirmation Number	3067
Deposit Account	504143
Authorized User	SADLER,LANCE R.
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees) Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees) Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)					
File Listing:					
Document Number	**Document Description**	**File Name**	**File Size(Bytes)/ Message Digest**	**Multi Part /.zip**	**Pages (if appl.)**
1		INNF0017IDS.pdf	163720 d579c64072c4721ba76a4aee749ba6857b5f4232	yes	3
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Transmittal Letter		1	2	
	Information Disclosure Statement (IDS) Filed (SB/08)		3	3	
Warnings:					
Information:					
2	NPL Documents	INNF0015NFOA52609.pdf	794338 a677a31086a2b1b1d0ad455f05a9844512715d6e	no	30
Warnings:					
Information:					
3	NPL Documents	INNF0018NFOA62209.pdf	1031739 d9a6505d4aaffb0f28ab9dbf14ddbe14523b2d74	no	26
Warnings:					
Information:					
4	NPL Documents	INNF0019OA3Final.pdf	393136 fec88aa35b39a14f5e70d9a5a205bf48c1b53a09	no	15
Warnings:					
Information:					
5	NPL Documents	Gummadi.pdf	245129 9649d3fba066fcb8e6351a73bc9d16de01643c03	no	12
Warnings:					
Information:					
6	Fee Worksheet (PTO-875)	fee-info.pdf	30019 8209e99269f72c375dbdb8467e3dfede0752c7c5	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	2658081		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Hasan S Alkhatib et al.	Examiner:	Douglas B Blair
Serial No.:	10/403,818	Group Art Unit:	2142
Filed:	March 31, 2003	Docket:	INNF0017
Title:	Secure virtual community network system		

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

In compliance with the duty imposed by 37 C.F.R. § 1.56, and in accordance with 37 C.F.R. §§ 1.97 *et. seq*., the referenced materials are brought to the attention of the Examiner for consideration in connection with the above-identified patent application. Applicants respectfully request that this Supplemental Information Disclosure Statement be entered and the documents listed on the attached Form 1449 be considered by the Examiner and made of record. Pursuant to the provisions of MPEP 609, Applicants request that a copy of the 1449 form, initialed as being considered by the Examiner, be returned to the Applicants with the next official communication.

Pursuant to 37 C.F.R. §1.97(c)(2), Applicants have included the fee of $180.00 as set forth in 37 C.F.R. §1.17(p). Please charge any additional fees or credit any overpayment to Deposit Account No. 50-4143. The Examiner is invited to contact the Applicants' Representative at the below-listed telephone number if there are any questions regarding this communication.

Pursuant to 37 C.F.R. 1.98(a)(2), Applicant believes that copies of cited U.S. Patents and Published Applications are no longer required to be provided to the Office. Notification of this change was provided in the United States Patent and Trademark Office OG Notices dated October 12, 2004. Thus, Applicant has not included copies of any US Patents or Published Applications cited with this submission. Should the Office require copies to be provided, Applicant respectfully requests that notice of such requirement be directed to Applicant's below-signed representative. Applicant acknowledges the requirement to submit copies of foreign patent documents and non-patent literature in accordance with 37 C.F.R. 1.98(a)(2).

Respectfully submitted,

HASAN S ALKHATIB ET AL.

By their Representatives,

Date August 7, 2009 By / Dave Morasch 42905 /
David A. Morasch
Reg. No. 42,905

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/403,818	03/31/2003	Hasan S. Alkhatib	INNF0017	2698

75671 7590 09/29/2009

Sadler, Breen, Morasch & Colby, ps
422 W. Riverside Ave, Suite 424
Spokane, WA 99201

EXAMINER	
BLAIR, DOUGLAS B	
ART UNIT	PAPER NUMBER
2442	

MAIL DATE	DELIVERY MODE
09/29/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

UNITED STATES DEPARTMENT OF COMMERCE
U.S. Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450

APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
10403818	3/31/03	ALKHATIB ET AL.	INNF0017

Sadler, Breen, Morasch & Colby, ps
422 W. Riverside Ave, Suite 424
Spokane, WA 99201

EXAMINER	
DOUGLAS B. BLAIR	
ART UNIT	**PAPER**
2442	20090928

DATE MAILED:

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner for Patents

The applicant's response filed on 5/29/2009 was not fully responsive to the office action mailed on 2/4/2009 for the reasons explained on the following page of this letter.

/Douglas B Blair/
Primary Examiner, Art Unit 2442

PTO-90C (Rev.04-03)

Notice of Non-Responsive Amendment

The reply filed on 5/29/2009 is not fully responsive to the prior Office Action because of the following omission(s) or matter(s): The applicant did not provide an argument against the 35 USC section 101 rejection of independent claim 93. See 37 CFR 1.111. Since the above-mentioned reply appears to be *bona fide*, applicant is given **ONE (1) MONTH or THIRTY (30) DAYS** from the mailing date of this notice, whichever is longer, within which to supply the omission or correction in order to avoid abandonment. EXTENSIONS OF THIS TIME PERIOD MAY BE GRANTED UNDER 37 CFR 1.136(a).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DOUGLAS B. BLAIR whose telephone number is (571)272-3893. The examiner can normally be reached on 9:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Caldwell can be reached on (571) 272-3868. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Douglas B Blair/
Primary Examiner, Art Unit 2442

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application Serial No. 10/403,818
Filing Date 03/31/2003
Inventorship ..... Alkhatib *et al.*
Applicant ..... Inpro Network Facility, LLC
Group Art Unit 2442
Examiner ..... Blair, Douglas B.
Confirmation No. 2698
Attorney's Docket No. INNF0017
Title: Secure Virtual Community Network System

RESPONSE TO OFFICE ACTION DATED FEBRUARY 4, 2009 &

NOTICE OF NON-RESPONSIVE AMENDMENT DATED SEPTEMBER 29, 2009

To: Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

From: David A. Morasch Tel. 509-755-7250
Fax 509-755-7252
Customer # 75671

INDEX

List of Claims / Amendments: page 2

Remarks Section: page 23

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LIST OF CLAIMS / AMENDMENTS

Claims 25, 37-40, 45-52, 67, and 101 were previously canceled.

Please cancel claims 16 and 44 without prejudice.

Please amend claims 1, 32, 53, 57, 58, 64, 80, 81, 83, 85-87, 92, and 93 as shown herein.

Claims 1-15, 17-24, 26-36, 41-43, 53-66, 68-100, and 102-109 are pending:

1. (currently amended) A virtual network system, comprising:

a virtual network manager implemented as a first computing device, the virtual network manager configured to register devices in a virtual network that is defined by a domain name, each device in the virtual network being identified to the other devices by a virtual network address that is unique for each device and not directly routable via a public network, the virtual network manager further configured to distribute a virtual network address to a device when the device is registered in the virtual network; ~~and~~

a route director implemented as a second computing device, the route director configured to communicate data between the devices that are registered in the virtual network, the data being communicated as encapsulated packets from a source device to a destination device, an encapsulated packet including a first virtual network address that corresponds to the source device and a second virtual network address that corresponds to the destination device; and

the virtual network manager further configured to receive a DNS request from the source device, and return a public network address of the route director, a private network address for the destination device, and the second virtual network address that corresponds to the destination device.

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2. (previously presented) The system of claim 1 wherein each of the devices communicate with the virtual network manager and the other devices in the virtual network via an associated agent.

3. (previously presented) The system of claim 1 wherein each of the devices include an agent configured to communicate with the virtual network manager and agents of the other devices in the virtual network.

4. (previously presented) The system of claim 2 wherein the associated agent is installed on a proxy device which is a proxy agent for one or more of the devices in the virtual network with respect to the virtual network manager and the route director.

5. (previously presented) The system of claim 2 wherein the virtual network manager is further configured to:

receive a request from the agent associated with a device in a private network to register the device in the virtual network; and

detect a presence of a NAT device via which the request is routed from the agent to the virtual network manager.

6. (previously presented) The system of claim 1 wherein the virtual network manager is coupled to the public network and has an associated public network address.

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7. (previously presented) The system of claim 1 wherein the route director is further configured to receive the encapsulated packets when routed to a public network address corresponding to the route director.

8. (previously presented) The system of claim 1 wherein each of the devices in the virtual network are further identified by at least one physical network address.

9. (previously presented) The system of claim 8 wherein the physical network addresses that are associated with the devices in the virtual network are dynamic.

10. (previously presented) The system of claim 8 wherein the physical network addresses that are associated with the devices in the virtual network are static.

11. (previously presented) The system of claim 8 wherein the physical network addresses that are associated with the devices in the virtual network are private network addresses, and wherein the virtual network addresses are unique in the virtual network so as not to conflict with the private network addresses.

12. (previously presented) The system of claim 8 wherein the source device is coupled to a first private network and accesses a public network via a first NAT device configured to transmit the encapsulated packets, an encapsulated packet further including the physical network address of the source device as a private network address in the first private network.

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13. (previously presented) The system of claim 12 wherein the physical network address of the source device is dynamic.

14. (previously presented) The system of claim 12 wherein the physical network address of the source device is static.

15. (previously presented) The system of claim 12 wherein the destination device is coupled to a second private network and accesses the public network via a second NAT device, the encapsulated packet further including the physical network address of the destination device as a private network address in the second private network.

16. (canceled)

17. (previously presented) The system of claim 15 wherein the physical network address of the destination device is dynamic.

18. (previously presented) The system of claim 15 wherein the physical network address of the destination device is static.

19. (previously presented) The system of claim 15 wherein said first private network and said second private network share at least one network address.

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20. (previously presented) The system of claim 1 wherein the route director is further configured to:

provide a device-specific pseudo address assignment for the device in the virtual network when the device communicates with the route director via a NAT device; and

store an association of the device-specific pseudo address with a public network address of the NAT device and a port number of the NAT device.

21. (previously presented) The system of claim 1 wherein the route director includes a translator for virtual network address information for a device in the virtual network that is implemented in a private network.

22. (previously presented) The system of claim 1 wherein the virtual network manager is coupled to the public network and includes a public network address.

23. (previously presented) The system of claim 22 wherein the route director is coupled to the public network and includes a different public network address than the public network address of the virtual network manager.

24. (previously presented) The system of claim 22 wherein the route director is coupled to a private network and includes a private network address.

25. (canceled)

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26. (previously presented) The system of claim 1 wherein the encapsulated packets further include virtual IP packets configured for communication of the data, the virtual IP packets being encrypted prior to being encapsulated.

27. (previously presented) The system of claim 26 wherein the virtual IP packets are encrypted using IPSEC.

28. (previously presented) The system of claim 26 wherein the virtual IP packets are encrypted using DES or triple DES.

29. (previously presented) The system of claim 5 wherein the virtual network manager is further configured to receive the request from the agent as a message, and detect the presence of the NAT device by comparing a field in a payload of the message with a source address in a header of the message.

30. (previously presented) The system of claim 1 wherein the virtual network manager includes a virtual community definition that is defined by the domain name, and includes one or more of the devices that are registered in the virtual network.

31. (previously presented) The system of claim 1 wherein the route director is a public route director in the public network, the system further comprising a private route director in a private network configured to enable access to devices of the private network that are also in the virtual network from devices of the public network that are also in the virtual network.

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32. (currently amended) A virtual network manager, comprising:

a network interface configured for data communication via a virtual network that is defined by a domain name having an associated public network address;

a register module configured to register devices in a virtual network, the register module further configured to:

receive a registration request from an agent associated with a device; ~~and~~

distribute a virtual network address to the device when the device is registered in the virtual network, the device being identified to other devices in the virtual network by the virtual network address; and

a DNS server for the virtual network, the DNS server configured to receive a DNS request from a first device in the virtual network, and return a network address associated with a network route director, a private network address associated with a second device in the virtual network, and a virtual network address associated with the second device.

33. (previously presented) The virtual network manager of claim 32 further comprising an additional network interface configured for data communication via a public network.

34. (previously presented) The virtual network manager of claim 32 wherein the network interface is a UDP port configured for data communication via the virtual network.

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35. (previously presented) The virtual network manager of claim 33 wherein the network interface is a UDP port configured for data communication via the virtual network, and wherein the additional network interface is a TCP port configured for registration communications via the public network.

36. (previously presented) The virtual network manager of claim 32 wherein the register module is further configured to receive the registration request from the agent that is installed on the device for data communication via the virtual network.

37-40. (canceled)

41. (previously presented) The virtual network manager of claim 32 further comprising a join module configured to receive a join request from the agent associated with the device to indicate that the device is connected for data communication within the virtual network, the join module further configured to receive a leave request from the agent associated with the device to indicate that the device will be disconnected from data communication within the virtual network.

42. (previously presented) The virtual network manager of claim 41 wherein the join module is further configured to provide virtual network addresses to the devices that are registered in the virtual network.

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43. (previously presented) The virtual network manager of claim 41 wherein the join module is further configured to maintain data to associate a virtual network address with a device in the virtual network.

44-52. (canceled)

53. (currently amended) A virtual network system, comprising:

a computing device that includes at least a memory and a processor configured to implement a network manager of a virtual network that is defined by a public domain name, the network manager configured to distribute virtual network addresses to devices that register as members in the virtual network, each device in the virtual network being identified to the other devices by a virtual network address associated with the device;

a first virtual network agent associated with a first device that is registered as a member in the virtual network;

at least a second virtual network agent associated with at least a second device that is registered as a member in the virtual network; and

a route director configured to route communications between the first device and the at least second device in the virtual network via the respective first and second virtual network agents, the communications configured for routing as encapsulated packets that include a first virtual network address that is not directly routable corresponding to the first device and a second virtual network address that is not directly routable corresponding to the at least second device.

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IPR2025-00786

54. (previously presented) The system of claim 53 wherein the route director is a public network route director that includes a public network interface and an associated public network address by which the first and second virtual network agents communicate with the public network route director.

55. (previously presented) The system of claim 53 wherein the route director is a private route director that includes a private physical network interface and an associated private physical network address.

56. (previously presented) The system of claim 53 wherein the first virtual network agent is installed on the first device for data communication via the virtual network.

57. (currently amended) The system of claim 56 wherein the first device is in a private physical network, has an associated private network address, and has [[an]] the associated virtual network address that is not directly routable ~~and~~ by which the first device can be identified by the at least second virtual network agent from outside of the private physical network.

58. (currently amended) The system of claim 56 wherein the first device is coupled to a public physical network, has an associated public network address, and has [[an]] the associated virtual network address by which the first device can be identified by the at least second virtual network agent.

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59. (previously presented) The system of claim 53 wherein the first virtual network agent is a proxy agent for the first device with respect to the network manager and the route director.

60. (previously presented) The system of claim 53 wherein the first and second devices are configured to access the virtual network from separate private address physical realms.

61. (previously presented) The system of claim 53 wherein the network manager includes at least a first community definition and a second community definition, the first community definition being defined by the public domain name and includes one or more of the devices that are registered in the virtual network, and the second community definition being defined by a different public domain name and includes one or more different devices that are registered in the virtual network.

62. (previously presented) The system of claim 53 wherein the network manager includes a member authenticator configured to authenticate the devices that request to register with the network manager.

63. (previously presented) The system of claim 62 wherein the network manager includes a DNS server configured to provide authoritative responses for DNS queries in the virtual network, the DNS server further configured to receive a DNS query from the first device to obtain the virtual network address of the at least second device for use in communicating with the second device.

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64. (currently amended) A computer-implemented method, comprising:

receiving registration requests from devices that request to be registered as members of a virtual network that is defined by a domain name having an associated public network address in a public network, each of the devices having an associated private network address; ~~and~~

distributing a virtual network address to a device to register the device as a member in the virtual network, each device in the virtual network being identified to the other devices by the virtual network address that is associated with the device; and

routing communications between the devices that are registered in the virtual network, the communications being routed as encapsulated packets from a source device to a destination device, an encapsulated packet including a first virtual network address that corresponds to the source device and a second virtual network address that corresponds to the destination device.

65. (previously presented) The method of claim 64 further comprising providing the devices in the virtual network with a communication agent.

66. (previously presented) The method of claim 65 wherein said providing the devices in the virtual network with a communication agent includes providing a proxy agent.

67. (canceled)

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68. (previously presented) The method of claim 64 further comprising authenticating the devices as the members in the virtual network.

69. (previously presented) The method of claim 64 further comprising defining a member set of the virtual network that includes one or more of the devices, and assigning the domain name that defines the virtual network.

70. (previously presented) The method of claim 64 further comprising defining at least two member sets of the virtual network that each include one or more of the devices, the at least two member sets having at least one different device.

71. (previously presented) The method of claim 64 further comprising assigning the virtual network address to the device as an IPV4 compliant address.

72. (previously presented) The method of claim 71 wherein the IPV4 compliant address is non-routable.

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73. (previously presented) The method of claim 64 further comprising routing network traffic via the public network from a first device having a public network address to a second device having a different public network address, the network traffic being routed as data packets having a source address which is the virtual network address of the first device and a destination address which is the virtual network address of the second device, the data packets being encapsulated to include a second source address which is a public network address of the first device and a second destination address which is the different public network address of the second device.

74. (previously presented) The method of claim 64 further comprising routing network traffic from a first device in a private physical network having a private network address to a second device having a public network address, the network traffic being routed as data packets having a source address which is the virtual network address of the first device, a destination address which is the virtual network address of the second device, and a shim which includes the private network address, the data packets being encapsulated to include a second destination address which is the public network address of the second device.

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75. (previously presented) The method of claim 64 further comprising routing network traffic from a first device in a private physical network having a first private network address to a second device in a different private physical network having a second private network address, the network traffic being routed as encapsulated packets having a source address which is the virtual network address of the first device, a destination address which is the virtual network address of the second device, and a shim which includes the first and second private network addresses.

76. (previously presented) The method of claim 75 wherein the first private network address and the second private network address are identical.

77. (previously presented) The method of claim 64 further comprising responding to DNS requests received from the devices that are the members in the virtual network.

78. (previously presented) The method of claim 64 further comprising:

receiving a join status request from a first device in the virtual network as a query to determine the status of a second device in the virtual network; and

responding to the join status request to indicate whether or not the second device is joined to the virtual network for data communication.

79. (previously presented) The method of claim 64 further comprising applying a group policy to the devices that are registered as the members of the virtual network.

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80. (currently amended) One or more processor readable storage media comprising processor readable code that, ~~when~~ if executed by a computer device, ~~initiates~~ implements a virtual network manager to:

receive registration requests from devices that request to be registered as members of a virtual network that is defined by a domain name having an associated public network address in a public network, each of the devices having an associated private network address; ~~and~~

distribute a virtual network address to a device to register the device as a member in the virtual network, each device in the virtual network being identified to the other devices by the virtual network address that is associated with the device; and

manage communications routed between the devices that are registered in the virtual network, the communications routed as encapsulated packets from a source device to a destination device, an encapsulated packet including a first virtual network address that corresponds to the source device and a second virtual network address that corresponds to the destination device.

81. (currently amended) One or more processor readable storage media as recited in claim 80 further comprising processor readable code that, ~~when~~ if executed, ~~initiates~~ implements the virtual network manager to provide the devices in the virtual network with a communication agent.

82. (previously presented) One or more processor readable storage media as recited in claim 81 wherein the virtual network manager provides the as a proxy agent.

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83. (currently amended) One or more processor readable storage media as recited in claim 80 further comprising processor readable code that, ~~when~~ if executed, ~~initiates~~ implements the virtual network manager to define a member set of the virtual network that includes one or more of the devices, and the domain name that defines the virtual network.

84. (previously presented) One or more processor readable storage media as recited in claim 80 wherein the virtual network address includes a non-routable IPV4 compliant address.

85. (currently amended) One or more processor readable storage media as recited in claim 80 further comprising processor readable code that, ~~when~~ if executed, ~~initiates~~ implements the virtual network manager to route network traffic via the public network from a first device having a public network address to a second device having a different public network address.

86. (currently amended) One or more processor readable storage media as recited in claim 80 further comprising processor readable code that, ~~when~~ if executed, ~~initiates~~ implements the virtual network manager to route network traffic from a first device in a private physical network having a private network address to a second device having a public network address.

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87. (currently amended) One or more processor readable storage media as recited in claim 80 further comprising processor readable code that, ~~when~~ if executed, ~~initiates~~ implements the virtual network manager to route network traffic from a first device in a private physical network having a first private network address to a second device in a different private physical network having a second private network address.

88. (previously presented) One or more processor readable storage media as recited in claim 87 wherein the network traffic is routed to the first or second device via a NAT device.

89. (previously presented) One or more processor readable storage media as recited in claim 87 wherein the first private network address and the second private network address are identical.

90. (previously presented) One or more processor readable storage media as recited in claim 85 wherein the network traffic is routed as encapsulated data packets.

91. (previously presented) One or more processor readable storage media as recited in claim 85 wherein the network traffic is routed as encrypted data traffic.

92. (currently amended) One or more processor readable storage media as recited in claim 80 further comprising processor readable code that, ~~when~~ if executed, ~~initiates~~ implements the virtual network manager to apply a group policy to the devices that are registered as the members of the virtual network.

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93. (currently amended) A virtual network system, comprising:

a computing device that includes at least a memory and a processor configured to implement a virtual network manager having a network interface coupled to a virtual network, the virtual network manager including at least one virtual community definition that is defined by a domain name having an associated public network address and a user set of one or more devices that are registered in the virtual network, each device in the virtual network being identified to the other devices by a virtual network address that is associated with the device, the virtual network manager configured to exchange virtual network information with the one or more devices of the user set, ~~and~~ the virtual network being accessible by devices in the user set and devices outside of the user set, and the virtual network manager further configured to receive a DNS request from a source device, and return a public network address of a route director, a private network address for a destination device, and a virtual network address that corresponds to the destination device.

94. (original) The system of claim 93 wherein the virtual network manager includes a member register module.

95. (original) The system of claim 93 wherein the virtual network manager includes a member join module.

96. (previously presented) The system of claim 95 wherein the member join module provides a virtual network address to a device that is registered as a member of the network.

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97. (previously presented) The system of claim 93 wherein the virtual network manager is further configured to maintain data on an association between at least one virtual network address with at least one device that is registered as a member of the network.

98. (previously presented) The system of claim 93 wherein the virtual network manager includes a DNS server for the virtual community network.

99. (previously presented) The system of claim 93 wherein the virtual network manager includes a NAT device detector for devices connecting with the virtual network manager behind a NAT device.

100. (previously presented) The system of claim 93 wherein the virtual network manager includes at least a second virtual community definition.

101. (canceled)

102. (original) The system of claim 93 wherein the virtual network manager includes a member authenticator.

103. (previously presented) The system of claim 93 wherein the virtual network manager includes a DNS server configured to provide authoritative responses for DNS queries from devices in the virtual community.

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104. (previously presented) The system of claim 93 further comprising at least one route director configured to communicate with the one or more devices in the user set.

105. (previously presented) The system of claim 93 wherein each device registered in the network is configured to communicate with the virtual network manager and other devices in the user set via at least one agent.

106. (previously presented) The system of claim 93 wherein the user set includes at least a first device and a second device, and wherein at least one of said first device and said second device is coupled to a first private network and accesses a public network via a NAT device.

107. (original) The system of claim 106 wherein said first device is coupled to said first private network, and said second device is coupled to a second private network and accesses the public network via a second NAT device.

108. (previously presented) The system of claim 93 wherein communications between the one or more devices in the user set are encrypted.

109. (previously presented) The system of claim 108 wherein the virtual network manager is configured to provide a shared message to the one or more devices in the user set to establish encrypted communications.

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REMARKS

Applicant respectfully requests reconsideration and allowance of the subject application. Claims 16 and 44 have been canceled. Claims 1-15, 17-24, 26-36, 41-43, 53-66, 68-100, and 102-109 are pending, of which claims 1, 32, 53, 57, 58, 64, 80, 81, 83, 85-87, 92, and 93 have been amended.

Notice of Non-Responsive Amendment

The Office indicates that the Response filed May 29, 2009 was not fully responsive because an argument against the §101 rejection of claim 93 was not provided. In the Office Action, claim 93 was rejected as being directed to non-statutory subject matter, namely the recited "virtual network manager". Applicant has amended the Response herein. Specifically, claim 93 has been amended to recite "a computing device that includes at least a memory and a processor configured to implement a virtual network manager…". Accordingly, Applicant submits that the Response is now fully responsive.

Allowable Subject Matter

Claims 16 and 44 are indicated as being allowable if rewritten in independent form (*Office Action* p. 8). Applicant appreciates the indication of allowability. Claim 1 has been amended to incorporate the allowable subject matter of claim 16 (now canceled), and claim 32 has been amended to incorporate the allowable subject matter of claim 44 (now canceled). The objection to claims 16 and 44 has been obviated.

Accordingly, independent claim 1 along with dependent claims 2-15, 17-24, and 26-31 are in condition for allowance. Similarly, independent claim 32 along with dependent claims 33-36 and 41-43 are in condition for allowance.

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35 U.S.C. §101 Rejections

Claims 1-24, 26-36, 41-44, 53-66, 68-79, 93-100, and 102-109 are rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter (*Office Action* p. 2). Specifically, the Office rejects claims 1-24 and 26-31 as software *per se* for the recited "virtual network manager" and "route director". Claims 53-63 are also rejected as software *per se* for the recited software agents. Claims 64-66 and 68-79 are rejected because the recited process is not positively tied to a particular machine or does not transform underlying subject matter (*Office Action* p. 3).

Appropriate amendments have been provided herein and Applicant requests that the §101 rejections be withdrawn.

35 U.S.C. §102 Claim Rejection

Claims 1-15, 17-24, 26, 29-43, 53-56, 59-66, 68-87, 90-100, and 102-109 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Publication No. 2008/0232295 to Kreiner *et al*. (hereinafter, "Kreiner") (*Office Action* p. 3). Applicant respectfully traverses the rejection in light of the claim amendments.

Applicant makes no representation that cited references are prior art. This response and any remarks or comments included herein are not intended to be, and are not to be interpreted as, an admission that the cited references are prior art. Applicant reserves the right to dispose of any cited references under 35 U.S.C. §102 and/or 35 U.S.C. §103, including but not limited to, antedating any one or more of the cited references.

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Independent **Claim 1** along with dependent claims 2-15, 17-24, and 26-31, as well as independent **Claim 32** along with dependent claims 33-36 and 41-43 are in condition for allowance as described above.

Claim 53 (as amended) recites a virtual network system, comprising:

> a computing device that includes at least a memory and a processor configured to implement a network manager of a virtual network that is defined by a public domain name, the network manager configured to distribute virtual network addresses to devices that register as members in the virtual network, each device in the virtual network being identified to the other devices by a virtual network address associated with the device;
>
> a first virtual network agent associated with a first device that is registered as a member in the virtual network;
>
> at least a second virtual network agent associated with at least a second device that is registered as a member in the virtual network; and
>
> a route director configured to route communications between the first device and the at least second device in the virtual network via the respective first and second virtual network agents, the communications configured for routing as encapsulated packets that include a first virtual network address that is not directly routable corresponding to the first device and a second virtual network address that is not directly routable corresponding to the at least second device.

While the Office makes no specific rejection with respect to claim 53, the Office states that all claims above 31 are rejected for the same reasons as 1-15, 17-24, and 25-31 (*Office Action* p. 8). Kreiner does not show or disclose a "network manager configured to distribute virtual network addresses to devices that register as members in the virtual network, each device in the virtual network being identified to the other devices by a virtual network address associated with the device", as recited in claim 53.

In rejecting claim 1, the Office cites to Kreiner at ¶[0039] for a virtual network manager configured to register devices in a virtual network (*Office Action* p. 3).

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Although the cited section of Kreiner describes "an exemplary framework of the data flow through a personal digital gateway, a connected communications device, and/or a connected network, Kreiner does not describe that the devices in the exemplary framework are ever ***registered in a virtual network***, as recited in claim 53.

Kreiner also does not show or disclose "the communications configured for routing as encapsulated packets that include a first virtual network address that is not directly routable corresponding to the first device and a second virtual network address that is not directly routable corresponding to the at least second device", as recited in claim 53.

With reference to the rejection of claim 1, the Office cites to Kreiner at ¶[0038] for data being communicated as encapsulated packets from a source device to a destination device (*Office Action* p. 4). Kreiner only describes maintaining information about each communications device, such as network routing that provides a virtual private router that tunnels the user's network access to any communications device connected with the personal gateway (*Kreiner* ¶[0038]). However, there is no indication in Kreiner that data is being communicated between devices as encapsulated packets. Moreover, the virtual private router in Kreiner that tunnels access to any of the communication devices indicates that the only method of access for the devices is through the single user access. This single user access for multiple devices is contrary to a first virtual network address that corresponds to a first device and a second virtual network address that corresponds to a second device", as recited in claim 53.

Accordingly, claim 53 along with dependent claims 54-63 are allowable over Kreiner for at least the reasons described above, and Applicant requests that the §102 rejection be withdrawn.

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Claim 64 (as amended) recites a computer-implemented method, comprising:

> receiving registration requests from devices that request to be registered as members of a virtual network that is defined by a domain name having an associated public network address in a public network, each of the devices having an associated private network address;
>
> distributing a virtual network address to a device to register the device as a member in the virtual network, each device in the virtual network being identified to the other devices by the virtual network address that is associated with the device; and
>
> routing communications between the devices that are registered in the virtual network, the communications being routed as encapsulated packets from a source device to a destination device, an encapsulated packet including a first virtual network address that corresponds to the source device and a second virtual network address that corresponds to the destination device.

As described above in response to the rejection of claim 53, Kreiner does not show or disclose the features recited in claim 64, such as "devices that request to be registered as members of a virtual network" and "routing communications between the devices that are registered in the virtual network, the communications being routed as encapsulated packets from a source device to a destination device, an encapsulated packet including a first virtual network address that corresponds to the source device and a second virtual network address that corresponds to the destination device".

Accordingly, claim 64 along with dependent claims 65, 66, and 68-79 are allowable over Kreiner for at least the reasons described above, and Applicant requests that the §102 rejection be withdrawn.

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Claim 80 (as amended) recites a virtual network manager to "receive registration requests from devices that request to be registered as members of a virtual network" and "manage communications routed between the devices that are registered in the virtual network, the communications routed as encapsulated packets from a source device to a destination device, an encapsulated packet including a first virtual network address that corresponds to the source device and a second virtual network address that corresponds to the destination device".

As described above in response to the rejection of claim 53, Kreiner does not show or disclose the features recited in claim 80. Accordingly, claim 80 along with dependent claims 81-92 are allowable over Kreiner for at least the reasons described above, and Applicant requests that the §102 rejection be withdrawn.

Claim 93 recites virtual network manager "configured to receive a DNS request from a source device, and return a public network address of a route director, a private network address for a destination device, and a virtual network address that corresponds to the destination device."

Claim 93 recites allowable subject matter as incorporated into claims 1 and 32 as described above. Accordingly, claim 93 along with dependent claims 94-100 and 102-109 are allowable over Kreiner, and Applicant requests that the §102 rejection be withdrawn.

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35 U.S.C. §103 Claim Rejection

Claims 27 and 28 are rejected under 35 U.S.C. §103(a) for obviousness over Kreiner (*Office Action* p. 8). The Office takes official notice that the claimed types of encryption are well known. Claims 27 and 28 depend from allowable claim 1 as described above. Accordingly, claims 27 and 28 are in condition for allowance, and Applicant requests that the §103 rejection be withdrawn.

Conclusion

Applicant submits that pending claims 1-15, 17-24, 26-36, 41-43, 53-66, 68-100, and 102-109 are in condition for allowance, and respectfully requests issuance of the subject application. If any issues remain that preclude issuance of the application, the Examiner is urged to contact the undersigned attorney before issuing a subsequent Action.

Respectfully Submitted,

Dated: Oct. 24, 2009

By: / Dave Morasch 42905 /
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Electronic Acknowledgement Receipt	
EFS ID:	6326650
Application Number:	10403818
International Application Number:	
Confirmation Number:	2698
Title of Invention:	Secure virtual community network system
First Named Inventor/Applicant Name:	Hasan S. Alkhatib
Customer Number:	75671
Filer:	William Breen/Kenneth Linder
Filer Authorized By:	William Breen
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Receipt Date:	26-OCT-2009
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Application Type:	Utility under 35 USC 111(a)

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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		INNF0017Response5.pdf	215150 f99ec609676ea060712199fbedaea1317d41f8c3	yes	29

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
	Claims	2	22
	Applicant Arguments/Remarks Made in an Amendment	23	29
Warnings:			
Information:			
	Total Files Size (in bytes):	215150	

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If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (07-06)
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 10/403,818	Filing Date 03/31/2003	☐ To be Mailed

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☐		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

		(Column 1)		(Column 2)	(Column 3)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
	10/26/2009	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
AMENDMENT	Total (37 CFR 1.16(i))	* 92	Minus	** 109	= 0	X $ =		OR	X $52=	0
	Independent (37 CFR 1.16(h))	* 6	Minus	***8	= 0	X $ =		OR	X $220=	0
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	**0**

		(Column 1)		(Column 2)	(Column 3)					
		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
AMENDMENT	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/DALE HALL/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application Serial No.	10/403,818
Filing Date	03/31/2003
Inventorship	Alkhatib *et al.*
Applicant	Inpro Network Facility, LLC
Group Art Unit	2442
Examiner	Blair, Douglas B.
Confirmation No.	2698
Attorney's Docket No.	INNF0017

Title: Secure Virtual Community Network System

REFUND BRANCH

To: Mail Stop 16
Director of the US Patent and Trademark Office
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From: William J. Breen, III (Tel. 509-755-7253; Fax 509-755-7252)

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REQUEST FOR REFUND UNDER 37 C.F.R. § 1.26(A)

On 2/13/2008 a Notice of Non-Compliant Amendment was mailed with a response deadline of 1 month or 30 days, whichever was longer. Due to February having 28 days, the 30-day deadline was 3/15/2008. The response was filed on 3/14/2008, but the office charged a one-month extension of time fee to our deposit account, which was not required. We hereby request the charge of $120 to be credited to the deposit account to which the fee was charged (50-4143), according to 37 C.F.R. § 1.26.

Respectfully Submitted,

Dated: December 3, 2009

By: /William J. Breen, III/
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Electronic Acknowledgement Receipt	
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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/403,818	03/31/2003	Hasan S. Alkhatib	INNF0017	2698

75671 7590 02/05/2010

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EXAMINER	
BLAIR, DOUGLAS B	
ART UNIT	PAPER NUMBER
2442	

NOTIFICATION DATE	DELIVERY MODE
02/05/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

usptocorrespondence@sbmc-law.com

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Notice of Non-Compliant Amendment (37 CFR 1.121)	Application No. 10/403,818	Applicant(s) ALKHATIB ET AL.	
	Examiner DOUGLAS B. BLAIR	Art Unit 2442	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

The amendment document filed on *26 October 2009* is considered non-compliant because it has failed to meet the requirements of 37 CFR 1.121 or 1.4. In order for the amendment document to be compliant, correction of the following item(s) is required.

THE FOLLOWING MARKED (X) ITEM(S) CAUSE THE AMENDMENT DOCUMENT TO BE NON-COMPLIANT:

- ☐ 1. Amendments to the specification:
  - ☐ A. Amended paragraph(s) do not include markings.
  - ☐ B. New paragraph(s) should not be underlined.
  - ☐ C. Other _____.
- ☐ 2. Abstract:
  - ☐ A. Not presented on a separate sheet. 37 CFR 1.72.
  - ☐ B. Other _____.
- ☐ 3. Amendments to the drawings:
  - ☐ A. The drawings are not properly identified in the top margin as "Replacement Sheet," "New Sheet," or "Annotated Sheet" as required by 37 CFR 1.121(d).
  - ☐ B. The practice of submitting proposed drawing correction has been eliminated. Replacement drawings showing amended figures, without markings, in compliance with 37 CFR 1.84 are required.
  - ☐ C. Other _____.
- ☒ 4. Amendments to the claims:
  - ☐ A. A complete listing of all of the claims is not present.
  - ☐ B. The listing of claims does not include the text of all pending claims (including withdrawn claims)
  - ☒ C. Each claim has not been provided with the proper status identifier, and as such, the individual status of each claim cannot be identified. Note: the status of every claim must be indicated after its claim number by using one of the following status identifiers: (Original), (Currently amended), (Canceled), (Previously presented), (New), (Not entered), (Withdrawn) and (Withdrawn-currently amended).
  - ☐ D. The claims of this amendment paper have not been presented in ascending numerical order.
  - ☒ E. Other: *See Continuation Sheet*.
- ☐ 5. Other (e.g., the amendment is unsigned or not signed in accordance with 37 CFR 1.4):

  _____

For further explanation of the amendment format required by 37 CFR 1.121, see MPEP § 714.

TIME PERIODS FOR FILING A REPLY TO THIS NOTICE:

1. Applicant is given **no new time period** if the non-compliant amendment is an after-final amendment or an amendment filed after allowance. If applicant wishes to resubmit the non-compliant after-final amendment with corrections, the **entire corrected amendment** must be resubmitted.
2. Applicant is given **one month**, or thirty (30) days, whichever is longer, from the mail date of this notice to supply the correction, if the non-compliant amendment is one of the following: a preliminary amendment, a non-final amendment (including a submission for a request for continued examination (RCE) under 37 CFR 1.114), a supplemental amendment filed within a suspension period under 37 CFR 1.103(a) or (c), and an amendment filed in response to a *Quayle* action. If any of above boxes 1. to 4. are checked, the correction required is only the **corrected section** of the non-compliant amendment in compliance with 37 CFR 1.121.

   Extensions of time are available under 37 CFR 1.136(a) only if the non-compliant amendment is a non-final amendment or an amendment filed in response to a *Quayle* action.

   Failure to timely respond to this notice will result in:
   Abandonment of the application if the non-compliant amendment is a non-final amendment or an amendment filed in response to a *Quayle* action; or
   Non-entry of the amendment if the non-compliant amendment is a preliminary amendment or supplemental amendment.

/Douglas B Blair/ Primary Examiner, Art Unit 2442	

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Continuation of 4(e) Other: The claim amendment filed on 5/29/2009 was compliant with 1.121 and was entered on 5/29/2009. The current amendment is a supplemental amendment The current claim amendment should be with respect to the 5/29/2009 claim set and not the 3/15/2008 claim set. Only claim 93 should be listed as currently amended. The claim markups should be changed appropriately.

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Title: Secure Virtual Community Network System

RESPONSE TO:

NOTICE OF NON-COMPLIANT AMENDMENT DATED FEBRUARY 5, 2010

NOTICE OF NON-RESPONSIVE AMENDMENT DATED SEPTEMBER 29, 2009

& OFFICE ACTION DATED FEBRUARY 4, 2009

To: Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

From: David A. Morasch Tel. 509-755-7250
Fax 509-755-7252
Customer # 75671

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LIST OF CLAIMS

Claims 16, 25, 37-40, 44-52, 67, and 101 were previously canceled.

Claims 1, 32, 53, 57, 58, 64, 80, 81, 83, 85-87, and 92 were previously amended in the Response filed May 29, 2009.

Please amend claim 93 as shown herein.

Claims 1-15, 17-24, 26-36, 41-43, 53-66, 68-100, and 102-109 are pending:

1. (previously presented) A virtual network system, comprising:

a virtual network manager implemented as a first computing device, the virtual network manager configured to register devices in a virtual network that is defined by a domain name, each device in the virtual network being identified to the other devices by a virtual network address that is unique for each device and not directly routable via a public network, the virtual network manager further configured to distribute a virtual network address to a device when the device is registered in the virtual network;

a route director implemented as a second computing device, the route director configured to communicate data between the devices that are registered in the virtual network, the data being communicated as encapsulated packets from a source device to a destination device, an encapsulated packet including a first virtual network address that corresponds to the source device and a second virtual network address that corresponds to the destination device; and

the virtual network manager further configured to receive a DNS request from the source device, and return a public network address of the route director, a private network address for the destination device, and the second virtual network address that corresponds to the destination device.

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2. (previously presented) The system of claim 1 wherein each of the devices communicate with the virtual network manager and the other devices in the virtual network via an associated agent.

3. (previously presented) The system of claim 1 wherein each of the devices include an agent configured to communicate with the virtual network manager and agents of the other devices in the virtual network.

4. (previously presented) The system of claim 2 wherein the associated agent is installed on a proxy device which is a proxy agent for one or more of the devices in the virtual network with respect to the virtual network manager and the route director.

5. (previously presented) The system of claim 2 wherein the virtual network manager is further configured to:

receive a request from the agent associated with a device in a private network to register the device in the virtual network; and

detect a presence of a NAT device via which the request is routed from the agent to the virtual network manager.

6. (previously presented) The system of claim 1 wherein the virtual network manager is coupled to the public network and has an associated public network address.

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7. (previously presented) The system of claim 1 wherein the route director is further configured to receive the encapsulated packets when routed to a public network address corresponding to the route director.

8. (previously presented) The system of claim 1 wherein each of the devices in the virtual network are further identified by at least one physical network address.

9. (previously presented) The system of claim 8 wherein the physical network addresses that are associated with the devices in the virtual network are dynamic.

10. (previously presented) The system of claim 8 wherein the physical network addresses that are associated with the devices in the virtual network are static.

11. (previously presented) The system of claim 8 wherein the physical network addresses that are associated with the devices in the virtual network are private network addresses, and wherein the virtual network addresses are unique in the virtual network so as not to conflict with the private network addresses.

12. (previously presented) The system of claim 8 wherein the source device is coupled to a first private network and accesses a public network via a first NAT device configured to transmit the encapsulated packets, an encapsulated packet further including the physical network address of the source device as a private network address in the first private network.

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13. (previously presented) The system of claim 12 wherein the physical network address of the source device is dynamic.

14. (previously presented) The system of claim 12 wherein the physical network address of the source device is static.

15. (previously presented) The system of claim 12 wherein the destination device is coupled to a second private network and accesses the public network via a second NAT device, the encapsulated packet further including the physical network address of the destination device as a private network address in the second private network.

16. (canceled)

17. (previously presented) The system of claim 15 wherein the physical network address of the destination device is dynamic.

18. (previously presented) The system of claim 15 wherein the physical network address of the destination device is static.

19. (previously presented) The system of claim 15 wherein said first private network and said second private network share at least one network address.

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20. (previously presented) The system of claim 1 wherein the route director is further configured to:

provide a device-specific pseudo address assignment for the device in the virtual network when the device communicates with the route director via a NAT device; and

store an association of the device-specific pseudo address with a public network address of the NAT device and a port number of the NAT device.

21. (previously presented) The system of claim 1 wherein the route director includes a translator for virtual network address information for a device in the virtual network that is implemented in a private network.

22. (previously presented) The system of claim 1 wherein the virtual network manager is coupled to the public network and includes a public network address.

23. (previously presented) The system of claim 22 wherein the route director is coupled to the public network and includes a different public network address than the public network address of the virtual network manager.

24. (previously presented) The system of claim 22 wherein the route director is coupled to a private network and includes a private network address.

25. (canceled)

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26. (previously presented) The system of claim 1 wherein the encapsulated packets further include virtual IP packets configured for communication of the data, the virtual IP packets being encrypted prior to being encapsulated.

27. (previously presented) The system of claim 26 wherein the virtual IP packets are encrypted using IPSEC.

28. (previously presented) The system of claim 26 wherein the virtual IP packets are encrypted using DES or triple DES.

29. (previously presented) The system of claim 5 wherein the virtual network manager is further configured to receive the request from the agent as a message, and detect the presence of the NAT device by comparing a field in a payload of the message with a source address in a header of the message.

30. (previously presented) The system of claim 1 wherein the virtual network manager includes a virtual community definition that is defined by the domain name, and includes one or more of the devices that are registered in the virtual network.

31. (previously presented) The system of claim 1 wherein the route director is a public route director in the public network, the system further comprising a private route director in a private network configured to enable access to devices of the private network that are also in the virtual network from devices of the public network that are also in the virtual network.

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32. (previously presented) A virtual network manager, comprising:

a network interface configured for data communication via a virtual network that is defined by a domain name having an associated public network address;

a register module configured to register devices in a virtual network, the register module further configured to:

receive a registration request from an agent associated with a device;

distribute a virtual network address to the device when the device is registered in the virtual network, the device being identified to other devices in the virtual network by the virtual network address; and

a DNS server for the virtual network, the DNS server configured to receive a DNS request from a first device in the virtual network, and return a network address associated with a network route director, a private network address associated with a second device in the virtual network, and a virtual network address associated with the second device.

33. (previously presented) The virtual network manager of claim 32 further comprising an additional network interface configured for data communication via a public network.

34. (previously presented) The virtual network manager of claim 32 wherein the network interface is a UDP port configured for data communication via the virtual network.

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35. (previously presented) The virtual network manager of claim 33 wherein the network interface is a UDP port configured for data communication via the virtual network, and wherein the additional network interface is a TCP port configured for registration communications via the public network.

36. (previously presented) The virtual network manager of claim 32 wherein the register module is further configured to receive the registration request from the agent that is installed on the device for data communication via the virtual network.

37-40. (canceled)

41. (previously presented) The virtual network manager of claim 32 further comprising a join module configured to receive a join request from the agent associated with the device to indicate that the device is connected for data communication within the virtual network, the join module further configured to receive a leave request from the agent associated with the device to indicate that the device will be disconnected from data communication within the virtual network.

42. (previously presented) The virtual network manager of claim 41 wherein the join module is further configured to provide virtual network addresses to the devices that are registered in the virtual network.

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43. (previously presented) The virtual network manager of claim 41 wherein the join module is further configured to maintain data to associate a virtual network address with a device in the virtual network.

44-52. (canceled)

53. (previously presented) A virtual network system, comprising:

a computing device that includes at least a memory and a processor configured to implement a network manager of a virtual network that is defined by a public domain name, the network manager configured to distribute virtual network addresses to devices that register as members in the virtual network, each device in the virtual network being identified to the other devices by a virtual network address associated with the device;

a first virtual network agent associated with a first device that is registered as a member in the virtual network;

at least a second virtual network agent associated with at least a second device that is registered as a member in the virtual network; and

a route director configured to route communications between the first device and the at least second device in the virtual network via the respective first and second virtual network agents, the communications configured for routing as encapsulated packets that include a first virtual network address that is not directly routable corresponding to the first device and a second virtual network address that is not directly routable corresponding to the at least second device.

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54. (previously presented) The system of claim 53 wherein the route director is a public network route director that includes a public network interface and an associated public network address by which the first and second virtual network agents communicate with the public network route director.

55. (previously presented) The system of claim 53 wherein the route director is a private route director that includes a private physical network interface and an associated private physical network address.

56. (previously presented) The system of claim 53 wherein the first virtual network agent is installed on the first device for data communication via the virtual network.

57. (previously presented) The system of claim 56 wherein the first device is in a private physical network, has an associated private network address, and has the associated virtual network address that is not directly routable by which the first device can be identified by the at least second virtual network agent from outside of the private physical network.

58. (previously presented) The system of claim 56 wherein the first device is coupled to a public physical network, has an associated public network address, and has the associated virtual network address by which the first device can be identified by the at least second virtual network agent.

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59. (previously presented) The system of claim 53 wherein the first virtual network agent is a proxy agent for the first device with respect to the network manager and the route director.

60. (previously presented) The system of claim 53 wherein the first and second devices are configured to access the virtual network from separate private address physical realms.

61. (previously presented) The system of claim 53 wherein the network manager includes at least a first community definition and a second community definition, the first community definition being defined by the public domain name and includes one or more of the devices that are registered in the virtual network, and the second community definition being defined by a different public domain name and includes one or more different devices that are registered in the virtual network.

62. (previously presented) The system of claim 53 wherein the network manager includes a member authenticator configured to authenticate the devices that request to register with the network manager.

63. (previously presented) The system of claim 62 wherein the network manager includes a DNS server configured to provide authoritative responses for DNS queries in the virtual network, the DNS server further configured to receive a DNS query from the first device to obtain the virtual network address of the at least second device for use in communicating with the second device.

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64. (previously presented) A computer-implemented method, comprising:

receiving registration requests from devices that request to be registered as members of a virtual network that is defined by a domain name having an associated public network address in a public network, each of the devices having an associated private network address;

distributing a virtual network address to a device to register the device as a member in the virtual network, each device in the virtual network being identified to the other devices by the virtual network address that is associated with the device; and

routing communications between the devices that are registered in the virtual network, the communications being routed as encapsulated packets from a source device to a destination device, an encapsulated packet including a first virtual network address that corresponds to the source device and a second virtual network address that corresponds to the destination device.

65. (previously presented) The method of claim 64 further comprising providing the devices in the virtual network with a communication agent.

66. (previously presented) The method of claim 65 wherein said providing the devices in the virtual network with a communication agent includes providing a proxy agent.

67. (canceled)

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68. (previously presented) The method of claim 64 further comprising authenticating the devices as the members in the virtual network.

69. (previously presented) The method of claim 64 further comprising defining a member set of the virtual network that includes one or more of the devices, and assigning the domain name that defines the virtual network.

70. (previously presented) The method of claim 64 further comprising defining at least two member sets of the virtual network that each include one or more of the devices, the at least two member sets having at least one different device.

71. (previously presented) The method of claim 64 further comprising assigning the virtual network address to the device as an IPV4 compliant address.

72. (previously presented) The method of claim 71 wherein the IPV4 compliant address is non-routable.

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73. (previously presented) The method of claim 64 further comprising routing network traffic via the public network from a first device having a public network address to a second device having a different public network address, the network traffic being routed as data packets having a source address which is the virtual network address of the first device and a destination address which is the virtual network address of the second device, the data packets being encapsulated to include a second source address which is a public network address of the first device and a second destination address which is the different public network address of the second device.

74. (previously presented) The method of claim 64 further comprising routing network traffic from a first device in a private physical network having a private network address to a second device having a public network address, the network traffic being routed as data packets having a source address which is the virtual network address of the first device, a destination address which is the virtual network address of the second device, and a shim which includes the private network address, the data packets being encapsulated to include a second destination address which is the public network address of the second device.

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75. (previously presented) The method of claim 64 further comprising routing network traffic from a first device in a private physical network having a first private network address to a second device in a different private physical network having a second private network address, the network traffic being routed as encapsulated packets having a source address which is the virtual network address of the first device, a destination address which is the virtual network address of the second device, and a shim which includes the first and second private network addresses.

76. (previously presented) The method of claim 75 wherein the first private network address and the second private network address are identical.

77. (previously presented) The method of claim 64 further comprising responding to DNS requests received from the devices that are the members in the virtual network.

78. (previously presented) The method of claim 64 further comprising:

receiving a join status request from a first device in the virtual network as a query to determine the status of a second device in the virtual network; and

responding to the join status request to indicate whether or not the second device is joined to the virtual network for data communication.

79. (previously presented) The method of claim 64 further comprising applying a group policy to the devices that are registered as the members of the virtual network.

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80. (previously presented) One or more processor readable storage media comprising processor readable code that, if executed by a computer device, implements a virtual network manager to:

receive registration requests from devices that request to be registered as members of a virtual network that is defined by a domain name having an associated public network address in a public network, each of the devices having an associated private network address;

distribute a virtual network address to a device to register the device as a member in the virtual network, each device in the virtual network being identified to the other devices by the virtual network address that is associated with the device; and

manage communications routed between the devices that are registered in the virtual network, the communications routed as encapsulated packets from a source device to a destination device, an encapsulated packet including a first virtual network address that corresponds to the source device and a second virtual network address that corresponds to the destination device.

81. (previously presented) One or more processor readable storage media as recited in claim 80 further comprising processor readable code that, if executed, implements the virtual network manager to provide the devices in the virtual network with a communication agent.

82. (previously presented) One or more processor readable storage media as recited in claim 81 wherein the virtual network manager provides the as a proxy agent.

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83. (previously presented) One or more processor readable storage media as recited in claim 80 further comprising processor readable code that, if executed, implements the virtual network manager to define a member set of the virtual network that includes one or more of the devices, and the domain name that defines the virtual network.

84. (previously presented) One or more processor readable storage media as recited in claim 80 wherein the virtual network address includes a non-routable IPV4 compliant address.

85. (previously presented) One or more processor readable storage media as recited in claim 80 further comprising processor readable code that, if executed, implements the virtual network manager to route network traffic via the public network from a first device having a public network address to a second device having a different public network address.

86. (previously presented) One or more processor readable storage media as recited in claim 80 further comprising processor readable code that, if executed, implements the virtual network manager to route network traffic from a first device in a private physical network having a private network address to a second device having a public network address.

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87. (previously presented) One or more processor readable storage media as recited in claim 80 further comprising processor readable code that, if executed, implements the virtual network manager to route network traffic from a first device in a private physical network having a first private network address to a second device in a different private physical network having a second private network address.

88. (previously presented) One or more processor readable storage media as recited in claim 87 wherein the network traffic is routed to the first or second device via a NAT device.

89. (previously presented) One or more processor readable storage media as recited in claim 87 wherein the first private network address and the second private network address are identical.

90. (previously presented) One or more processor readable storage media as recited in claim 85 wherein the network traffic is routed as encapsulated data packets.

91. (previously presented) One or more processor readable storage media as recited in claim 85 wherein the network traffic is routed as encrypted data traffic.

92. (previously presented) One or more processor readable storage media as recited in claim 80 further comprising processor readable code that, if executed, implements the virtual network manager to apply a group policy to the devices that are registered as the members of the virtual network.

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93. (currently amended) A virtual network system, comprising:

a computing device that includes at least a memory and a processor configured to implement a virtual network manager having a network interface coupled to a virtual network, the virtual network manager including at least one virtual community definition that is defined by a domain name having an associated public network address and a user set of one or more devices that are registered in the virtual network, each device in the virtual network being identified to the other devices by a virtual network address that is associated with the device, the virtual network manager configured to exchange virtual network information with the one or more devices of the user set, ~~and~~ the virtual network being accessible by devices in the user set and devices outside of the user set, and the virtual network manager further configured to receive a DNS request from a source device, and return a public network address of a route director, a private network address for a destination device, and a virtual network address that corresponds to the destination device.

94. (original) The system of claim 93 wherein the virtual network manager includes a member register module.

95. (original) The system of claim 93 wherein the virtual network manager includes a member join module.

96. (previously presented) The system of claim 95 wherein the member join module provides a virtual network address to a device that is registered as a member of the network.

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97. (previously presented) The system of claim 93 wherein the virtual network manager is further configured to maintain data on an association between at least one virtual network address with at least one device that is registered as a member of the network.

98. (previously presented) The system of claim 93 wherein the virtual network manager includes a DNS server for the virtual community network.

99. (previously presented) The system of claim 93 wherein the virtual network manager includes a NAT device detector for devices connecting with the virtual network manager behind a NAT device.

100. (previously presented) The system of claim 93 wherein the virtual network manager includes at least a second virtual community definition.

101. (canceled)

102. (original) The system of claim 93 wherein the virtual network manager includes a member authenticator.

103. (previously presented) The system of claim 93 wherein the virtual network manager includes a DNS server configured to provide authoritative responses for DNS queries from devices in the virtual community.

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104. (previously presented) The system of claim 93 further comprising at least one route director configured to communicate with the one or more devices in the user set.

105. (previously presented) The system of claim 93 wherein each device registered in the network is configured to communicate with the virtual network manager and other devices in the user set via at least one agent.

106. (previously presented) The system of claim 93 wherein the user set includes at least a first device and a second device, and wherein at least one of said first device and said second device is coupled to a first private network and accesses a public network via a NAT device.

107. (original) The system of claim 106 wherein said first device is coupled to said first private network, and said second device is coupled to a second private network and accesses the public network via a second NAT device.

108. (previously presented) The system of claim 93 wherein communications between the one or more devices in the user set are encrypted.

109. (previously presented) The system of claim 108 wherein the virtual network manager is configured to provide a shared message to the one or more devices in the user set to establish encrypted communications.

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REMARKS

Applicant respectfully requests consideration and allowance of the subject application. Claims 1-15, 17-24, 26-36, 41-43, 53-66, 68-100, and 102-109 are pending, of which claim 93 has been amended.

Notice of Non-Compliant Amendment

The Office states that the claim amendment filed on May 29, 2009 was compliant with 1.121 and was entered. The amendment filed on October 26, 2009 in response to the Notice of Non-Responsive Amendment is a supplemental amendment and the claim amendments should have been presented with respect to the May 29, 2009 claim set. Specifically, only claim 93 should be listed as currently amended, and the claim markups should be changed appropriately.

Accordingly, only claim 93 is listed as currently amended, and Applicant submits that the Response is both fully responsive and compliant.

Notice of Non-Responsive Amendment

The Office indicates that the Response filed May 29, 2009 was not fully responsive because an argument against the §101 rejection of claim 93 was not provided. In the Office Action, claim 93 was rejected as being directed to non-statutory subject matter, namely the recited "virtual network manager". Applicant has amended the Response herein. Specifically, claim 93 has been amended to recite "a computing device that includes at least a memory and a processor configured to implement a virtual network manager…". Accordingly, Applicant submits that the Response is now fully responsive.

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Allowable Subject Matter

Claims 16 and 44 are indicated as being allowable if rewritten in independent form (*Office Action* p. 8). Applicant appreciates the indication of allowability. Claim 1 has been amended to incorporate the allowable subject matter of claim 16 (now canceled), and claim 32 has been amended to incorporate the allowable subject matter of claim 44 (now canceled). The objection to claims 16 and 44 has been obviated.

Accordingly, independent claim 1 along with dependent claims 2-15, 17-24, and 26-31 are in condition for allowance. Similarly, independent claim 32 along with dependent claims 33-36 and 41-43 are in condition for allowance.

35 U.S.C. §101 Rejections

Claims 1-24, 26-36, 41-44, 53-66, 68-79, 93-100, and 102-109 are rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter (*Office Action* p. 2). Specifically, the Office rejects claims 1-24 and 26-31 as software *per se* for the recited "virtual network manager" and "route director". Claims 53-63 are also rejected as software *per se* for the recited software agents. Claims 64-66 and 68-79 are rejected because the recited process is not positively tied to a particular machine or does not transform underlying subject matter (*Office Action* p. 3).

Amendments have been provided and Applicant requests that the §101 rejections be withdrawn.

35 U.S.C. §102 Rejection

Claims 1-15, 17-24, 26, 29-43, 53-56, 59-66, 68-87, 90-100, and 102-109 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Publication No. 2008/0232295 to Kreiner *et al*. (hereinafter, "Kreiner") (*Office Action* p. 3).

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Applicant respectfully traverses the rejection in light of the amendments to the claims, and makes no representation that cited references are prior art. This response and any remarks or comments included herein are not intended to be, and are not to be interpreted as, an admission that the cited references are prior art. Applicant reserves the right to dispose of any cited references under 35 U.S.C. §102 and/or 35 U.S.C. §103, including but not limited to, antedating any one or more of the cited references.

Independent **Claim 1** along with dependent claims 2-15, 17-24, and 26-31, as well as independent **Claim 32** along with dependent claims 33-36 and 41-43 are in condition for allowance as described above.

Claim 53 recites a virtual network system, comprising:

> a computing device that includes at least a memory and a processor configured to implement a network manager of a virtual network that is defined by a public domain name, the network manager configured to distribute virtual network addresses to devices that register as members in the virtual network, each device in the virtual network being identified to the other devices by a virtual network address associated with the device;
>
> a first virtual network agent associated with a first device that is registered as a member in the virtual network;
>
> at least a second virtual network agent associated with at least a second device that is registered as a member in the virtual network; and
>
> a route director configured to route communications between the first device and the at least second device in the virtual network via the respective first and second virtual network agents, the communications configured for routing as encapsulated packets that include a first virtual network address that is not directly routable corresponding to the first device and a second virtual network address that is not directly routable corresponding to the at least second device.

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While the Office makes no specific rejection with respect to claim 53, the Office states that all claims above 31 are rejected for the same reasons as 1-15, 17-24, and 25-31 (*Office Action* p. 8). Kreiner does not show or disclose a "network manager configured to distribute virtual network addresses to devices that register as members in the virtual network, each device in the virtual network being identified to the other devices by a virtual network address associated with the device", as recited in claim 53.

In rejecting claim 1, the Office cites to Kreiner at ¶[0039] for a virtual network manager configured to register devices in a virtual network (*Office Action* p. 3). Although the cited section of Kreiner describes "an exemplary framework of the data flow through a personal digital gateway, a connected communications device, and/or a connected network, Kreiner does not describe that the devices in the exemplary framework are ever ***registered in a virtual network***, as recited in claim 53.

Kreiner also does not show or disclose "the communications configured for routing as encapsulated packets that include a first virtual network address that is not directly routable corresponding to the first device and a second virtual network address that is not directly routable corresponding to the at least second device", as recited in claim 53.

With reference to the rejection of claim 1, the Office cites to Kreiner at ¶[0038] for data being communicated as encapsulated packets from a source device to a destination device (*Office Action* p. 4). Kreiner only describes maintaining information about each communications device, such as network routing that provides a virtual private router that tunnels the user's network access to any communications device connected with the personal gateway (*Kreiner* ¶[0038]). However, there is no indication in Kreiner that data is being communicated between devices as encapsulated packets.

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Moreover, the virtual private router in Kreiner that tunnels access to any of the communication devices indicates that the only method of access for the devices is through the single user access. This single user access for multiple devices is contrary to a first virtual network address that corresponds to a first device and a second virtual network address that corresponds to a second device", as recited in claim 53.

Accordingly, claim 53 along with dependent claims 54-63 are allowable over Kreiner for at least the reasons described above, and Applicant requests that the §102 rejection be withdrawn.

Claim 64 recites a computer-implemented method, comprising:

> receiving registration requests from devices that request to be registered as members of a virtual network that is defined by a domain name having an associated public network address in a public network, each of the devices having an associated private network address;
>
> distributing a virtual network address to a device to register the device as a member in the virtual network, each device in the virtual network being identified to the other devices by the virtual network address that is associated with the device; and
>
> routing communications between the devices that are registered in the virtual network, the communications being routed as encapsulated packets from a source device to a destination device, an encapsulated packet including a first virtual network address that corresponds to the source device and a second virtual network address that corresponds to the destination device.

As described above in response to the rejection of claim 53, Kreiner does not show or disclose the features recited in claim 64, such as "devices that request to be registered as members of a virtual network" and "routing communications between the devices that are registered in the virtual network, the communications being routed as encapsulated packets from a source device to a destination device, an encapsulated packet

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including a first virtual network address that corresponds to the source device and a second virtual network address that corresponds to the destination device".

Accordingly, claim 64 along with dependent claims 65, 66, and 68-79 are allowable over Kreiner for at least the reasons described above, and Applicant requests that the §102 rejection be withdrawn.

Claim 80 recites a virtual network manager to "receive registration requests from devices that request to be registered as members of a virtual network" and "manage communications routed between the devices that are registered in the virtual network, the communications routed as encapsulated packets from a source device to a destination device, an encapsulated packet including a first virtual network address that corresponds to the source device and a second virtual network address that corresponds to the destination device".

As described above in response to the rejection of claim 53, Kreiner does not show or disclose the features recited in claim 80. Accordingly, claim 80 along with dependent claims 81-92 are allowable over Kreiner for at least the reasons described above, and Applicant requests that the §102 rejection be withdrawn.

Claim 93 recites virtual network manager "configured to receive a DNS request from a source device, and return a public network address of a route director, a private network address for a destination device, and a virtual network address that corresponds to the destination device."

Claim 93 recites allowable subject matter as incorporated into claims 1 and 32 as described above. Accordingly, claim 93 along with dependent claims 94-100 and

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102-109 are allowable over Kreiner, and Applicant requests that the §102 rejection be withdrawn.

35 U.S.C. §103 Rejection

Claims 27 and 28 are rejected under 35 U.S.C. §103(a) for obviousness over Kreiner (*Office Action* p. 8). The Office takes official notice that the claimed types of encryption are well known. Claims 27 and 28 depend from allowable claim 1 as described above. Accordingly, claims 27 and 28 are in condition for allowance, and Applicant requests that the §103 rejection be withdrawn.

Conclusion

Applicant submits that pending claims 1-15, 17-24, 26-36, 41-43, 53-66, 68-100, and 102-109 are in condition for allowance, and respectfully requests issuance of the subject application. If any issues remain that preclude issuance of the application, the Examiner is urged to contact the undersigned attorney before issuing a subsequent Action.

Respectfully Submitted,

Dated: Feb. 22, 2010

By: / Dave Morasch 42905 /
David A. Morasch
SBMC, p.s.
Reg. No. 42,905
(509) 755-7250

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Hasan S Alkhatib et al.	Examiner:	Douglas B Blair
Serial No.:	10/403,818	Group Art Unit:	2442
Filed:	March 31, 2003	Docket:	INNF0017
Title:	Secure virtual community network system		

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

In compliance with the duty imposed by 37 C.F.R. § 1.56, and in accordance with 37 C.F.R. §§ 1.97 *et. seq*., the referenced materials are brought to the attention of the Examiner for consideration in connection with the above-identified patent application. Applicants respectfully request that this Supplemental Information Disclosure Statement be entered and the documents listed on the attached Form 1449 be considered by the Examiner and made of record. Pursuant to the provisions of MPEP 609, Applicants request that a copy of the 1449 form, initialed as being considered by the Examiner, be returned to the Applicants with the next official communication.

Pursuant to 37 C.F.R. §1.97(c)(2), Applicants have included the fee of $180.00 as set forth in 37 C.F.R. §1.17(p). Please charge any additional fees or credit any overpayment to Deposit Account No. 50-4143.

Pursuant to 37 C.F.R. 1.98(a)(2), Applicant believes that copies of cited U.S. Patents and Published Applications are no longer required to be provided to the Office. Notification of this change was provided in the United States Patent and Trademark Office OG Notices dated October 12, 2004. Thus, Applicant has not included copies of any US Patents or Published Applications cited with this submission. Should the Office require copies to be provided, Applicant respectfully requests that notice of such requirement be directed to Applicant's below-signed representative. Applicant acknowledges the requirement to submit copies of foreign patent documents and non-patent literature in accordance with 37 C.F.R. 1.98(a)(2).

Respectfully submitted,

HASAN S ALKHATIB ET AL.

By their Representatives,

Date February 22, 2010 By / Dave Morasch 42905 /
Dave A. Morasch
Reg. No. 42,905

PTO/SB/08a(04-07)
Approved for use through 7/31/2006. OMB 0651-0031
US Patent & Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

	Complete if Known
Application Number	10/403,818
Filing Date	March 31, 2003
First Named Inventor	Alkhatib, Hasan
Art Unit	2442
Examiner Name	Blair, Douglas

Sheet	1	of	1	Attorney Docket No: INNF0017

US PATENT DOCUMENTS

Examiner Initial *	Cite No	Document Number	Publication Date	Name of Patentee or Applicant of Cited Document	Filing Date If Appropriate
		US-20010027474	10/04/2001	Nachman et al.	
		US-20030018912	01/23/2003	Boyle, S. C., et al.	
		US-20030055978	03/20/2003	Collins, Leonard A.	
		US-20030208554	11/06/2003	Holder, Helen A.	
		US-6477565	11/05/2002	Daswani et al.	
		US-7072935	07/04/2006	Kehoe et al.	
		US-7120676	10/10/2006	Nelson et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No	Foreign Patent Document	Publication Date	Name of Patentee or Applicant of cited Document	T^2

OTHER DOCUMENTS -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No [1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T^2
		"Non-Final Office Action", Application Number 10/233,288, (12/21/2009), 13 pages	
		"Final Office Action", Application Number 10/403,518, (02/02/2010), 26 pages	

EXAMINER **DATE CONSIDERED**

Substitute Disclosure Statement Form (PTO-1449)
* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional) [2] Applicant is to place a check mark here if English language Translation is attached

Electronic Patent Application Fee Transmittal	
Application Number:	10403818
Filing Date:	31-Mar-2003
Title of Invention:	Secure virtual community network system
First Named Inventor/Applicant Name:	Hasan S. Alkhatib
Filer:	William Breen/Kenneth Linder
Attorney Docket Number:	INNF0017
Filed as Large Entity	

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	180	180
		Total in USD ($)		**180**

Electronic Acknowledgement Receipt	
EFS ID:	7061982
Application Number:	10403818
International Application Number:	
Confirmation Number:	2698
Title of Invention:	Secure virtual community network system
First Named Inventor/Applicant Name:	Hasan S. Alkhatib
Customer Number:	75671
Filer:	William Breen/Kenneth Linder
Filer Authorized By:	William Breen
Attorney Docket Number:	INNF0017
Receipt Date:	22-FEB-2010
Filing Date:	31-MAR-2003
Time Stamp:	18:30:56
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$180
RAM confirmation Number	8138
Deposit Account	504143
Authorized User	SADLER,LANCE R.
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees) Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees) Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)					
File Listing:					
Document Number	**Document Description**	**File Name**	**File Size(Bytes)/ Message Digest**	**Multi Part /.zip**	**Pages (if appl.)**
1		INNF0017NFOAResponse.pdf	213693 b6c935e854947c5563c9e19f0f43ef916277442d	yes	29
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Amendment/Req. Reconsideration-After Non-Final Reject		1	1	
	Claims		2	22	
	Applicant Arguments/Remarks Made in an Amendment		23	29	
Warnings:					
Information:					
2		INNF0017IDS.pdf	163812 debe09b779daf61a5a80aae8370cc0378a7e51f5	yes	3
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Transmittal Letter		1	2	
	Information Disclosure Statement (IDS) Filed (SB/08)		3	3	
Warnings:					
Information:					
3	NPL Documents	10233288NFOA122109.pdf	315701 c5e6482832c618389d63feac29284924f550df31	no	13
Warnings:					
Information:					
4	NPL Documents	10403518FOA020210.pdf	922845 c0d743fd3e8da2fcd66c197be3e57fecc9132d4a	no	26
Warnings:					
Information:					
5	Fee Worksheet (PTO-875)	fee-info.pdf	30020 becc6ed5ff251015b158abe2ba98f31716bc295f	no	2

Warnings:	
Information:	
Total Files Size (in bytes):	1646071

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 10/403,818	Filing Date 03/31/2003	☐ To be Mailed

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☐		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

		(Column 1)		(Column 2)	(Column 3)	SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
	02/22/2010	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
AMENDMENT	Total (37 CFR 1.16(i))	* 92	Minus	** 109	= 0	X $ =		OR	X $52=	0
	Independent (37 CFR 1.16(h))	* 6	Minus	***8	= 0	X $ =		OR	X $220=	0
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	**0**

		(Column 1)		(Column 2)	(Column 3)					
		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
AMENDMENT	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/Susan K. Ford/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/403,818	03/31/2003	Hasan S. Alkhatib	INNF0017	2698

75671 7590 03/09/2010
Sadler, Breen, Morasch & Colby, ps
422 W. Riverside Ave, Suite 424
Spokane, WA 99201

EXAMINER	
BLAIR, DOUGLAS B	

ART UNIT	PAPER NUMBER
2442	

NOTIFICATION DATE	DELIVERY MODE
03/09/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

usptocorrespondence@sbmc-law.com

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American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

UNITED STATES PATENT AND TRADEMARK OFFICE

UNDER SECRETARY OF COMMERCE FOR INTELLECTUAL PROPERTY AND
DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE

March 4, 2010

SADLER, BREEN, MORASCH & COLBY, PS
422 W. RIVERSIDE AVE, SUITE 424
SPOKANE, WA 99201
US

Dear Sir/Madam,

Your refund request for 10403818 in the amount of $120.00 has been denied .

Application or petition fee not refundable. Money paid by actual mistake or in excess, such as payment not required by law, will be refunded; but a mere change of purpose after payment of money, as when a party desires to withdraw an application, an appeal or a request for oral hearing does not entitle the party to a refund (37 CFR 1.26). If any application is filed without the specification or drawing and the ommission is corrected with in the period set, the application will be returned or otherwise disposed of. The fee, if submitted should include the $130.00 handling fee (37 CFR 1.53).

Sincerely,

Tonya Tubbs
Technical Center 2400
571-272-1633

AA/SWA Ex. 1002, p.570 of 833
American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

PTO/SB/08a(04-07)
Approved for use through 7/31/2006. OMB 0651-0031
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Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

	Complete if Known
Application Number	10/403,818
Filing Date	March 31, 2003
First Named Inventor	Alkhatib, Hasan
Art Unit	2442
Examiner Name	Blair, Douglas

Sheet	1	of	1	Attorney Docket No: INNF0017

US PATENT DOCUMENTS					
Examiner Initial *	**Cite No**	**Document Number**	**Publication Date**	**Name of Patentee or Applicant of Cited Document**	**Filing Date If Appropriate**

FOREIGN PATENT DOCUMENTS					
Examiner Initials*	**Cite No**	**Foreign Patent Document**	**Publication Date**	**Name of Patentee or Applicant of cited Document**	**T[2]**

OTHER DOCUMENTS -- NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	**Cite No [1]**	**Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.**	**T[2]**
		"Final Office Action", Application Number 10/403,829, (2/23/2010), 15 pages	
		"Advisory Action", Application Serial No. 10/403,829, (5/14/2010), 2 pages	

EXAMINER **DATE CONSIDERED**

Substitute Disclosure Statement Form (PTO-1449)
* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional) 2 Applicant is to place a check mark here if English language Translation is attached

Electronic Patent Application Fee Transmittal	
Application Number:	10403818
Filing Date:	31-Mar-2003
Title of Invention:	Secure virtual community network system
First Named Inventor/Applicant Name:	Hasan S. Alkhatib
Filer:	William Breen/Kenneth Linder
Attorney Docket Number:	INNF0017
Filed as Large Entity	

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	180	180
		Total in USD ($)		**180**

Electronic Acknowledgement Receipt	
EFS ID:	7632360
Application Number:	10403818
International Application Number:	
Confirmation Number:	2698
Title of Invention:	Secure virtual community network system
First Named Inventor/Applicant Name:	Hasan S. Alkhatib
Customer Number:	75671
Filer:	William Breen/Kenneth Linder
Filer Authorized By:	William Breen
Attorney Docket Number:	INNF0017
Receipt Date:	18-MAY-2010
Filing Date:	31-MAR-2003
Time Stamp:	12:26:07
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$180
RAM confirmation Number	9820
Deposit Account	504143
Authorized User	SADLER,LANCE R.
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees) Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees) Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)					
File Listing:					
Document Number	**Document Description**	**File Name**	**File Size(Bytes)/ Message Digest**	**Multi Part /.zip**	**Pages (if appl.)**
1		INNF0017IDS.pdf	161112 1df0fa8b69fb1bdbf4e7899b44aebbcfca278a80	yes	3
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Transmittal Letter		1	2	
	Information Disclosure Statement (IDS) Filed (SB/08)		3	3	
Warnings:					
Information:					
2	NPL Documents	10403829AdvisoryAction051410.pdf	110634 bf6ac021615ee366092ba05344e6dae0f8c303e7	no	2
Warnings:					
Information:					
3	NPL Documents	10403829FOA022310.pdf	626235 fd926acf2e9137f65c66d611d5497fe117c72aa6	no	15
Warnings:					
Information:					
4	Fee Worksheet (PTO-875)	fee-info.pdf	30019 502234a22311ec65e0a1d25418993814557c6de1	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	928000		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Hasan S Alkhatib et al.	Examiner:	Douglas B Blair
Serial No.:	10/403,818	Group Art Unit:	2442
Filed:	March 31, 2003	Docket:	INNF0017
Title:	Secure virtual community network system		

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

In compliance with the duty imposed by 37 C.F.R. § 1.56, and in accordance with 37 C.F.R. §§ 1.97 *et. seq*., the referenced materials are brought to the attention of the Examiner for consideration in connection with the above-identified patent application. Applicants respectfully request that this Supplemental Information Disclosure Statement be entered and the documents listed on the attached Form 1449 be considered by the Examiner and made of record. Pursuant to the provisions of MPEP 609, Applicants request that a copy of the 1449 form, initialed as being considered by the Examiner, be returned to the Applicants with the next official communication.

Pursuant to 37 C.F.R. §1.97(c)(2), Applicants have included the fee of $180.00 as set forth in 37 C.F.R. §1.17(p). Please charge any additional fees or credit any overpayment to Deposit Account No. 50-4143.

Pursuant to 37 C.F.R. 1.98(a)(2), Applicant believes that copies of cited U.S. Patents and Published Applications are no longer required to be provided to the Office. Notification of this change was provided in the United States Patent and Trademark Office OG Notices dated October 12, 2004. Thus, Applicant has not included copies of any US Patents or Published Applications cited with this submission. Should the Office require copies to be provided, Applicant respectfully requests that notice of such requirement be directed to Applicant's below-signed representative. Applicant acknowledges the requirement to submit copies of foreign patent documents and non-patent literature in accordance with 37 C.F.R. 1.98(a)(2).

Respectfully submitted,

HASAN S ALKHATIB ET AL.

By their Representatives,

Date May 18, 2010 By / Dave Morasch 42905 /
David A. Morasch
Reg. No. 42,905

UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/403,818	03/31/2003	Hasan S. Alkhatib	INNF0017	2698

75671 7590 06/01/2010

Sadler, Breen, Morasch & Colby, ps
422 W. Riverside Ave, Suite 424
Spokane, WA 99201

EXAMINER	
BLAIR, DOUGLAS B	
ART UNIT	PAPER NUMBER
2442	

NOTIFICATION DATE	DELIVERY MODE
06/01/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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AA/SWA Ex. 1002, p.579 of 833
American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

Notice of Non-Compliant Amendment (37 CFR 1.121)	Application No.	Applicant(s)	
	10/403,818	ALKHATIB ET AL.	
	Examiner	Art Unit	
	DOUGLAS B. BLAIR	2442	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

The amendment document filed on *2/22/2010* is considered non-compliant because it has failed to meet the requirements of 37 CFR 1.121 or 1.4. In order for the amendment document to be compliant, correction of the following item(s) is required.

THE FOLLOWING MARKED (X) ITEM(S) CAUSE THE AMENDMENT DOCUMENT TO BE NON-COMPLIANT:

- ☐ 1. Amendments to the specification:
  - ☐ A. Amended paragraph(s) do not include markings.
  - ☐ B. New paragraph(s) should not be underlined.
  - ☐ C. Other _____.
- ☐ 2. Abstract:
  - ☐ A. Not presented on a separate sheet. 37 CFR 1.72.
  - ☐ B. Other _____.
- ☐ 3. Amendments to the drawings:
  - ☐ A. The drawings are not properly identified in the top margin as "Replacement Sheet," "New Sheet," or "Annotated Sheet" as required by 37 CFR 1.121(d).
  - ☐ B. The practice of submitting proposed drawing correction has been eliminated. Replacement drawings showing amended figures, without markings, in compliance with 37 CFR 1.84 are required.
  - ☐ C. Other _____.
- ☒ 4. Amendments to the claims:
  - ☐ A. A complete listing of all of the claims is not present.
  - ☐ B. The listing of claims does not include the text of all pending claims (including withdrawn claims)
  - ☐ C. Each claim has not been provided with the proper status identifier, and as such, the individual status of each claim cannot be identified. Note: the status of every claim must be indicated after its claim number by using one of the following status identifiers: (Original), (Currently amended), (Canceled), (Previously presented), (New), (Not entered), (Withdrawn) and (Withdrawn-currently amended).
  - ☐ D. The claims of this amendment paper have not been presented in ascending numerical order.
  - ☒ E. Other: *See Continuation Sheet*.
- ☐ 5. Other (e.g., the amendment is unsigned or not signed in accordance with 37 CFR 1.4):

  _____

For further explanation of the amendment format required by 37 CFR 1.121, see MPEP § 714.

TIME PERIODS FOR FILING A REPLY TO THIS NOTICE:

1. Applicant is given **no new time period** if the non-compliant amendment is an after-final amendment or an amendment filed after allowance. If applicant wishes to resubmit the non-compliant after-final amendment with corrections, the **entire corrected amendment** must be resubmitted.
2. Applicant is given **one month**, or thirty (30) days, whichever is longer, from the mail date of this notice to supply the correction, if the non-compliant amendment is one of the following: a preliminary amendment, a non-final amendment (including a submission for a request for continued examination (RCE) under 37 CFR 1.114), a supplemental amendment filed within a suspension period under 37 CFR 1.103(a) or (c), and an amendment filed in response to a *Quayle* action. If any of above boxes 1. to 4. are checked, the correction required is only the **corrected section** of the non-compliant amendment in compliance with 37 CFR 1.121.

   Extensions of time are available under 37 CFR 1.136(a) only if the non-compliant amendment is a non-final amendment or an amendment filed in response to a *Quayle* action.

   Failure to timely respond to this notice will result in:
   Abandonment of the application if the non-compliant amendment is a non-final amendment or an amendment filed in response to a *Quayle* action; or
   Non-entry of the amendment if the non-compliant amendment is a preliminary amendment or supplemental amendment.

/Douglas B Blair/ Primary Examiner, Art Unit 2442	

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American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

Continuation of 4(e) Other: In claim 93, the markings are not correct. The applicant has indicated that an "and" is to be deleted by strikethrough and that the final limitation of the claim is new by underlining. However both of these changes occurred in the 5/29/2009 amendment that was previously entered. The markings of claim 93 should only indicate what was added on 10/26/2009 that was additional to the 5/29/2009 amendment.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application Serial No. 10/403,818
Filing Date 03/31/2003
Inventorship ..... Alkhatib *et al.*
Applicant ..... Inpro Network Facility, LLC
Group Art Unit 2442
Examiner ..... Blair, Douglas B.
Confirmation No. 2698
Attorney's Docket No. INNF0017
Title: Secure Virtual Community Network System

RESPONSE TO:

NOTICE OF NON-COMPLIANT AMENDMENT DATED JUNE 01, 2010

NOTICE OF NON-COMPLIANT AMENDMENT DATED FEBRUARY 05, 2010

NOTICE OF NON-RESPONSIVE AMENDMENT DATED SEPTEMBER 29, 2009

& OFFICE ACTION DATED FEBRUARY 4, 2009

To: Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

From: David A. Morasch Tel. 509-755-7250
Fax 509-755-7252
Customer # 75671

INDEX

List of Claims: page 2

Remarks Section: page 23

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IPR2025-00786

LIST OF CLAIMS

Claims 16, 25, 37-40, 44-52, 67, and 101 were previously canceled.

Claims 1, 32, 53, 57, 58, 64, 80, 81, 83, 85-87, and 92 were previously amended in the Response filed May 29, 2009.

Please amend claim 93 as shown herein.

Claims 1-15, 17-24, 26-36, 41-43, 53-66, 68-100, and 102-109 are pending:

1. (previously presented) A virtual network system, comprising:

a virtual network manager implemented as a first computing device, the virtual network manager configured to register devices in a virtual network that is defined by a domain name, each device in the virtual network being identified to the other devices by a virtual network address that is unique for each device and not directly routable via a public network, the virtual network manager further configured to distribute a virtual network address to a device when the device is registered in the virtual network;

a route director implemented as a second computing device, the route director configured to communicate data between the devices that are registered in the virtual network, the data being communicated as encapsulated packets from a source device to a destination device, an encapsulated packet including a first virtual network address that corresponds to the source device and a second virtual network address that corresponds to the destination device; and

the virtual network manager further configured to receive a DNS request from the source device, and return a public network address of the route director, a private network address for the destination device, and the second virtual network address that corresponds to the destination device.

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IPR2025-00786

2. (previously presented) The system of claim 1 wherein each of the devices communicate with the virtual network manager and the other devices in the virtual network via an associated agent.

3. (previously presented) The system of claim 1 wherein each of the devices include an agent configured to communicate with the virtual network manager and agents of the other devices in the virtual network.

4. (previously presented) The system of claim 2 wherein the associated agent is installed on a proxy device which is a proxy agent for one or more of the devices in the virtual network with respect to the virtual network manager and the route director.

5. (previously presented) The system of claim 2 wherein the virtual network manager is further configured to:

receive a request from the agent associated with a device in a private network to register the device in the virtual network; and

detect a presence of a NAT device via which the request is routed from the agent to the virtual network manager.

6. (previously presented) The system of claim 1 wherein the virtual network manager is coupled to the public network and has an associated public network address.

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7. (previously presented) The system of claim 1 wherein the route director is further configured to receive the encapsulated packets when routed to a public network address corresponding to the route director.

8. (previously presented) The system of claim 1 wherein each of the devices in the virtual network are further identified by at least one physical network address.

9. (previously presented) The system of claim 8 wherein the physical network addresses that are associated with the devices in the virtual network are dynamic.

10. (previously presented) The system of claim 8 wherein the physical network addresses that are associated with the devices in the virtual network are static.

11. (previously presented) The system of claim 8 wherein the physical network addresses that are associated with the devices in the virtual network are private network addresses, and wherein the virtual network addresses are unique in the virtual network so as not to conflict with the private network addresses.

12. (previously presented) The system of claim 8 wherein the source device is coupled to a first private network and accesses a public network via a first NAT device configured to transmit the encapsulated packets, an encapsulated packet further including the physical network address of the source device as a private network address in the first private network.

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13. (previously presented) The system of claim 12 wherein the physical network address of the source device is dynamic.

14. (previously presented) The system of claim 12 wherein the physical network address of the source device is static.

15. (previously presented) The system of claim 12 wherein the destination device is coupled to a second private network and accesses the public network via a second NAT device, the encapsulated packet further including the physical network address of the destination device as a private network address in the second private network.

16. (canceled)

17. (previously presented) The system of claim 15 wherein the physical network address of the destination device is dynamic.

18. (previously presented) The system of claim 15 wherein the physical network address of the destination device is static.

19. (previously presented) The system of claim 15 wherein said first private network and said second private network share at least one network address.

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20. (previously presented) The system of claim 1 wherein the route director is further configured to:

provide a device-specific pseudo address assignment for the device in the virtual network when the device communicates with the route director via a NAT device; and

store an association of the device-specific pseudo address with a public network address of the NAT device and a port number of the NAT device.

21. (previously presented) The system of claim 1 wherein the route director includes a translator for virtual network address information for a device in the virtual network that is implemented in a private network.

22. (previously presented) The system of claim 1 wherein the virtual network manager is coupled to the public network and includes a public network address.

23. (previously presented) The system of claim 22 wherein the route director is coupled to the public network and includes a different public network address than the public network address of the virtual network manager.

24. (previously presented) The system of claim 22 wherein the route director is coupled to a private network and includes a private network address.

25. (canceled)

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26. (previously presented) The system of claim 1 wherein the encapsulated packets further include virtual IP packets configured for communication of the data, the virtual IP packets being encrypted prior to being encapsulated.

27. (previously presented) The system of claim 26 wherein the virtual IP packets are encrypted using IPSEC.

28. (previously presented) The system of claim 26 wherein the virtual IP packets are encrypted using DES or triple DES.

29. (previously presented) The system of claim 5 wherein the virtual network manager is further configured to receive the request from the agent as a message, and detect the presence of the NAT device by comparing a field in a payload of the message with a source address in a header of the message.

30. (previously presented) The system of claim 1 wherein the virtual network manager includes a virtual community definition that is defined by the domain name, and includes one or more of the devices that are registered in the virtual network.

31. (previously presented) The system of claim 1 wherein the route director is a public route director in the public network, the system further comprising a private route director in a private network configured to enable access to devices of the private network that are also in the virtual network from devices of the public network that are also in the virtual network.

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32. (previously presented) A virtual network manager, comprising:

a network interface configured for data communication via a virtual network that is defined by a domain name having an associated public network address;

a register module configured to register devices in a virtual network, the register module further configured to:

receive a registration request from an agent associated with a device;

distribute a virtual network address to the device when the device is registered in the virtual network, the device being identified to other devices in the virtual network by the virtual network address; and

a DNS server for the virtual network, the DNS server configured to receive a DNS request from a first device in the virtual network, and return a network address associated with a network route director, a private network address associated with a second device in the virtual network, and a virtual network address associated with the second device.

33. (previously presented) The virtual network manager of claim 32 further comprising an additional network interface configured for data communication via a public network.

34. (previously presented) The virtual network manager of claim 32 wherein the network interface is a UDP port configured for data communication via the virtual network.

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35. (previously presented) The virtual network manager of claim 33 wherein the network interface is a UDP port configured for data communication via the virtual network, and wherein the additional network interface is a TCP port configured for registration communications via the public network.

36. (previously presented) The virtual network manager of claim 32 wherein the register module is further configured to receive the registration request from the agent that is installed on the device for data communication via the virtual network.

37-40. (canceled)

41. (previously presented) The virtual network manager of claim 32 further comprising a join module configured to receive a join request from the agent associated with the device to indicate that the device is connected for data communication within the virtual network, the join module further configured to receive a leave request from the agent associated with the device to indicate that the device will be disconnected from data communication within the virtual network.

42. (previously presented) The virtual network manager of claim 41 wherein the join module is further configured to provide virtual network addresses to the devices that are registered in the virtual network.

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43. (previously presented) The virtual network manager of claim 41 wherein the join module is further configured to maintain data to associate a virtual network address with a device in the virtual network.

44-52. (canceled)

53. (previously presented) A virtual network system, comprising:

a computing device that includes at least a memory and a processor configured to implement a network manager of a virtual network that is defined by a public domain name, the network manager configured to distribute virtual network addresses to devices that register as members in the virtual network, each device in the virtual network being identified to the other devices by a virtual network address associated with the device;

a first virtual network agent associated with a first device that is registered as a member in the virtual network;

at least a second virtual network agent associated with at least a second device that is registered as a member in the virtual network; and

a route director configured to route communications between the first device and the at least second device in the virtual network via the respective first and second virtual network agents, the communications configured for routing as encapsulated packets that include a first virtual network address that is not directly routable corresponding to the first device and a second virtual network address that is not directly routable corresponding to the at least second device.

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American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

54. (previously presented) The system of claim 53 wherein the route director is a public network route director that includes a public network interface and an associated public network address by which the first and second virtual network agents communicate with the public network route director.

55. (previously presented) The system of claim 53 wherein the route director is a private route director that includes a private physical network interface and an associated private physical network address.

56. (previously presented) The system of claim 53 wherein the first virtual network agent is installed on the first device for data communication via the virtual network.

57. (previously presented) The system of claim 56 wherein the first device is in a private physical network, has an associated private network address, and has the associated virtual network address that is not directly routable by which the first device can be identified by the at least second virtual network agent from outside of the private physical network.

58. (previously presented) The system of claim 56 wherein the first device is coupled to a public physical network, has an associated public network address, and has the associated virtual network address by which the first device can be identified by the at least second virtual network agent.

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59. (previously presented) The system of claim 53 wherein the first virtual network agent is a proxy agent for the first device with respect to the network manager and the route director.

60. (previously presented) The system of claim 53 wherein the first and second devices are configured to access the virtual network from separate private address physical realms.

61. (previously presented) The system of claim 53 wherein the network manager includes at least a first community definition and a second community definition, the first community definition being defined by the public domain name and includes one or more of the devices that are registered in the virtual network, and the second community definition being defined by a different public domain name and includes one or more different devices that are registered in the virtual network.

62. (previously presented) The system of claim 53 wherein the network manager includes a member authenticator configured to authenticate the devices that request to register with the network manager.

63. (previously presented) The system of claim 62 wherein the network manager includes a DNS server configured to provide authoritative responses for DNS queries in the virtual network, the DNS server further configured to receive a DNS query from the first device to obtain the virtual network address of the at least second device for use in communicating with the second device.

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64. (previously presented) A computer-implemented method, comprising:

receiving registration requests from devices that request to be registered as members of a virtual network that is defined by a domain name having an associated public network address in a public network, each of the devices having an associated private network address;

distributing a virtual network address to a device to register the device as a member in the virtual network, each device in the virtual network being identified to the other devices by the virtual network address that is associated with the device; and

routing communications between the devices that are registered in the virtual network, the communications being routed as encapsulated packets from a source device to a destination device, an encapsulated packet including a first virtual network address that corresponds to the source device and a second virtual network address that corresponds to the destination device.

65. (previously presented) The method of claim 64 further comprising providing the devices in the virtual network with a communication agent.

66. (previously presented) The method of claim 65 wherein said providing the devices in the virtual network with a communication agent includes providing a proxy agent.

67. (canceled)

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68. (previously presented) The method of claim 64 further comprising authenticating the devices as the members in the virtual network.

69. (previously presented) The method of claim 64 further comprising defining a member set of the virtual network that includes one or more of the devices, and assigning the domain name that defines the virtual network.

70. (previously presented) The method of claim 64 further comprising defining at least two member sets of the virtual network that each include one or more of the devices, the at least two member sets having at least one different device.

71. (previously presented) The method of claim 64 further comprising assigning the virtual network address to the device as an IPV4 compliant address.

72. (previously presented) The method of claim 71 wherein the IPV4 compliant address is non-routable.

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73. (previously presented) The method of claim 64 further comprising routing network traffic via the public network from a first device having a public network address to a second device having a different public network address, the network traffic being routed as data packets having a source address which is the virtual network address of the first device and a destination address which is the virtual network address of the second device, the data packets being encapsulated to include a second source address which is a public network address of the first device and a second destination address which is the different public network address of the second device.

74. (previously presented) The method of claim 64 further comprising routing network traffic from a first device in a private physical network having a private network address to a second device having a public network address, the network traffic being routed as data packets having a source address which is the virtual network address of the first device, a destination address which is the virtual network address of the second device, and a shim which includes the private network address, the data packets being encapsulated to include a second destination address which is the public network address of the second device.

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75. (previously presented) The method of claim 64 further comprising routing network traffic from a first device in a private physical network having a first private network address to a second device in a different private physical network having a second private network address, the network traffic being routed as encapsulated packets having a source address which is the virtual network address of the first device, a destination address which is the virtual network address of the second device, and a shim which includes the first and second private network addresses.

76. (previously presented) The method of claim 75 wherein the first private network address and the second private network address are identical.

77. (previously presented) The method of claim 64 further comprising responding to DNS requests received from the devices that are the members in the virtual network.

78. (previously presented) The method of claim 64 further comprising:

receiving a join status request from a first device in the virtual network as a query to determine the status of a second device in the virtual network; and

responding to the join status request to indicate whether or not the second device is joined to the virtual network for data communication.

79. (previously presented) The method of claim 64 further comprising applying a group policy to the devices that are registered as the members of the virtual network.

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80. (previously presented) One or more processor readable storage media comprising processor readable code that, if executed by a computer device, implements a virtual network manager to:

receive registration requests from devices that request to be registered as members of a virtual network that is defined by a domain name having an associated public network address in a public network, each of the devices having an associated private network address;

distribute a virtual network address to a device to register the device as a member in the virtual network, each device in the virtual network being identified to the other devices by the virtual network address that is associated with the device; and

manage communications routed between the devices that are registered in the virtual network, the communications routed as encapsulated packets from a source device to a destination device, an encapsulated packet including a first virtual network address that corresponds to the source device and a second virtual network address that corresponds to the destination device.

81. (previously presented) One or more processor readable storage media as recited in claim 80 further comprising processor readable code that, if executed, implements the virtual network manager to provide the devices in the virtual network with a communication agent.

82. (previously presented) One or more processor readable storage media as recited in claim 81 wherein the virtual network manager provides the as a proxy agent.

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83. (previously presented) One or more processor readable storage media as recited in claim 80 further comprising processor readable code that, if executed, implements the virtual network manager to define a member set of the virtual network that includes one or more of the devices, and the domain name that defines the virtual network.

84. (previously presented) One or more processor readable storage media as recited in claim 80 wherein the virtual network address includes a non-routable IPV4 compliant address.

85. (previously presented) One or more processor readable storage media as recited in claim 80 further comprising processor readable code that, if executed, implements the virtual network manager to route network traffic via the public network from a first device having a public network address to a second device having a different public network address.

86. (previously presented) One or more processor readable storage media as recited in claim 80 further comprising processor readable code that, if executed, implements the virtual network manager to route network traffic from a first device in a private physical network having a private network address to a second device having a public network address.

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87. (previously presented) One or more processor readable storage media as recited in claim 80 further comprising processor readable code that, if executed, implements the virtual network manager to route network traffic from a first device in a private physical network having a first private network address to a second device in a different private physical network having a second private network address.

88. (previously presented) One or more processor readable storage media as recited in claim 87 wherein the network traffic is routed to the first or second device via a NAT device.

89. (previously presented) One or more processor readable storage media as recited in claim 87 wherein the first private network address and the second private network address are identical.

90. (previously presented) One or more processor readable storage media as recited in claim 85 wherein the network traffic is routed as encapsulated data packets.

91. (previously presented) One or more processor readable storage media as recited in claim 85 wherein the network traffic is routed as encrypted data traffic.

92. (previously presented) One or more processor readable storage media as recited in claim 80 further comprising processor readable code that, if executed, implements the virtual network manager to apply a group policy to the devices that are registered as the members of the virtual network.

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93. (currently amended) A virtual network system, comprising:

a computing device that includes at least a memory and a processor configured to implement a virtual network manager having a network interface coupled to a virtual network, the virtual network manager including at least one virtual community definition that is defined by a domain name having an associated public network address and a user set of one or more devices that are registered in the virtual network, each device in the virtual network being identified to the other devices by a virtual network address that is associated with the device, the virtual network manager configured to exchange virtual network information with the one or more devices of the user set, the virtual network being accessible by devices in the user set and devices outside of the user set, and the virtual network manager further configured to receive a DNS request from a source device, and return a public network address of a route director, a private network address for a destination device, and a virtual network address that corresponds to the destination device.

94. (original) The system of claim 93 wherein the virtual network manager includes a member register module.

95. (original) The system of claim 93 wherein the virtual network manager includes a member join module.

96. (previously presented) The system of claim 95 wherein the member join module provides a virtual network address to a device that is registered as a member of the network.

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97. (previously presented) The system of claim 93 wherein the virtual network manager is further configured to maintain data on an association between at least one virtual network address with at least one device that is registered as a member of the network.

98. (previously presented) The system of claim 93 wherein the virtual network manager includes a DNS server for the virtual community network.

99. (previously presented) The system of claim 93 wherein the virtual network manager includes a NAT device detector for devices connecting with the virtual network manager behind a NAT device.

100. (previously presented) The system of claim 93 wherein the virtual network manager includes at least a second virtual community definition.

101. (canceled)

102. (original) The system of claim 93 wherein the virtual network manager includes a member authenticator.

103. (previously presented) The system of claim 93 wherein the virtual network manager includes a DNS server configured to provide authoritative responses for DNS queries from devices in the virtual community.

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104. (previously presented) The system of claim 93 further comprising at least one route director configured to communicate with the one or more devices in the user set.

105. (previously presented) The system of claim 93 wherein each device registered in the network is configured to communicate with the virtual network manager and other devices in the user set via at least one agent.

106. (previously presented) The system of claim 93 wherein the user set includes at least a first device and a second device, and wherein at least one of said first device and said second device is coupled to a first private network and accesses a public network via a NAT device.

107. (original) The system of claim 106 wherein said first device is coupled to said first private network, and said second device is coupled to a second private network and accesses the public network via a second NAT device.

108. (previously presented) The system of claim 93 wherein communications between the one or more devices in the user set are encrypted.

109. (previously presented) The system of claim 108 wherein the virtual network manager is configured to provide a shared message to the one or more devices in the user set to establish encrypted communications.

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REMARKS

Applicant respectfully requests consideration and allowance of the subject application. Claims 1-15, 17-24, 26-36, 41-43, 53-66, 68-100, and 102-109 are pending, of which claim 93 has been amended.

Notices of Non-Compliant Amendment

Response to the Notice dated June 01, 2010: The Office indicates that some of the amendments to claim 93 were already entered in the Response filed May 29, 2009. Accordingly, claim 93 now only indicates the current amendment that was added after the May 29, 2009 amendment.

Response to the Notice dated February 05, 2010: The Office states that the claim amendment filed on May 29, 2009 was compliant with 1.121 and was entered. The amendment filed on October 26, 2009 in response to the Notice of Non-Responsive Amendment is a supplemental amendment and the claim amendments should have been presented with respect to the May 29, 2009 claim set. Specifically, only claim 93 should be listed as currently amended, and the claim markups should be changed appropriately.

Accordingly, only claim 93 is listed as currently amended, and Applicant submits that the Response is both fully responsive and compliant.

Notice of Non-Responsive Amendment

The Office indicates that the Response filed May 29, 2009 was not fully responsive because an argument against the §101 rejection of claim 93 was not provided. In the Office Action, claim 93 was rejected as being directed to non-statutory subject matter, namely the recited "virtual network manager". Applicant has amended the Response herein. Specifically, claim 93 has been amended to recite "a computing device

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that includes at least a memory and a processor configured to implement a virtual network manager…". Accordingly, Applicant submits that the Response is now fully responsive.

Allowable Subject Matter

Claims 16 and 44 are indicated as being allowable if rewritten in independent form (*Office Action* p. 8). Applicant appreciates the indication of allowability. Claim 1 has been amended to incorporate the allowable subject matter of claim 16 (now canceled), and claim 32 has been amended to incorporate the allowable subject matter of claim 44 (now canceled). The objection to claims 16 and 44 has been obviated.

Accordingly, independent claim 1 along with dependent claims 2-15, 17-24, and 26-31 are in condition for allowance. Similarly, independent claim 32 along with dependent claims 33-36 and 41-43 are in condition for allowance.

35 U.S.C. §101 Rejections

Claims 1-24, 26-36, 41-44, 53-66, 68-79, 93-100, and 102-109 are rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter (*Office Action* p. 2). Specifically, the Office rejects claims 1-24 and 26-31 as software *per se* for the recited "virtual network manager" and "route director". Claims 53-63 are also rejected as software *per se* for the recited software agents. Claims 64-66 and 68-79 are rejected because the recited process is not positively tied to a particular machine or does not transform underlying subject matter (*Office Action* p. 3).

Amendments have been provided and Applicant requests that the §101 rejections be withdrawn.

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35 U.S.C. §102 Rejection

Claims 1-15, 17-24, 26, 29-43, 53-56, 59-66, 68-87, 90-100, and 102-109 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Publication No. 2008/0232295 to Kreiner *et al*. (hereinafter, "Kreiner") (*Office Action* p. 3).

Applicant respectfully traverses the rejection in light of the amendments to the claims, and makes no representation that cited references are prior art. This response and any remarks or comments included herein are not intended to be, and are not to be interpreted as, an admission that the cited references are prior art. Applicant reserves the right to dispose of any cited references under 35 U.S.C. §102 and/or 35 U.S.C. §103, including but not limited to, antedating any one or more of the cited references.

Independent **Claim 1** along with dependent claims 2-15, 17-24, and 26-31, as well as independent **Claim 32** along with dependent claims 33-36 and 41-43 are in condition for allowance as described above.

Claim 53 recites a virtual network system, comprising:

> a computing device that includes at least a memory and a processor configured to implement a network manager of a virtual network that is defined by a public domain name, the network manager configured to distribute virtual network addresses to devices that register as members in the virtual network, each device in the virtual network being identified to the other devices by a virtual network address associated with the device;
>
> a first virtual network agent associated with a first device that is registered as a member in the virtual network;
>
> at least a second virtual network agent associated with at least a second device that is registered as a member in the virtual network; and
>
> a route director configured to route communications between the first device and the at least second device in the virtual network via the respective first and second virtual network agents, the communications configured for routing as

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encapsulated packets that include a first virtual network address that is not directly routable corresponding to the first device and a second virtual network address that is not directly routable corresponding to the at least second device.

While the Office makes no specific rejection with respect to claim 53, the Office states that all claims above 31 are rejected for the same reasons as 1-15, 17-24, and 25-31 (*Office Action* p. 8). Kreiner does not show or disclose a "network manager configured to distribute virtual network addresses to devices that register as members in the virtual network, each device in the virtual network being identified to the other devices by a virtual network address associated with the device", as recited in claim 53.

In rejecting claim 1, the Office cites to Kreiner at ¶[0039] for a virtual network manager configured to register devices in a virtual network (*Office Action* p. 3). Although the cited section of Kreiner describes "an exemplary framework of the data flow through a personal digital gateway, a connected communications device, and/or a connected network, Kreiner does not describe that the devices in the exemplary framework are ever ***registered in a virtual network***, as recited in claim 53.

Kreiner also does not show or disclose "the communications configured for routing as encapsulated packets that include a first virtual network address that is not directly routable corresponding to the first device and a second virtual network address that is not directly routable corresponding to the at least second device", as recited in claim 53.

With reference to the rejection of claim 1, the Office cites to Kreiner at ¶[0038] for data being communicated as encapsulated packets from a source device to a destination device (*Office Action* p. 4). Kreiner only describes maintaining information about each communications device, such as network routing that provides a virtual private router that tunnels the user's network access to any communications device

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connected with the personal gateway (*Kreiner* ¶[0038]). However, there is no indication in Kreiner that data is being communicated between devices as encapsulated packets. Moreover, the virtual private router in Kreiner that tunnels access to any of the communication devices indicates that the only method of access for the devices is through the single user access. This single user access for multiple devices is contrary to a first virtual network address that corresponds to a first device and a second virtual network address that corresponds to a second device", as recited in claim 53.

Accordingly, Kreiner as cited by the Office does not support a §102 rejection of claim 53 for at least the reasons described above, and Applicant requests that the §102 rejection be withdrawn. Additionally, claims 54-63 are allowable as depending from claim 53.

Claim 64 recites a computer-implemented method, comprising:

> receiving registration requests from devices that request to be registered as members of a virtual network that is defined by a domain name having an associated public network address in a public network, each of the devices having an associated private network address;
>
> distributing a virtual network address to a device to register the device as a member in the virtual network, each device in the virtual network being identified to the other devices by the virtual network address that is associated with the device; and
>
> routing communications between the devices that are registered in the virtual network, the communications being routed as encapsulated packets from a source device to a destination device, an encapsulated packet including a first virtual network address that corresponds to the source device and a second virtual network address that corresponds to the destination device.

As described above in response to the rejection of claim 53, Kreiner does not show or disclose the features recited in claim 64, such as "devices that request to be

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registered as members of a virtual network" and "routing communications between the devices that are registered in the virtual network, the communications being routed as encapsulated packets from a source device to a destination device, an encapsulated packet including a first virtual network address that corresponds to the source device and a second virtual network address that corresponds to the destination device".

Accordingly, Kreiner as cited by the Office does not support a §102 rejection of claim 64 for at least the reasons described above, and Applicant requests that the §102 rejection be withdrawn. Additionally, claims 65, 66, and 68-79 are allowable as depending from claim 64.

Claim 80 recites a virtual network manager to "receive registration requests from devices that request to be registered as members of a virtual network" and "manage communications routed between the devices that are registered in the virtual network, the communications routed as encapsulated packets from a source device to a destination device, an encapsulated packet including a first virtual network address that corresponds to the source device and a second virtual network address that corresponds to the destination device".

As described above in response to the rejection of claim 53, Kreiner does not show or disclose the features recited in claim 80. Accordingly, Kreiner as cited by the Office does not support a §102 rejection of claim for at least the reasons described above, and Applicant requests that the §102 rejection be withdrawn. Additionally, claims 81-92 are allowable as depending from claim 80.

Claim 93 recites virtual network manager "configured to receive a DNS request from a source device, and return a public network address of a route director, a private

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network address for a destination device, and a virtual network address that corresponds to the destination device."

Claim 93 recites allowable subject matter as incorporated into claims 1 and 32 as described above. Accordingly, claim 93 along with dependent claims 94-100 and 102-109 are allowable, and Applicant requests that the §102 rejection be withdrawn.

35 U.S.C. §103 Rejection

Claims 27 and 28 are rejected under 35 U.S.C. §103(a) for obviousness over Kreiner (*Office Action* p. 8). The Office takes official notice that the claimed types of encryption are well known. Claims 27 and 28 depend from allowable claim 1 as described above. Accordingly, claims 27 and 28 are in condition for allowance, and Applicant requests that the §103 rejection be withdrawn.

Conclusion

Applicant submits that all objections and/or rejections of the pending claims 1-15, 17-24, 26-36, 41-43, 53-66, 68-100, and 102-109 have been addressed, and respectfully requests issuance of the application. If any issues remain that preclude issuance of the application, the Examiner is requested to contact the undersigned attorney before issuing a subsequent Action.

Respectfully Submitted,

Dated: June 07, 2010

By: / Dave Morasch 42905 /
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Electronic Acknowledgement Receipt	
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First Named Inventor/Applicant Name:	Hasan S. Alkhatib
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Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		INNF0017Response7.pdf	215582 c415b952cddfecc48aa499c7b11226a2aef5e3b2	yes	29

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
	Claims	2	22
	Applicant Arguments/Remarks Made in an Amendment	23	29
Warnings:			
Information:			
	Total Files Size (in bytes):	215582	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
BLAIR, DOUGLAS B	
ART UNIT	PAPER NUMBER
2442	

NOTIFICATION DATE	DELIVERY MODE
09/01/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

usptocorrespondence@sbmc-law.com

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Office Action Summary	Application No.	Applicant(s)	
	10/403,818	ALKHATIB ET AL.	
	Examiner	Art Unit	
	DOUGLAS B. BLAIR	2442	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 June 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15,17-24,26-36,41-43,53-66 and 68-109* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-15,17-24,26-36,41-43 and 93-109* is/are allowed.

6)☒ Claim(s) *53-66 and 68-92* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/29/09, 8/7/09, 2/22/10, 5/18/10*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

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IPR2025-00786

DETAILED ACTION

Response to Amendment

The applicant's amendments to claims 1, 32, and 93 have overcome the previous rejections based on the prior art.

Response to Arguments

Applicant's arguments with respect to claims 53-66 and 68-92 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 53-66 and 68-92 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Number 6,631,416 to Bendinelli.

As to claim 53, Bendinelli teaches a virtual network system, comprising: a computing device that includes at least a memory and a processor configured to implement a network manager of a virtual network that is defined by a public domain name (col. 17, lines 37-49), the network manager configured to distribute virtual network addresses to devices that register as members in the virtual network, each device in the virtual network being identified to the other

devices by a virtual network address associated with the device (col. 20, lines 30-54, the operations center serves as the "manager"); a first virtual network agent associated with a first device that is registered as a member in the virtual network; at least a second virtual network agent associated with at least a second device that is registered as a member in the virtual network (col. 20, lines 30-54, the gateways are the claimed devices and the software running on the gateways are "agents" as claimed); and a route director configured to route communications between the first device and the at least second device in the virtual network via the respective first and second virtual network agents, the communications configured for routing as encapsulated packets that include a first virtual network address that is not directly routable corresponding to the first device and a second virtual network address that is not directly routable corresponding to the at least second device (col. 20, lines 30-54, the operations center serves as the "route director").

As to claims 54-60 and 62, they are rejected according to the cited embodiment in the rejection of claim 53.

As to claims 61 and 63, see col. 26, lines 42-50.

As to claims 64-66 and 68-92, these claims are rejected according to the embodiment cited in the rejection of claim 53 and its dependents.

Allowable Subject Matter

Claims 1-15, 17-24, 26-36, 41-43, and 93-109 are allowed.

The following is an examiner's statement of reasons for allowance: the prior art was not found to teach or suggest returning a public network address of a route director, a private

network address for a destination device, and a virtual network address that corresponds to the destination device in response to a DNS request in the context of claims 1, 32, and 93. Specifically, no examples were found in the prior art of record in which both a private address and a virtual address of a destination device would be returned.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DOUGLAS B. BLAIR whose telephone number is (571)272-3893. The examiner can normally be reached on 9:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Asad Nawaz can be reached on (571) 272-3988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Douglas B Blair/
Primary Examiner, Art Unit 2442

Notice of References Cited	Application/Control No. 10/403,818	Applicant(s)/Patent Under Reexamination ALKHATIB ET AL.	
	Examiner DOUGLAS B. BLAIR	Art Unit 2442	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2009/0116487	05-2009	READ, Stephen Michael	370/392
*	B	US-7,490,151	02-2009	Munger et al.	709/225
*	C	US-2006/0212599	09-2006	Lucco et al.	709/245
*	D	US-2003/0074472	04-2003	Lucco et al.	709/245
*	E	US-2002/0013848	01-2002	Rene Salle, Mathias Jean	709/226
*	F	US-7,194,553	03-2007	Lucco et al.	709/245
*	G	US-2002/0099937	07-2002	Tuomenoksa, Mark	713/153
*	H	US-2002/0091859	07-2002	Tuomenoksa et al.	709/245
*	I	US-2002/0056008	05-2002	Keane et al.	709/245
*	J	US-2002/0053031	05-2002	Bendinelli et al.	713/201
*	K	US-7,181,542	02-2007	Tuomenoksa et al.	709/250
*	L	US-6,631,416	10-2003	Bendinelli et al.	709/227
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10403818	ALKHATIB ET AL.
	Examiner	Art Unit
	DOUGLAS B BLAIR	2442

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
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	2	✓	=							
	3	✓	=							
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	33	✓	✓							
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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10403818	ALKHATIB ET AL.
	Examiner	Art Unit
	DOUGLAS B BLAIR	2442

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
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	72	✓	✓							

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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10403818	ALKHATIB ET AL.
	Examiner	Art Unit
	DOUGLAS B BLAIR	2442

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10403818	ALKHATIB ET AL.
	Examiner	**Art Unit**
	DOUGLAS B BLAIR	2442

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	01/29/2009	08/27/2010							
	109	✓	=							

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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10403818	ALKHATIB ET AL.
	Examiner	Art Unit
	DOUGLAS B BLAIR	2442

SEARCHED			
Class	Subclass	Date	Examiner
	update	1/28/2009	DBB
	update	8/19/2009	DBB
	update	8/27/2010	DBB

SEARCH NOTES		
Search Notes	Date	Examiner
update	1/28/2009	DBB
inventor name search	1/28/2009	DBB
update	8/19/2009	DBB
update	8/27/2010	DBB

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

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PTO/SB/08a(04-07)
Approved for use through 7/31/2006. OMB 0651-0031
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Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

	Complete if Known
Application Number	10/403,818
Filing Date	March 31, 2003
First Named Inventor	Alkhatib, Hasan
Art Unit	2442
Examiner Name	Blair, Douglas

Sheet	1	of	1	Attorney Docket No: INNF0017

US PATENT DOCUMENTS

Examiner Initial *	Cite No	Document Number	Publication Date	Name of Patentee or Applicant of Cited Document	Filing Date If Appropriate
/DB/		US-20010027474	10/04/2001	Nachman et al.	
/DB/		US-20030018912	01/23/2003	Boyle, S. C., et al.	
/DB/		US-20030055978	03/20/2003	Collins, Leonard A.	
/DB/		US-20030208554	11/06/2003	Holder, Helen A.	
/DB/		US-6477565	11/05/2002	Daswani et al.	
/DB/		US-7072935	07/04/2006	Kehoe et al.	
/DB/		US-7120676	10/10/2006	Nelson et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No	Foreign Patent Document	Publication Date	Name of Patentee or Applicant of cited Document	T[2]

OTHER DOCUMENTS -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No [1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
/DB/		"Non-Final Office Action", Application Number 10/233,288, (12/21/2009), 13 pages	
/DB/		"Final Office Action", Application Number 10/403,518, (02/02/2010), 26 pages	

EXAMINER /Douglas Blair/ **DATE CONSIDERED** 08/27/2010

Substitute Disclosure Statement Form (PTO-1449)
* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional) 2 Applicant is to place a check mark here if English language Translation is attached

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	33	"virtual community" near2 network$2	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:48
S2	19	S1 and @ad<"20030331"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/14 10:09
S3	5	S2 and ((private or public) with address)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/13 20:00
S4	45	((virtual near (community or network)) and (private near address$3) and (public near address$3) and (IP near address$2))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/13 20:04
S5	27	S4 and @ad<"20030331"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/13 20:04
S6	53	("6226751").URPN.	USPAT	OR	OFF	2006/09/13 20:30
S7	1	"20040249911".pn.	US-PGPUB; USPAT	OR	OFF	2006/09/14 09:59
S8	139	("domain name" or DNS) with (VPN)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/14 10:08
S9	74	S8 and @ad<"20030331"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/14 10:09
S10	22	S9 and (NAT with (public or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:59

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S11	1801	709/245.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/14 11:02
S12	454	"virtual community"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:49
S13	353	router same (public with address$3) same (private with address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:50
S14	353	S13 same S13	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:50
S15	0	S12 same S13	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:50
S16	3	S12 and S13	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:50
S17	0	S16 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:51
S18	387	router same (public with address$3) and router same (private with address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:50
S19	260	S18 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:52
S20	0	S19 and S12	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:51
S21	306	rout$3 with (public near address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:51

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S22	0	S12 same S21	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:52
S23	3	S12 and S21	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:52
S24	0	S23 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:55
S25	1	S12 same public near address $3	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:53
S26	0	S12 same (rout$3 with internet)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:53
S27	1	S12 same private near address $3	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:54
S28	15	(community or group) same S13	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:54
S29	7	S28 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:59
S30	85	((group or community) with (member$4 or belong$3)) and (NAT with (public or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:00
S31	49	S30 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:01
S32	55	((group or community) with (member$4 or belong$3)) and ((group$1 or community) same rout$3) and (NAT with (public or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:25

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S33	34	S32 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:27
S34	272055	((group or community) with (member$4 or belong$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:25
S35	6111	S34 same server	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:25
S36	124	S35 and ((rout$3 near2 (messag$3 or communication $1)) same (firewall or NAT or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:26
S37	68	S36 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:27
S38	35	S37 and "domain name"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:27
S39	1	"20020152297".pn.	US-PGPUB; USPAT	OR	OFF	2007/05/25 18:47
S40	706	"virtual community"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S41	533	router same (public with address$3) same (private with address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S42	3	S40 and S41	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S43	0	S42 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57

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S44	582	router same (public with address$3) and router same (private with address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S45	321	S44 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S46	411	rout$3 with (public near address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S47	3	S40 and S46	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S48	0	S47 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S49	25	(community or group) same S41	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S50	12	S49 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S51	136	((group or community) with (member$4 or belong$3)) and (NAT with (public or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S52	64	S51 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S53	77	((group or community) with (member$4 or belong$3)) and ((group$1 or community) same rout$3) and (NAT with (public or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S54	42	S53 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57

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S55	318137	((group or community) with (member$4 or belong$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S56	8828	S55 same server	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S57	168	S56 and ((rout$3 near2 (messag$3 or communication $1)) same (firewall or NAT or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S58	89	S57 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S59	91	(S43 S45 S48 S50 S52 S54 S58) and @pd>"20070524"	US-PGPUB; USPAT	OR	OFF	2009/01/07 13:57
S60	1	"20040249911".pn.	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:00
S61	1008	(Vpn or "virtual private network") and (assign$5 near address$3) and domain$1	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:01
S62	25	(Vpn or "virtual private network") same (assign$5 near address$3) same domain $1	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:02
S63	8	S62 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 14:02
S64	196	("20020078198" | "20020133534" | "20030041091" | "20030041136" | "20030084162" | "20030212795" | "20040006708" | "20040111612" | "20040148439" | "5361256" | "5563878" | "5623605" | "5701427" | "5717687" | "5734651" | "5751961" | "5764906" | "5777989" | "5781550" | "5790548" | "5793763" | "5805818" | "5805820" | "5815664" | "5856974" | "5867667" | "5884246" | "5889953" | "5913210" | "5937162" |	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 14:04

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American Airlines, et. al. v. Intellectual Ventures, et.al.
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		"5937163" | "6226751" | "6594704" | "6701437" | "6832322" | "6970941" | "6003084" | "6006272" | "6032196" | "6047325" | "6055575" | "6061738" | "6119171" | "6353614" | "6353886" | "6381638" | "6430622" | "6430623" | "6438597" | "6438612" | "6452925" | "6457061" | "6480508" | "6490289" | "6496867" | "6507873" | "6523068" | "6556584" | "6557037" | "6557306" | "6591306" | "6618757" | "6629137" | "6631416" | "6651101" | "6657991" | "6662223" | "6697377" | "6742045" | "6747979" | "6754706" | "6772210" | "6778528" | "6779035" | "6781982" | "6948003" | "6973485" | "6981020" | "6982953" | "6983319" | "6993012" | "6993595" | "6996628" | "6996631" | "7010702" | "7092390" | "7107464" | "7107614" | "7133368" | "7227864" | "7003481" | "7032242" | "7139828").PN.				
S65	3296	(Vpn or "virtual private network") with rout$3	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:05
S66	559	(Vpn or "virtual private network") with regist$6	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:05
S67	268	S65 and S66	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:06
S68	267	S66 same address$3	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:06
S69	106	S66 same S65	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:06
S70	60	S68 same S65	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:06
S71	24	S70 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 14:07
S72	16	(Vpn or "virtual private network") with (public near3 domain$1)	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:29

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S73	7	S72 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 14:29
S74	394	(Vpn or "virtual private network") and community with (public near$3 domain $1)	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:35
S75	392	(Vpn or "virtual private network") and community with (public near$2 domain $1)	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:35
S76	210	S75 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 14:35
S77	5	S76 and S67	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 14:36
S78	2	(Vpn or "virtual private network") and community with (public adj domain$1)	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:37
S79	232	(Vpn or "virtual private network") and community with (domain$1)	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:38
S80	18	(Vpn or "virtual private network") and community with (domain$1 near name $1)	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:38
S81	9	S80 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 14:39
S82	25	(Vpn or "virtual private network") and domain$1 and S64	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:41
S83	106	(Vpn or "virtual private network") with communit$3	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:50
S84	4	S83 same domain	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:50
S85	1	S84 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 14:50
S86	19	S83 and domain adj name$1	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:52

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S87	14	S86 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 14:53
S88	1442	(virtual near2 network) and (virtual near2 address$3) and regist$6	US-PGPUB; USPAT	OR	OFF	2009/01/28 10:36
S89	226	(virtual near2 network) and (virtual near2 address$3) with regist$6	US-PGPUB; USPAT	OR	OFF	2009/01/28 10:36
S90	115	S89 and (encapsulat$3 or tunnel$3)	US-PGPUB; USPAT	OR	OFF	2009/01/28 10:38
S91	81	S90 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/28 10:40
S92	0	S91 and subdomain$1	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/28 10:41
S93	19	S91 and (virtual near2 domain $1)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/28 10:41
S94	33	(virtual near2 network) and (assign$3 near4 (virtual near2 address$3)) with regist$6	US-PGPUB; USPAT	OR	OFF	2009/01/28 10:55
S95	21	S94 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/28 10:55
S96	11	regist$6 with (p2p or "peer-to-peer" or "peer to peer") same (assign$5 near2 address$3)	US-PGPUB; USPAT	OR	OFF	2009/01/28 11:06
S97	11	S96 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/28 11:07
S98	200	regist$6 with (server$1 or manag$5) same (assign$5 near2 address$3) same domain$1	US-PGPUB; USPAT	OR	OFF	2009/01/28 11:09
S99	17536	(broadcast$3 or multicast$3) with ((new or join$3))	US-PGPUB; USPAT	OR	OFF	2009/01/28 11:10
S100	2	S98 same S99	US-PGPUB; USPAT	OR	OFF	2009/01/28 11:10

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S101	19	S98 and S99	US-PGPUB; USPAT	OR	OFF	2009/01/28 11:12
S102	13	S101 and (virtual or vpn)	US-PGPUB; USPAT	OR	OFF	2009/01/28 11:12
S103	13	S102 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/28 11:12
S104	156	((virtual near2 network) or vpn) with (domain$1 near2 (router$1 or manag$5 or server$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/28 11:18
S105	78	S104 and ((assign$5 or regist $6) with address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/28 11:19
S106	48	S105 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/28 11:19
S107	277	("20030005334" | "20030126467" | "20030196122" | "20040073812" | "20040088586" | "20040088706" | "20040098624" | "20040103321" | "20040103322" | "20050021595" | "20050022030" | "20050149747" | "20050229248" | "20050235346" | "20050235347" | "20050235348" | "20050235359" | "20060005236" | "20060021020" | "20060053486" | "20060075139" | "20060112276" | "20060112424" | "20060288408" | "20070101421" | "4713753" | "4727243" | "4799153" | "4799156" | "4802217" | "4823338" | "4893307" | "4896319" | "4914619" | "4926416" | "4985889" | "4991204" | "5023907" | "5048081" | "5067123" |	US-PGPUB; USPAT; USOCR	OR	OFF	2009/01/28 11:34

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American Airlines, et. al. v. Intellectual Ventures, et.al.
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"5084867" | "5091903" |
"5101404" | "5115431" |
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"5606668" | "5608447" |

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		"5617540" | "5623011" |					
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		"5623605" | "5629980" |					
		"5631897" | "5632011" |					
		"5636371" | "5638448" |					
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		"5657452" | "5666487" |					
		"5668876" | "5671279" |					
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		"5781550" | "5784450" |					
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		"6088451" | "6115393" |					
		"6119165" | "6119236" |					
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		"7249378" | "7269847").PN. OR ("7424737").URPN.				
S108	0	("7424737").URPN.	USPAT	OR	OFF	2009/01/28 11:34
S109	0	("7424737").URPN.	USPAT	OR	OFF	2009/01/28 11:34
S110	80	("7424737" "6751738" "6804783" "6052788" "5893830").URPN.	USPAT	OR	OFF	2009/01/28 11:36
S111	1	"20020026525".pn.	US-PGPUB; USPAT	OR	OFF	2009/01/28 12:23
S112	915	private near rout$3	US-PGPUB; USPAT	OR	OFF	2009/01/28 15:53
S113	97	S112 with (encapsulat$4 or tunnel$3)	US-PGPUB; USPAT	OR	OFF	2009/01/28 15:53
S114	43	S113 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT	OR	OFF	2009/01/28 15:54
S115	11	S114 and ((domain$1 near name$1) or dns)	US-PGPUB; USPAT	OR	OFF	2009/01/28 15:55
S116	12	("20020055917" | "20020188689" | "20040059598" | "20040060056" | "5418628" | "5602843" | "5924074" | "6052442" | "6305007" | "6810429" | "7117246" | "7224698").PN. OR ("7474667").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2009/01/28 16:15
S117	34	("20020046292" | "20020055917" | "20020069261" | "20020136223" | "20020188689" | "20030212657" | "20030217333" | "20040059598" | "20040060056" | "20040100974" | "20040100975" | "20050111467" | "20060248208" | "5418628" | "5924074" | "6002689" | "6016307" | "6026091" | "6052442" | "6098138" | "6104718" | "6129449" | "6178170" | "6181703" | "6226686" | "6305007" | "6385198" | "6434403" | "6456594" | "6466236" | "6810429" | "6973479" | "7114171" | "7117246").PN. OR ("7379464").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2009/01/28 16:16

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S118	30	("20020010758" | "20020055917" | "20020136223" | "20020188689" | "20040059598" | "20040060056" | "20040100974" | "20040100975" | "5418628" | "5924074" | "6002689" | "6016307" | "6026091" | "6052442" | "6098138" | "6104718" | "6129449" | "6178170" | "6181703" | "6226686" | "6305007" | "6385198" | "6434403" | "6456594" | "6466236" | "6810429" | "6973479" | "7114170" | "7114171" | "7117246").PN. OR ("7263102").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2009/01/28 16:18
S119	29	("20020055917" | "20020136223" | "20020188689" | "20040059598" | "20040060056" | "20040100974" | "20040100975" | "5418628" | "5924074" | "6002689" | "6016307" | "6026091" | "6052442" | "6098138" | "6104718" | "6129449" | "6178170" | "6181703" | "6226686" | "6305007" | "6385198" | "6434403" | "6456594" | "6466236" | "6810429" | "6973479" | "7114171" | "7117246").PN. OR ("7224698").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2009/01/28 16:19
S120	93	("20020078198" | "20020133534" | "20030041091" | "20030041136" | "20030084162" | "20030212795" | "20040006708" | "20040111612" | "20040148439" | "5361256" | "5563878" | "5623605" | "5701427" | "5717687" | "5734651" | "5751961" | "5764906" | "5777989" | "5781550" | "5790548" | "5793763" | "5805818" | "5805820" | "5815664" | "5856974" | "5867667" | "5884246" | "5889953" | "5913210" | "5937162" | "5937163" | "6226751" |	US-PGPUB; USPAT	OR	OFF	2009/01/29 16:27

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American Airlines, et. al. v. Intellectual Ventures, et.al.
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		"6594704" | "6701437" | "6832322" | "6970941" | "6003084" | "6006272" | "6032196" | "6047325" | "6055575" | "6061738" | "6119171" | "6353614" | "6353886" | "6381638" | "6430622" | "6430623" | "6438597" | "6438612" | "6452925" | "6457061" | "6480508" | "6490289" | "6496867" | "6507873" | "6523068" | "6556584" | "6557037" | "6557306" | "6591306" | "6618757" | "6629137" | "6631416" | "6651101" | "6657991" | "6662223" | "6697377" | "6742045" | "6747979" | "6754706" | "6772210" | "6778528" | "6779035" | "6781982" | "6948003" | "6973485" | "6981020" | "6982953" | "6983319" | "6993012" | "6993595" | "6996628" | "6996631" | "7010702" | "7092390" | "7107464" | "7107614" | "7133368" | "7227864" | "7003481" | "7032242" | "7139828").PN.				
S121	1	"20040249911".pn.	US-PGPUB; USPAT	OR	OFF	2009/01/29 17:22
S122	790	"virtual community"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S123	610	router same (public with address$3) same (private with address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S124	3	S122 and S123	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S125	0	S124 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46

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S126	662	router same (public with address$3) and router same (private with address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S127	341	S126 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S128	467	rout$3 with (public near address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S129	3	S122 and S128	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S130	0	S129 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S131	31	(community or group) same S123	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S132	15	S131 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S133	155	((group or community) with (member$4 or belong$3)) and (NAT with (public or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S134	67	S133 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S135	91	((group or community) with (member$4 or belong$3)) and ((group$1 or community) same rout$3) and (NAT with (public or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S136	45	S135 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46

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American Airlines, et. al. v. Intellectual Ventures, et.al.
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S137	337874	((group or community) with (member$4 or belong$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S138	9951	S137 same server	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S139	182	S138 and ((rout$3 near2 (messag$3 or communication $1)) same (firewall or NAT or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S140	95	S139 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S141	28	(Vpn or "virtual private network") same (assign$5 near address$3) same domain $1	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:46
S142	8	S141 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S143	3751	(Vpn or "virtual private network") with rout$3	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:46
S144	630	(Vpn or "virtual private network") with regist$6	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:46
S145	292	S143 and S144	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:46
S146	299	S144 same address$3	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:46
S147	64	S146 same S143	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:46
S148	26	S147 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S149	18	(Vpn or "virtual private network") with (public near3 domain$1)	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:46
S150	8	S149 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46

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American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

S151	430	(Vpn or "virtual private network") and community with (public near$2 domain $1)	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:46
S152	218	S151 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S153	5	S152 and S145	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S154	18	(Vpn or "virtual private network") and community with (domain$1 near name $1)	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:46
S155	9	S154 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S156	122	(Vpn or "virtual private network") with communit$3	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:46
S157	4	S156 same domain	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:46
S158	1	S157 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S159	23	S156 and domain adj name$1	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:46
S160	18	S159 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S161	120	(S125 S127 S130 S132 S134 S136 S140) and @pd>"20070524"	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:47
S162	36	(S161 S142 S148 S150 S153 S155 S158 S160) and @pd>"20090107"	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:47
S163	241	(virtual near2 network) and (virtual near2 address$3) with regist$6	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:57
S164	121	S163 and (encapsulat$3 or tunnel$3)	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:57

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American Airlines, et. al. v. Intellectual Ventures, et.al.
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S165	81	S164 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:57
S166	33	(virtual near2 network) and (assign$3 near4 (virtual near2 address$3)) with regist$6	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:57
S167	21	S166 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:57
S168	11	regist$6 with (p2p or "peer-to-peer" or "peer to peer") same (assign$5 near2 address$3)	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:57
S169	11	S168 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:57
S170	215	regist$6 with (server$1 or manag$5) same (assign$5 near2 address$3) same domain$1	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:57
S171	19164	(broadcast$3 or multicast$3) with ((new or join$3))	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:57
S172	19	S170 and S171	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:57
S173	13	S172 and (virtual or vpn)	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:57
S174	182	((virtual near2 network) or vpn) with (domain$1 near2 (router$1 or manag$5 or server$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:57
S175	89	S174 and ((assign$5 or regist $6) with address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:57
S176	51	S175 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:57
S177	3	(S165 S167 S169 S173 S176) and @pd>"20090128"	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:57
S178	1	("20020026525").PN.	US-PGPUB; USPAT	OR	OFF	2009/08/19 20:12
S180	1	"6430623".pn.	US-PGPUB; USPAT	OR	OFF	2009/08/19 20:29

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American Airlines, et. al. v. Intellectual Ventures, et.al.
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S181	1	"7133404".pn.	US-PGPUB; USPAT	OR	OFF	2009/08/19 20:33
S182	1	"6772227".pn.	US-PGPUB; USPAT	OR	OFF	2009/08/19 20:34
S183	1	"6119171".pn.	US-PGPUB; USPAT	OR	OFF	2009/08/19 20:39
S184	1	"7152205".pn.	US-PGPUB; USPAT	OR	OFF	2009/08/20 13:50
S185	1	"20040249911".pn.	US-PGPUB; USPAT	OR	OFF	2010/01/07 11:19
S186	37	DNS with (virtual$1 near (domain or name$1))	US-PGPUB; USPAT	OR	OFF	2010/01/07 11:23
S187	25	S186 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT	OR	OFF	2010/01/07 11:24
S188	6	("20060190607" "20060195539" "20040088542" "20020103931" "20080232295" "20070286189").pn.	US-PGPUB; USPAT	OR	OFF	2010/01/29 10:27
S189	7	("20060190607" "20060195539" "20040088542" "20020103931" "20080232295" "20070286189" "20020026525").pn.	US-PGPUB; USPAT	OR	OFF	2010/01/29 10:49
S190	4	S189 and encapsulat$3	US-PGPUB; USPAT	OR	OFF	2010/01/29 10:50
S191	638	regist$7 with (virtual near2 network$1)	US-PGPUB; USPAT	OR	OFF	2010/01/29 11:04
S192	135	encapsulat$3 with (virtual near2 address$3)	US-PGPUB; USPAT	OR	OFF	2010/01/29 11:05
S193	1	S191 with S192	US-PGPUB; USPAT	OR	OFF	2010/01/29 11:05
S194	2	S191 same S192	US-PGPUB; USPAT	OR	OFF	2010/01/29 11:07
S195	194	(virtual near2 network$1) with domain near name$1	US-PGPUB; USPAT	OR	OFF	2010/01/29 11:08
S196	0	S191 same S192 same S195	US-PGPUB; USPAT	OR	OFF	2010/01/29 11:08
S197	20	S191 and S192 and S195	US-PGPUB; USPAT	OR	OFF	2010/01/29 11:08
S198	17	S197 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT	OR	OFF	2010/01/29 11:12
S199	1	"7490151".pn.	US-PGPUB; USPAT	OR	OFF	2010/08/27 09:51

EAST Search History (Interference)

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American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

8/27/10 3:10:34 PM
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AA/SWA Ex. 1002, p.646 of 833
American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet	1	of	1	Attorney Docket No: INNF0017

Complete if Known

Application Number	10/403,818
Filing Date	March 31, 2003
First Named Inventor	Alkhatib, Hasan
Art Unit	2442
Examiner Name	Blair, Douglas

US PATENT DOCUMENTS					
Examiner Initial *	**Cite No**	**Document Number**	**Publication Date**	**Name of Patentee or Applicant of Cited Document**	**Filing Date If Appropriate**

FOREIGN PATENT DOCUMENTS					
Examiner Initials*	**Cite No**	**Foreign Patent Document**	**Publication Date**	**Name of Patentee or Applicant of cited Document**	**T[2]**

OTHER DOCUMENTS -- NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	**Cite No [1]**	**Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.**	**T[2]**
/DB/		"Final Office Action", Application Number 10/403,829, (2/23/2010), 15 pages	
/DB/		"Advisory Action", Application Serial No. 10/403,829, (5/14/2010), 2 pages	

EXAMINER /Douglas Blair/ **DATE CONSIDERED** 08/27/2010

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(Use as many sheets as necessary)

	Complete if Known
Application Number	10/403,818
Filing Date	March 31, 2003
First Named Inventor	Alkhatib, Hasan
Art Unit	2142
Examiner Name	Blair, Douglas

Sheet	1	of	1	Attorney Docket No: INNF0017

US PATENT DOCUMENTS

Examiner Initial *	Cite No	Document Number	Publication Date	Name of Patentee or Applicant of Cited Document	Filing Date If Appropriate
/DB/		US-20060190607	08/24/2006	Lowery	
/DB/		US-20060195539	08/31/2006	Nichols et al.	
/DB/		US-20040088542	05/06/2004	Daude	
/DB/		US-20020103931	08/01/2002	Mott, Charles	
/DB/		US-20080232295	09/25/2008	Kreiner et al.	
/DB/		US-20070286189	12/13/2007	Kreiner et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No	Foreign Patent Document	Publication Date	Name of Patentee or Applicant of cited Document	T^2

OTHER DOCUMENTS -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No [1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T^2
/DB/		"Non Final Office Action", Application Serial No. 10/161,573, (5/26/2009),39 pages	
/DB/		"Non Final Office Action", Application Serial No. 10/403,829, (6/22/2009),26 pages	
/DB/		FRANCIS, GUMMADI "IPNL: A NAT-Extended Internet Architecture", SIGCOMM '01, (August 2001),69-79	

EXAMINER /Douglas Blair/ **DATE CONSIDERED** 08/27/2010

Substitute Disclosure Statement Form (PTO-1449)
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Application Number	10/403,818
Filing Date	March 31, 2003
First Named Inventor	Alkhatib, Hasan
Art Unit	2142
Examiner Name	Blair, Douglas

Sheet	1	of	1	Attorney Docket No: INNF0017

US PATENT DOCUMENTS

Examiner Initial *	Cite No	Document Number	Publication Date	Name of Patentee or Applicant of Cited Document	Filing Date If Appropriate
/DB/		US-20020026525	02/28/2002	Armitage, Grenville J.	04/03/2001

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No	Foreign Patent Document	Publication Date	Name of Patentee or Applicant of cited Document	T[2]

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/DB/		TANENBAUM, ANDREW S., "Computer Networks", Third Edition,(1996),1-37	
/DB/		"Excerpts from Help Section of Microsoft Outlook", pertaining to rules and forwarding email,1-3	
/DB/		CHATEL, M "Classical versus Transparent IP Proxies", Network Working Group Request for Comments, (March 1996),1-35	
/DB/		FINSETH, C "An Access Control Protocol , Sometimes Called TACACS", Network Working Group Request for Comments, (July 1993),1-18	
/DB/		FRANCIS, PAUL et al., "IPNL: A NAT-Extended Internet Architecture", SIGCOMM'01, (08/01/08),69-79	
/DB/		PERKINS, CHARLES E., "Mobile IP", IEEE Communications Magazine, Sun Microsystems,(May 1997),84-99	
/DB/		TERAOKA, FUMIO et al., "VIP: A Protocol Providing Host Mobility", Communications of the ACM, Volume 37, No. 8,(August 1994),67-75, 113	
/DB/		TSUCHIYA, PAUL F., et al., "Extending the IP Internet Through Address Reuse", ACM SIGCOMM Computer Communication Review, (January 1993),16-33	
/DB/		VENTERS, TRACY "Demystifying Protocols: A Comparison of Protocols Suitable for IP Telephony", Sonus Networks, (2000),1-11	
/DB/		YALAGANDULA, PRAVEEN et al., "Transparent Mobility with Minimal Infrastucture", University of Texas at Austin, (July 2001),1-14	

EXAMINER /Douglas Blair/ **DATE CONSIDERED** 08/27/2010

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PTO/SB/08a(04-07)
Approved for use through 7/31/2006. OMB 0651-0031
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	Complete if Known
Application Number	10/403,818
Filing Date	March 31, 2003
First Named Inventor	Alkhatib, Hasan
Art Unit	2442
Examiner Name	Blair, Douglas

Sheet	1	of	1	Attorney Docket No: INNF0017

US PATENT DOCUMENTS					
Examiner Initial *	**Cite No**	**Document Number**	**Publication Date**	**Name of Patentee or Applicant of Cited Document**	**Filing Date If Appropriate**

FOREIGN PATENT DOCUMENTS					
Examiner Initials*	**Cite No**	**Foreign Patent Document**	**Publication Date**	**Name of Patentee or Applicant of cited Document**	**T[2]**

OTHER DOCUMENTS -- NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	**Cite No [1]**	**Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.**	**T[2]**
		"Final Office Action", Application 10/161,573, (07/23/10), 21 pages	
		"Final Office Action", Application 10/233,288, (08/03/10), 15 pages	
		"Non Final Office Action", Application 10/403,518, (08/03/10), 30 pages	
		"Advisory Action", Application 10/233,288, (10/15/10), 3 pages	

EXAMINER **DATE CONSIDERED**

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Electronic Patent Application Fee Transmittal	
Application Number:	10403818
Filing Date:	31-Mar-2003
Title of Invention:	Secure virtual community network system
First Named Inventor/Applicant Name:	Hasan S. Alkhatib
Filer:	William Breen/Kenneth Linder
Attorney Docket Number:	INNF0017
Filed as Large Entity	

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	180	180
		Total in USD ($)		**180**

Electronic Acknowledgement Receipt	
EFS ID:	8644867
Application Number:	10403818
International Application Number:	
Confirmation Number:	2698
Title of Invention:	Secure virtual community network system
First Named Inventor/Applicant Name:	Hasan S. Alkhatib
Customer Number:	75671
Filer:	William Breen/Kenneth Linder
Filer Authorized By:	William Breen
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Document Number	**Document Description**	**File Name**	**File Size(Bytes)/ Message Digest**	**Multi Part /.zip**	**Pages (if appl.)**
1		INNF0017IDS.pdf	163037 c6305fa65a07729ff2f1148a73e09a26bfb43f4b	yes	3
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Transmittal Letter		1	2	
	Information Disclosure Statement (IDS) Filed (SB/08)		3	3	
Warnings:					
Information:					
2	NPL Documents	10161573FinalOA072310.pdf	670335 6bb61c5b785828ca3e2f378e05bba93f98b96931	no	21
Warnings:					
Information:					
3	NPL Documents	10233288AdvisoryAction101510.pdf	128307 9ee3f232cfbf8be1049e47c379f0539adab24b4c	no	3
Warnings:					
Information:					
4	NPL Documents	10233288FinalOA080310.pdf	508752 9bab6fd8b03aeef78aac54854cea90af4a037415	no	15
Warnings:					
Information:					
5	NPL Documents	10403518NonFinalOA080310.pdf	958760 d21a337bef36f60c6fc72857f99395ac2bd8e1b9	no	30
Warnings:					
Information:					
6	Fee Worksheet (PTO-875)	fee-info.pdf	30019 4fac6f67d450fa1544354bb9889a33f3657f7deb	no	2
Warnings:					
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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Hasan S Alkhatib et al.	Examiner:	Douglas B Blair
Serial No.:	10/403,818	Group Art Unit:	2442
Filed:	March 31, 2003	Docket:	INNF0017
Title:	Secure virtual community network system		

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

In compliance with the duty imposed by 37 C.F.R. § 1.56, and in accordance with 37 C.F.R. §§ 1.97 *et. seq*., the referenced materials are brought to the attention of the Examiner for consideration in connection with the above-identified patent application. Applicants respectfully request that this Supplemental Information Disclosure Statement be entered and the documents listed on the attached Form 1449 be considered by the Examiner and made of record. Pursuant to the provisions of MPEP 609, Applicants request that a copy of the 1449 form, initialed as being considered by the Examiner, be returned to the Applicants with the next official communication.

Pursuant to 37 C.F.R. §1.97(c)(2), Applicants have included the fee of $180.00 as set forth in 37 C.F.R. §1.17(p). Please charge any additional fees or credit any overpayment to Deposit Account No. 50-4143.

Pursuant to 37 C.F.R. §1.97(e)(2), Applicant states that no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement.

Pursuant to 37 C.F.R. 1.98(a)(2), Applicant believes that copies of cited U.S. Patents and Published Applications, and Non-Published Applications identifiable by USPTO Serial Number, are no longer required to be provided to the Office. Notification of this change to this effect was provided in the United States Patent and Trademark Office OG Notices dated October 12, 2004

and October 19, 2004. Thus, Applicant has not included copies of any US Patents or US Patent Applications identifiable by serial number that may be cited with this submission. Should the Office require copies to be provided, Applicant respectfully requests that notice of such requirement be directed to Applicant's below-signed representative. Applicant acknowledges the requirement to submit copies of foreign patent documents and non-patent literature in accordance with 37 C.F.R. 1.98(a)(2).

Respectfully submitted,

Hasan S Alkhatib et al.

By their Representatives,

Date October 18, 2010

By / Dave Morasch 42905 /
David A. Morasch
Reg. No. 42,905

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application Serial No.	10/403,818
Filing Date	03/31/2003
Inventorship	Alkhatib *et al.*
Applicant	Inpro Network Facility, LLC
Group Art Unit	2442
Examiner	Blair, Douglas B.
Confirmation No.	2698
Attorney's Docket No.	INNF0017

Title: Secure Virtual Community Network System

RESPONSE TO FINAL OFFICE ACTION DATED SEPTEMBER 01, 2010

To: Commissioner for Patents
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Customer # 75671

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LIST OF CLAIMS

Claims 16, 25, 37-40, 44-52, 67, and 101 were previously canceled.

Claims 63 and 77 are canceled without prejudice.

Claims 53-55, 64, and 80 are currently amended.

Claims 1-15, 17-24, 26-36, 41-43, 53-62, 64-66, 68-76, 78-100, and 102-109 are pending:

1. (previously presented) A virtual network system, comprising:

a virtual network manager implemented as a first computing device, the virtual network manager configured to register devices in a virtual network that is defined by a domain name, each device in the virtual network being identified to the other devices by a virtual network address that is unique for each device and not directly routable via a public network, the virtual network manager further configured to distribute a virtual network address to a device when the device is registered in the virtual network;

a route director implemented as a second computing device, the route director configured to communicate data between the devices that are registered in the virtual network, the data being communicated as encapsulated packets from a source device to a destination device, an encapsulated packet including a first virtual network address that corresponds to the source device and a second virtual network address that corresponds to the destination device; and

the virtual network manager further configured to receive a DNS request from the source device, and return a public network address of the route director, a private network address for the destination device, and the second virtual network address that corresponds to the destination device.

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2. (previously presented) The system of claim 1 wherein each of the devices communicate with the virtual network manager and the other devices in the virtual network via an associated agent.

3. (previously presented) The system of claim 1 wherein each of the devices include an agent configured to communicate with the virtual network manager and agents of the other devices in the virtual network.

4. (previously presented) The system of claim 2 wherein the associated agent is installed on a proxy device which is a proxy agent for one or more of the devices in the virtual network with respect to the virtual network manager and the route director.

5. (previously presented) The system of claim 2 wherein the virtual network manager is further configured to:

receive a request from the agent associated with a device in a private network to register the device in the virtual network; and

detect a presence of a NAT device via which the request is routed from the agent to the virtual network manager.

6. (previously presented) The system of claim 1 wherein the virtual network manager is coupled to the public network and has an associated public network address.

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7. (previously presented) The system of claim 1 wherein the route director is further configured to receive the encapsulated packets when routed to a public network address corresponding to the route director.

8. (previously presented) The system of claim 1 wherein each of the devices in the virtual network are further identified by at least one physical network address.

9. (previously presented) The system of claim 8 wherein the physical network addresses that are associated with the devices in the virtual network are dynamic.

10. (previously presented) The system of claim 8 wherein the physical network addresses that are associated with the devices in the virtual network are static.

11. (previously presented) The system of claim 8 wherein the physical network addresses that are associated with the devices in the virtual network are private network addresses, and wherein the virtual network addresses are unique in the virtual network so as not to conflict with the private network addresses.

12. (previously presented) The system of claim 8 wherein the source device is coupled to a first private network and accesses a public network via a first NAT device configured to transmit the encapsulated packets, an encapsulated packet further including the physical network address of the source device as a private network address in the first private network.

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13. (previously presented) The system of claim 12 wherein the physical network address of the source device is dynamic.

14. (previously presented) The system of claim 12 wherein the physical network address of the source device is static.

15. (previously presented) The system of claim 12 wherein the destination device is coupled to a second private network and accesses the public network via a second NAT device, the encapsulated packet further including the physical network address of the destination device as a private network address in the second private network.

16. (canceled)

17. (previously presented) The system of claim 15 wherein the physical network address of the destination device is dynamic.

18. (previously presented) The system of claim 15 wherein the physical network address of the destination device is static.

19. (previously presented) The system of claim 15 wherein said first private network and said second private network share at least one network address.

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20. (previously presented) The system of claim 1 wherein the route director is further configured to:

provide a device-specific pseudo address assignment for the device in the virtual network when the device communicates with the route director via a NAT device; and

store an association of the device-specific pseudo address with a public network address of the NAT device and a port number of the NAT device.

21. (previously presented) The system of claim 1 wherein the route director includes a translator for virtual network address information for a device in the virtual network that is implemented in a private network.

22. (previously presented) The system of claim 1 wherein the virtual network manager is coupled to the public network and includes a public network address.

23. (previously presented) The system of claim 22 wherein the route director is coupled to the public network and includes a different public network address than the public network address of the virtual network manager.

24. (previously presented) The system of claim 22 wherein the route director is coupled to a private network and includes a private network address.

25. (canceled)

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26. (previously presented) The system of claim 1 wherein the encapsulated packets further include virtual IP packets configured for communication of the data, the virtual IP packets being encrypted prior to being encapsulated.

27. (previously presented) The system of claim 26 wherein the virtual IP packets are encrypted using IPSEC.

28. (previously presented) The system of claim 26 wherein the virtual IP packets are encrypted using DES or triple DES.

29. (previously presented) The system of claim 5 wherein the virtual network manager is further configured to receive the request from the agent as a message, and detect the presence of the NAT device by comparing a field in a payload of the message with a source address in a header of the message.

30. (previously presented) The system of claim 1 wherein the virtual network manager includes a virtual community definition that is defined by the domain name, and includes one or more of the devices that are registered in the virtual network.

31. (previously presented) The system of claim 1 wherein the route director is a public route director in the public network, the system further comprising a private route director in a private network configured to enable access to devices of the private network that are also in the virtual network from devices of the public network that are also in the virtual network.

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32. (previously presented) A virtual network manager, comprising:

a network interface configured for data communication via a virtual network that is defined by a domain name having an associated public network address;

a register module configured to register devices in a virtual network, the register module further configured to:

receive a registration request from an agent associated with a device;

distribute a virtual network address to the device when the device is registered in the virtual network, the device being identified to other devices in the virtual network by the virtual network address; and

a DNS server for the virtual network, the DNS server configured to receive a DNS request from a first device in the virtual network, and return a network address associated with a network route director, a private network address associated with a second device in the virtual network, and a virtual network address associated with the second device.

33. (previously presented) The virtual network manager of claim 32 further comprising an additional network interface configured for data communication via a public network.

34. (previously presented) The virtual network manager of claim 32 wherein the network interface is a UDP port configured for data communication via the virtual network.

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35. (previously presented) The virtual network manager of claim 33 wherein the network interface is a UDP port configured for data communication via the virtual network, and wherein the additional network interface is a TCP port configured for registration communications via the public network.

36. (previously presented) The virtual network manager of claim 32 wherein the register module is further configured to receive the registration request from the agent that is installed on the device for data communication via the virtual network.

37-40. (canceled)

41. (previously presented) The virtual network manager of claim 32 further comprising a join module configured to receive a join request from the agent associated with the device to indicate that the device is connected for data communication within the virtual network, the join module further configured to receive a leave request from the agent associated with the device to indicate that the device will be disconnected from data communication within the virtual network.

42. (previously presented) The virtual network manager of claim 41 wherein the join module is further configured to provide virtual network addresses to the devices that are registered in the virtual network.

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43. (previously presented) The virtual network manager of claim 41 wherein the join module is further configured to maintain data to associate a virtual network address with a device in the virtual network.

44-52. (canceled)

53. (currently amended) A virtual network system, comprising:

a computing device that includes at least a memory and a processor configured to implement a network manager of a virtual network that is defined by a public domain name, the network manager configured to distribute virtual network addresses to devices that register as members in the virtual network, each device in the virtual network being identified to the other devices by a virtual network address associated with the device;

a first virtual network agent associated with a first device that is registered as a member in the virtual network;

at least a second virtual network agent associated with at least a second device that is registered as a member in the virtual network; ~~and~~

a route director configured to route communications between the first device and the at least second device in the virtual network via the respective first and second virtual network agents, the communications configured for routing as encapsulated packets that include a first virtual network address that is not directly routable corresponding to the first device and a second virtual network address that is not directly routable corresponding to the at least second device; and

the network manager includes a DNS server configured to provide authoritative responses for DNS queries in the virtual network, the DNS server further configured to

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receive a DNS query from the first device and return a network address of the route director, a network address of the second device, and the virtual network address of the second device.

54. (currently amended) The system of claim 53 wherein the route director is a public network route director that includes a public network interface and ~~an associated~~ the network address is a public network address by which the first and second virtual network agents communicate with the public network route director.

55. (currently amended) The system of claim 53 wherein the route director is a private route director that includes a private physical network interface and ~~an associated~~ the network address is a private physical network address.

56. (previously presented) The system of claim 53 wherein the first virtual network agent is installed on the first device for data communication via the virtual network.

57. (previously presented) The system of claim 56 wherein the first device is in a private physical network, has an associated private network address, and has the associated virtual network address that is not directly routable by which the first device can be identified by the at least second virtual network agent from outside of the private physical network.

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58. (previously presented) The system of claim 56 wherein the first device is coupled to a public physical network, has an associated public network address, and has the associated virtual network address by which the first device can be identified by the at least second virtual network agent.

59. (previously presented) The system of claim 53 wherein the first virtual network agent is a proxy agent for the first device with respect to the network manager and the route director.

60. (previously presented) The system of claim 53 wherein the first and second devices are configured to access the virtual network from separate private address physical realms.

61. (previously presented) The system of claim 53 wherein the network manager includes at least a first community definition and a second community definition, the first community definition being defined by the public domain name and includes one or more of the devices that are registered in the virtual network, and the second community definition being defined by a different public domain name and includes one or more different devices that are registered in the virtual network.

62. (previously presented) The system of claim 53 wherein the network manager includes a member authenticator configured to authenticate the devices that request to register with the network manager.

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63. (canceled)

64. (currently amended) A computer-implemented method, comprising:

receiving registration requests from devices that request to be registered as members of a virtual network that is defined by a domain name having an associated public network address in a public network, each of the devices having an associated private network address;

distributing a virtual network address to a device to register the device as a member in the virtual network, each device in the virtual network being identified to the other devices by the virtual network address that is associated with the device; ~~and~~

routing communications between the devices that are registered in the virtual network, the communications being routed as encapsulated packets from a source device to a destination device, an encapsulated packet including a first virtual network address that corresponds to the source device and a second virtual network address that corresponds to the destination device; and

transmitting a response to a DNS request received from one of the devices that are the members in the virtual network, the response to the DNS request including a public network address of a route director that registers the devices, a public network address of the destination device, and the second virtual network address that corresponds to the destination device.

65. (previously presented) The method of claim 64 further comprising providing the devices in the virtual network with a communication agent.

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66. (previously presented) The method of claim 65 wherein said providing the devices in the virtual network with a communication agent includes providing a proxy agent.

67. (canceled)

68. (previously presented) The method of claim 64 further comprising authenticating the devices as the members in the virtual network.

69. (previously presented) The method of claim 64 further comprising defining a member set of the virtual network that includes one or more of the devices, and assigning the domain name that defines the virtual network.

70. (previously presented) The method of claim 64 further comprising defining at least two member sets of the virtual network that each include one or more of the devices, the at least two member sets having at least one different device.

71. (previously presented) The method of claim 64 further comprising assigning the virtual network address to the device as an IPV4 compliant address.

72. (previously presented) The method of claim 71 wherein the IPV4 compliant address is non-routable.

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73. (previously presented) The method of claim 64 further comprising routing network traffic via the public network from a first device having a public network address to a second device having a different public network address, the network traffic being routed as data packets having a source address which is the virtual network address of the first device and a destination address which is the virtual network address of the second device, the data packets being encapsulated to include a second source address which is a public network address of the first device and a second destination address which is the different public network address of the second device.

74. (previously presented) The method of claim 64 further comprising routing network traffic from a first device in a private physical network having a private network address to a second device having a public network address, the network traffic being routed as data packets having a source address which is the virtual network address of the first device, a destination address which is the virtual network address of the second device, and a shim which includes the private network address, the data packets being encapsulated to include a second destination address which is the public network address of the second device.

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75. (previously presented) The method of claim 64 further comprising routing network traffic from a first device in a private physical network having a first private network address to a second device in a different private physical network having a second private network address, the network traffic being routed as encapsulated packets having a source address which is the virtual network address of the first device, a destination address which is the virtual network address of the second device, and a shim which includes the first and second private network addresses.

76. (previously presented) The method of claim 75 wherein the first private network address and the second private network address are identical.

77. (canceled)

78. (previously presented) The method of claim 64 further comprising:

receiving a join status request from a first device in the virtual network as a query to determine the status of a second device in the virtual network; and

responding to the join status request to indicate whether or not the second device is joined to the virtual network for data communication.

79. (previously presented) The method of claim 64 further comprising applying a group policy to the devices that are registered as the members of the virtual network.

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80. (currently amended) One or more processor readable storage media comprising processor readable code that, if executed by a computer device, implements a virtual network manager to:

receive registration requests from devices that request to be registered as members of a virtual network that is defined by a domain name having an associated public network address in a public network, each of the devices having an associated private network address;

distribute a virtual network address to a device to register the device as a member in the virtual network, each device in the virtual network being identified to the other devices by the virtual network address that is associated with the device; ~~and~~

manage communications routed between the devices that are registered in the virtual network, the communications routed as encapsulated packets from a source device to a destination device, an encapsulated packet including a first virtual network address that corresponds to the source device and a second virtual network address that corresponds to the destination device; and

transmit a response to a DNS request received from one of the devices that are the members in the virtual network, the response to the DNS request including a public network address of the virtual network manager, a public network address of the destination device, and the second virtual network address that corresponds to the destination device.

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81. (previously presented) One or more processor readable storage media as recited in claim 80 further comprising processor readable code that, if executed, implements the virtual network manager to provide the devices in the virtual network with a communication agent.

82. (previously presented) One or more processor readable storage media as recited in claim 81 wherein the virtual network manager provides the as a proxy agent.

83. (previously presented) One or more processor readable storage media as recited in claim 80 further comprising processor readable code that, if executed, implements the virtual network manager to define a member set of the virtual network that includes one or more of the devices, and the domain name that defines the virtual network.

84. (previously presented) One or more processor readable storage media as recited in claim 80 wherein the virtual network address includes a non-routable IPV4 compliant address.

85. (previously presented) One or more processor readable storage media as recited in claim 80 further comprising processor readable code that, if executed, implements the virtual network manager to route network traffic via the public network from a first device having a public network address to a second device having a different public network address.

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86. (previously presented) One or more processor readable storage media as recited in claim 80 further comprising processor readable code that, if executed, implements the virtual network manager to route network traffic from a first device in a private physical network having a private network address to a second device having a public network address.

87. (previously presented) One or more processor readable storage media as recited in claim 80 further comprising processor readable code that, if executed, implements the virtual network manager to route network traffic from a first device in a private physical network having a first private network address to a second device in a different private physical network having a second private network address.

88. (previously presented) One or more processor readable storage media as recited in claim 87 wherein the network traffic is routed to the first or second device via a NAT device.

89. (previously presented) One or more processor readable storage media as recited in claim 87 wherein the first private network address and the second private network address are identical.

90. (previously presented) One or more processor readable storage media as recited in claim 85 wherein the network traffic is routed as encapsulated data packets.

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91. (previously presented) One or more processor readable storage media as recited in claim 85 wherein the network traffic is routed as encrypted data traffic.

92. (previously presented) One or more processor readable storage media as recited in claim 80 further comprising processor readable code that, if executed, implements the virtual network manager to apply a group policy to the devices that are registered as the members of the virtual network.

93. (previously presented) A virtual network system, comprising:

a computing device that includes at least a memory and a processor configured to implement a virtual network manager having a network interface coupled to a virtual network, the virtual network manager including at least one virtual community definition that is defined by a domain name having an associated public network address and a user set of one or more devices that are registered in the virtual network, each device in the virtual network being identified to the other devices by a virtual network address that is associated with the device, the virtual network manager configured to exchange virtual network information with the one or more devices of the user set, the virtual network being accessible by devices in the user set and devices outside of the user set, and the virtual network manager further configured to receive a DNS request from a source device, and return a public network address of a route director, a private network address for a destination device, and a virtual network address that corresponds to the destination device.

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94. (original) The system of claim 93 wherein the virtual network manager includes a member register module.

95. (original) The system of claim 93 wherein the virtual network manager includes a member join module.

96. (previously presented) The system of claim 95 wherein the member join module provides a virtual network address to a device that is registered as a member of the network.

97. (previously presented) The system of claim 93 wherein the virtual network manager is further configured to maintain data on an association between at least one virtual network address with at least one device that is registered as a member of the network.

98. (previously presented) The system of claim 93 wherein the virtual network manager includes a DNS server for the virtual community network.

99. (previously presented) The system of claim 93 wherein the virtual network manager includes a NAT device detector for devices connecting with the virtual network manager behind a NAT device.

100. (previously presented) The system of claim 93 wherein the virtual network manager includes at least a second virtual community definition.

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101. (canceled)

102. (original) The system of claim 93 wherein the virtual network manager includes a member authenticator.

103. (previously presented) The system of claim 93 wherein the virtual network manager includes a DNS server configured to provide authoritative responses for DNS queries from devices in the virtual community.

104. (previously presented) The system of claim 93 further comprising at least one route director configured to communicate with the one or more devices in the user set.

105. (previously presented) The system of claim 93 wherein each device registered in the network is configured to communicate with the virtual network manager and other devices in the user set via at least one agent.

106. (previously presented) The system of claim 93 wherein the user set includes at least a first device and a second device, and wherein at least one of said first device and said second device is coupled to a first private network and accesses a public network via a NAT device.

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107. (original) The system of claim 106 wherein said first device is coupled to said first private network, and said second device is coupled to a second private network and accesses the public network via a second NAT device.

108. (previously presented) The system of claim 93 wherein communications between the one or more devices in the user set are encrypted.

109. (previously presented) The system of claim 108 wherein the virtual network manager is configured to provide a shared message to the one or more devices in the user set to establish encrypted communications.

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REMARKS

Applicant respectfully requests allowance of the application. Claims 63 and 77 have been canceled. Claims 1-15, 17-24, 26-36, 41-43, 53-62, 64-66, 68-76, 78-100, and 102-109 are pending, of which claims 53-55, 64, and 80 have been amended to place the application in condition for allowance.

Allowable Subject Matter

Claims 1-15, 17-24, 26-36, 41-43, and 93-109 have been allowed, and Applicant appreciates the allowability (*Office Action* p. 3). These claims remain unchanged and are in condition for allowance.

The Office indicates that the references do not teach or suggest returning a public network address of a route director, a private network address for a destination device, and a virtual network address that corresponds to the destination device in response to a DNS request in the context of independent claims 1, 32, and 93 (*Office Action* p. 4).

As described below, independent claims 53, 64, and 80 are amended to recite allowable subject matter as indicated by the Office in the context of the allowed claims. Accordingly, all of the pending independent claims include allowable subject matter and the application is in condition for allowance.

35 U.S.C. §102 Rejection

Claims 53-66 and 68-92 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,631,416 to Bendinelli *et al*. (*Office Action* p. 2).

Applicant makes no representation that cited references are prior art. This response and any remarks or comments included herein are not intended to be, and are not to be interpreted as, an admission that the cited references are prior art. Applicant

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reserves the right to dispose of any cited references under 35 U.S.C. §102 and/or 35 U.S.C. §103, including but not limited to, antedating any one or more of the cited references.

Claim 53 recites that "the network manager includes a DNS server configured to provide authoritative responses for DNS queries in the virtual network, the DNS server further configured to receive a DNS query from the first device and return a network address of the route director, a network address of the second device, and the virtual network address of the second device."

Claim 53 has been amended to incorporate features of claim 63 (now canceled) and recites allowable subject matter as described above in the context of the allowed independent claims 1, 32, and 93. Accordingly, claim 53 along with dependent claims 54-62 are allowable, and Applicant requests that the §102 rejection be withdrawn.

Claim 64 recites "transmitting a response to a DNS request received from one of the devices that are the members in the virtual network, the response to the DNS request including a public network address of a route director that registers the devices, a public network address of the destination device, and the second virtual network address that corresponds to the destination device."

Claim 64 has been amended to incorporate features of claim 77 (now canceled) and recites allowable subject matter as described above in the context of the allowed independent claims 1, 32, and 93. Accordingly, claim 64 along with dependent claims 65, 66, 68-76, 78, and 79 are allowable, and Applicant requests that the §102 rejection be withdrawn.

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Claim 80 recites to "transmit a response to a DNS request received from one of the devices that are the members in the virtual network, the response to the DNS request including a public network address of the virtual network manager, a public network address of the destination device, and the second virtual network address that corresponds to the destination device."

Claim 80 recites allowable subject matter as described above in the context of the allowed independent claims 1, 32, and 93. Accordingly, claim 80 along with dependent claims 81-92 are allowable, and Applicant requests that the §102 rejection be withdrawn.

Conclusion

Applicant submits that all objections and/or rejections of the pending claims 1-15, 17-24, 26-36, 41-43, 53-62, 64-66, 68-76, 78-100, and 102-109 have been addressed, and respectfully requests issuance of the application. If any issues remain that preclude issuance of the application, the Examiner is requested to contact the undersigned attorney before issuing a subsequent Action.

Respectfully Submitted,

Dated: October 21, 2010

By: / Dave Morasch 42905 /
David A. Morasch
SBMC, p.s.
Reg. No. 42,905
(509) 755-7250

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American Airlines, et. al. v. Intellectual Ventures, et.al.
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Electronic Acknowledgement Receipt	
EFS ID:	8671248
Application Number:	10403818
International Application Number:	
Confirmation Number:	2698
Title of Invention:	Secure virtual community network system
First Named Inventor/Applicant Name:	Hasan S. Alkhatib
Customer Number:	75671
Filer:	William Breen/Kenneth Linder
Filer Authorized By:	William Breen
Attorney Docket Number:	INNF0017
Receipt Date:	21-OCT-2010
Filing Date:	31-MAR-2003
Time Stamp:	12:39:19
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		INNF0017FOAResponse4.pdf	178556 489e9ea9108f3dff05f01e98306271ca397809b1	yes	26

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment After Final	1	1
	Claims	2	23
	Applicant Arguments/Remarks Made in an Amendment	24	26
Warnings:			
Information:			
	Total Files Size (in bytes):	178556	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 10/403,818	Filing Date 03/31/2003	☐ To be Mailed

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☐		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	10/21/2010	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 90	Minus	** 109	= 0	X $ =		OR	X $52=	0
	Independent (37 CFR 1.16(h))	* 6	Minus	***8	= 0	X $ =		OR	X $220=	0
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	**0**

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/Wanda Meredith/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/403,818	03/31/2003	Hasan S. Alkhatib	INNF0017	2698

75671 7590 11/05/2010

Sadler, Breen, Morasch & Colby, ps
601 W. Main Ave.
Suite 1300
Spokane, WA 99201

EXAMINER	
BLAIR, DOUGLAS B	
ART UNIT	PAPER NUMBER
2442	

NOTIFICATION DATE	DELIVERY MODE
11/05/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

usptocorrespondence@sbmc-law.com

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American Airlines, et. al. v. Intellectual Ventures, et.al.
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Office Action Summary	Application No.	Applicant(s)	
	10/403,818	ALKHATIB ET AL.	
	Examiner	Art Unit	
	DOUGLAS B. BLAIR	2442	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 October 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15,17-24,26-36,41-43,53-62,64-66,68-76,78-100 and 102-109* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *53-62,64-66,68-76,78,79,93-100 and 102-109* is/are allowed.

6)☒ Claim(s) *1-15,17-24,26-36,41-43 and 80-92* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *10/18/2010*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

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DETAILED ACTION

Response to Amendment/Arguments

The applicant's amendments have overcome the prior art rejections for the reasons argued by the applicant in the remarks filed on 10/21/2010. Though all of the applicant's claims are now allowable over the prior art of record, new rejections are presented in view of 35 USC section 101. The finality of the previous office action is withdrawn.

Interview Summary

The Examiner contacted the applicant's representative, David Morasch (Reg. No. 42,905), on 10/25/2010 and again on 10/28/2010 to discuss a possible Examiner's Amendment to overcome the 35 USC section 101 issues. Mr. Morasch preferred to see the rejections written in the form of an office action before making a response.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-15, 17-24, 26-36, 41-43, and 80-92 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claim 1 is directed towards a system comprising a virtual network manager implemented as a first computing device and a route director implemented as a second computing device. The dependent claims do not explicitly add any other elements to the claimed system. Page 14, lines 4-14 of the applicant's specification states that, "the present invention can be accomplished using,

hardware, software, or a combination of both hardware and software." The applicant's computing devices are broad enough to cover software according to the applicant's specification. Because the applicant's system is broad enough to cover software per se, it does not fit into any of the statutory categories of invention.

Claim 32 is directed towards virtual network manager comprising a network interface, a register module, and a DNS server. Claim 33 adds an additional network interface and Claim 41 adds a join module. The rest of the dependent claims do not explicitly add any other elements to the claimed system. For the same reasons discussed with respect to claim 1 and its dependents, the applicant's virtual network manager covers software per se.

Claim 80 and its dependents are directed towards one or more processor readable storage media. The applicant's specification (page 14, lines 4-14) provides an open ended definition of the term processor storage media. Because of the broad definition of processor storage media provided by the applicant, the term could be interpreted broadly as cover transitory storage media. Transitory storage media are non-statutory and therefore the applicant's claim is broad enough to cover non-statutory storage media.

Allowable Subject Matter

Claims 53-62, 64-66, 68-76, 78, 79, 93-100, and 102-109 are allowed.

Claims 1-15, 17-24, 26-36, 41-43, and 80-92 are allowable over the prior art of record but are not statutory.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DOUGLAS B. BLAIR whose telephone number is (571)272-3893. The examiner can normally be reached on 9:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glen Burgess can be reached on (571) 272-3949. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Douglas B Blair/
Primary Examiner, Art Unit 2442

Notice of References Cited	Application/Control No. 10/403,818	Applicant(s)/Patent Under Reexamination ALKHATIB ET AL.	
	Examiner DOUGLAS B. BLAIR	Art Unit 2442	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-7,814,228	10-2010	Caronni et al.	709/245
*	B	US-7,787,428	08-2010	Furukawa et al.	370/338
*	C	US-7,653,747	01-2010	Lucco et al.	709/245
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

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IPR2025-00786

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	40	DNS with (virtual$1 near (domain or name$1))	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:35
L2	26	L1 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:35
L3	749	regist$7 with (virtual near2 network$1)	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:35
L4	161	encapsulat$3 with (virtual near2 address$3)	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:35
L5	3	L3 same L4	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:35
L6	222	(virtual near2 network$1) with domain near name$1	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:35
L7	0	L3 same L4 same L6	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:35
L8	20	L3 and L4 and L6	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:35
L9	17	L8 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:35
L10	2	(L2 L5 L7 L9) and @pd>"20100107"	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:35
L11	318	(virtual near2 network) and (virtual near2 address$3) with regist$6	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:36
L12	143	L11 and (encapsulat$3 or tunnel$3)	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:36
L13	89	L12 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/11/01 09:36
L14	37	(virtual near2 network) and (assign$3 near4 (virtual near2 address$3)) with regist$6	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:36
L15	21	L14 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/11/01 09:36
L16	14	regist$6 with (p2p or "peer-to-peer" or "peer to peer") same (assign$5 near2 address$3)	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:36

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L17	14	L16 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/11/01 09:36
L18	242	regist$6 with (server$1 or manag$5) same (assign$5 near2 address$3) same domain$1	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:36
L19	23125	(broadcast$3 or multicast$3) with ((new or join$3))	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:36
L20	19	L18 and L19	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:36
L21	13	L20 and (virtual or vpn)	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:36
L22	231	((virtual near2 network) or vpn) with (domain$1 near2 (router$1 or manag$5 or server$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/11/01 09:36
L23	107	L22 and ((assign$5 or regist $6) with address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/11/01 09:36
L24	52	L23 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/11/01 09:36
L25	15	(L13 L15 L17 L21 L24) and @pd>"20090128"	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:36
L26	12	L25 and @pd>"20090819"	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:36
S1	33	"virtual community" near2 network$2	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:48
S2	19	S1 and @ad<"20030331"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/14 10:09
S3	5	S2 and ((private or public) with address)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/13 20:00

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S4	45	((virtual near (community or network)) and (private near address$3) and (public near address$3) and (IP near address$2))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/13 20:04
S5	27	S4 and @ad<"20030331"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/13 20:04
S6	53	("6226751").URPN.	USPAT	OR	OFF	2006/09/13 20:30
S7	1	"20040249911".pn.	US-PGPUB; USPAT	OR	OFF	2006/09/14 09:59
S8	139	("domain name" or DNS) with (VPN)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/14 10:08
S9	74	S8 and @ad<"20030331"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/14 10:09
S10	22	S9 and (NAT with (public or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:59
S11	1801	709/245.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/14 11:02
S12	454	"virtual community"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:49
S13	353	router same (public with address$3) same (private with address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:50
S14	353	S13 same S13	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:50
S15	0	S12 same S13	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:50

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S16	3	S12 and S13	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:50
S17	0	S16 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:51
S18	387	router same (public with address$3) and router same (private with address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:50
S19	260	S18 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:52
S20	0	S19 and S12	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:51
S21	306	rout$3 with (public near address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:51
S22	0	S12 same S21	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:52
S23	3	S12 and S21	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:52
S24	0	S23 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:55
S25	1	S12 same public near address $3	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:53
S26	0	S12 same (rout$3 with internet)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:53

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S27	1	S12 same private near address $3	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:54
S28	15	(community or group) same S13	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:54
S29	7	S28 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:59
S30	85	((group or community) with (member$4 or belong$3)) and (NAT with (public or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:00
S31	49	S30 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:01
S32	55	((group or community) with (member$4 or belong$3)) and ((group$1 or community) same rout$3) and (NAT with (public or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:25
S33	34	S32 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:27
S34	272055	((group or community) with (member$4 or belong$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:25
S35	6111	S34 same server	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:25
S36	124	S35 and ((rout$3 near2 (messag$3 or communication $1)) same (firewall or NAT or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:26
S37	68	S36 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:27

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S38	35	S37 and "domain name"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:27
S39	1	"20020152297".pn.	US-PGPUB; USPAT	OR	OFF	2007/05/25 18:47
S40	706	"virtual community"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S41	533	router same (public with address$3) same (private with address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S42	3	S40 and S41	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S43	0	S42 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S44	582	router same (public with address$3) and router same (private with address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S45	321	S44 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S46	411	rout$3 with (public near address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S47	3	S40 and S46	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S48	0	S47 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57

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S49	25	(community or group) same S41	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S50	12	S49 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S51	136	((group or community) with (member$4 or belong$3)) and (NAT with (public or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S52	64	S51 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S53	77	((group or community) with (member$4 or belong$3)) and ((group$1 or community) same rout$3) and (NAT with (public or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S54	42	S53 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S55	318137	((group or community) with (member$4 or belong$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S56	8828	S55 same server	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S57	168	S56 and ((rout$3 near2 (messag$3 or communication $1)) same (firewall or NAT or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S58	89	S57 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S59	91	(S43 S45 S48 S50 S52 S54 S58) and @pd>"20070524"	US-PGPUB; USPAT	OR	OFF	2009/01/07 13:57
S60	1	"20040249911".pn.	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:00

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S61	1008	(Vpn or "virtual private network") and (assign$5 near address$3) and domain$1	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:01
S62	25	(Vpn or "virtual private network") same (assign$5 near address$3) same domain $1	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:02
S63	8	S62 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 14:02
S64	196	("20020078198" | "20020133534" | "20030041091" | "20030041136" | "20030084162" | "20030212795" | "20040006708" | "20040111612" | "20040148439" | "5361256" | "5563878" | "5623605" | "5701427" | "5717687" | "5734651" | "5751961" | "5764906" | "5777989" | "5781550" | "5790548" | "5793763" | "5805818" | "5805820" | "5815664" | "5856974" | "5867667" | "5884246" | "5889953" | "5913210" | "5937162" | "5937163" | "6226751" | "6594704" | "6701437" | "6832322" | "6970941" | "6003084" | "6006272" | "6032196" | "6047325" | "6055575" | "6061738" | "6119171" | "6353614" | "6353886" | "6381638" | "6430622" | "6430623" | "6438597" | "6438612" | "6452925" | "6457061" | "6480508" | "6490289" | "6496867" | "6507873" | "6523068" | "6556584" | "6557037" | "6557306" | "6591306" | "6618757" | "6629137" | "6631416" | "6651101" | "6657991" | "6662223" | "6697377" | "6742045" | "6747979" | "6754706" | "6772210" | "6778528" | "6779035" | "6781982" | "6948003" | "6973485" | "6981020" | "6982953" | "6983319" | "6993012" | "6993595" | "6996628" | "6996631" |	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 14:04

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		"7010702" | "7092390" | "7107464" | "7107614" | "7133368" | "7227864" | "7003481" | "7032242" | "7139828").PN.				
S65	3296	(Vpn or "virtual private network") with rout$3	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:05
S66	559	(Vpn or "virtual private network") with regist$6	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:05
S67	268	S65 and S66	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:06
S68	267	S66 same address$3	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:06
S69	106	S66 same S65	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:06
S70	60	S68 same S65	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:06
S71	24	S70 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 14:07
S72	16	(Vpn or "virtual private network") with (public near3 domain$1)	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:29
S73	7	S72 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 14:29
S74	394	(Vpn or "virtual private network") and community with (public near$3 domain $1)	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:35
S75	392	(Vpn or "virtual private network") and community with (public near$2 domain $1)	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:35
S76	210	S75 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 14:35
S77	5	S76 and S67	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 14:36
S78	2	(Vpn or "virtual private network") and community with (public adj domain$1)	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:37

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S79	232	(Vpn or "virtual private network") and community with (domain$1)	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:38
S80	18	(Vpn or "virtual private network") and community with (domain$1 near name $1)	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:38
S81	9	S80 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 14:39
S82	25	(Vpn or "virtual private network") and domain$1 and S64	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:41
S83	106	(Vpn or "virtual private network") with communit$3	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:50
S84	4	S83 same domain	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:50
S85	1	S84 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 14:50
S86	19	S83 and domain adj name$1	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:52
S87	14	S86 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 14:53
S88	1442	(virtual near2 network) and (virtual near2 address$3) and regist$6	US-PGPUB; USPAT	OR	OFF	2009/01/28 10:36
S89	226	(virtual near2 network) and (virtual near2 address$3) with regist$6	US-PGPUB; USPAT	OR	OFF	2009/01/28 10:36
S90	115	S89 and (encapsulat$3 or tunnel$3)	US-PGPUB; USPAT	OR	OFF	2009/01/28 10:38
S91	81	S90 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/28 10:40
S92	0	S91 and subdomain$1	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/28 10:41

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S93	19	S91 and (virtual near2 domain $1)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/28 10:41
S94	33	(virtual near2 network) and (assign$3 near4 (virtual near2 address$3)) with regist$6	US-PGPUB; USPAT	OR	OFF	2009/01/28 10:55
S95	21	S94 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/28 10:55
S96	11	regist$6 with (p2p or "peer-to-peer" or "peer to peer") same (assign$5 near2 address$3)	US-PGPUB; USPAT	OR	OFF	2009/01/28 11:06
S97	11	S96 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/28 11:07
S98	200	regist$6 with (server$1 or manag$5) same (assign$5 near2 address$3) same domain$1	US-PGPUB; USPAT	OR	OFF	2009/01/28 11:09
S99	17536	(broadcast$3 or multicast$3) with ((new or join$3))	US-PGPUB; USPAT	OR	OFF	2009/01/28 11:10
S100	2	S98 same S99	US-PGPUB; USPAT	OR	OFF	2009/01/28 11:10
S101	19	S98 and S99	US-PGPUB; USPAT	OR	OFF	2009/01/28 11:12
S102	13	S101 and (virtual or vpn)	US-PGPUB; USPAT	OR	OFF	2009/01/28 11:12
S103	13	S102 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/28 11:12
S104	156	((virtual near2 network) or vpn) with (domain$1 near2 (router$1 or manag$5 or server$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/28 11:18
S105	78	S104 and ((assign$5 or regist $6) with address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/28 11:19
S106	48	S105 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/28 11:19

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S107	277	("20030005334" | "20030126467" | "20030196122" | "20040073812" | "20040088586" | "20040088706" | "20040098624" | "20040103321" | "20040103322" | "20050021595" | "20050022030" | "20050149747" | "20050229248" | "20050235346" | "20050235347" | "20050235348" | "20050235359" | "20060005236" | "20060021020" | "20060053486" | "20060075139" | "20060112276" | "20060112424" | "20060288408" | "20070101421" | "4713753" | "4727243" | "4799153" | "4799156" | "4802217" | "4823338" | "4893307" | "4896319" | "4914619" | "4926416" | "4985889" | "4991204" | "5023907" | "5048081" | "5067123" | "5084867" | "5091903" | "5101404" | "5115431" | "5124984" | "5138712" | "5166931" | "5168492" | "5185743" | "5185860" | "5191611" | "5204857" | "5204897" | "5208811" | "5214646" | "5216669" | "5218602" | "5231631" | "5233607" | "5241594" | "5249178" | "5253247" | "5255266" | "5258752" | "5258979" | "5260999" | "5271010" | "5274680" | "5282244" | "5285441" | "5311509" | "5311596" | "5321727" | "5323389" | "5339318" | "5345443" | "5345445" | "5345446" | "5351146" | "5375206" | "5392402" | "5394393" | "5394398" | "5394402" | "5412654" | "5414701" | "5416842" | "5420857" | "5420858" | "5422882" | "5425090" | "5426636" | "5428607" | "5428609" |	US-PGPUB; USPAT; USOCR	OR	OFF	2009/01/28 11:34

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		"5428771" | "5434852" |					
		"5434914" | "5434981" |					
		"5436727" | "5438508" |					
		"5442630" | "5444702" |					
		"5444703" | "5446738" |					
		"5448724" | "5450394" |					
		"5452297" | "5453980" |					
		"5453981" | "5455953" |					
		"5457681" | "5457684" |					
		"5463552" | "5463620" |					
		"5473677" | "5473679").PN.					
		OR ("5477537" | "5479401" |					
		"5479402" | "5479407" |					
		"5483527" | "5483661" |					
		"5485455" | "5490252" |					
		"5491694" | "5491752" |					
		"5495411" | "5495533" |					
		"5509010" | "5511166" |					
		"5513178" | "5519707" |					
		"5522042" | "5526414" |					
		"5535336" | "5539884" |					
		"5541918" | "5541926" |					
		"5544152" | "5544161" |					
		"5546379" | "5548645" |					
		"5548721" | "5550816" |					
		"5550984" | "5566173" |					
		"5568475" | "5570368" |					
		"5577039" | "5577209" |					
		"5579222" | "5583862" |					
		"5583863" | "5586260" |					
		"5590199" | "5602918" |					
		"5606668" | "5608447" |					
		"5617540" | "5623011" |					
		"5623600" | "5623601" |					
		"5623605" | "5629980" |					
		"5631897" | "5632011" |					
		"5636371" | "5638448" |					
		"5644706" | "5657390" |					
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S112	915	private near rout$3	US-PGPUB; USPAT	OR	OFF	2009/01/28 15:53
S113	97	S112 with (encapsulat$4 or tunnel$3)	US-PGPUB; USPAT	OR	OFF	2009/01/28 15:53
S114	43	S113 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT	OR	OFF	2009/01/28 15:54
S115	11	S114 and ((domain$1 near name$1) or dns)	US-PGPUB; USPAT	OR	OFF	2009/01/28 15:55

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S116	12	("20020055917" | "20020188689" | "20040059598" | "20040060056" | "5418628" | "5602843" | "5924074" | "6052442" | "6305007" | "6810429" | "7117246" | "7224698").PN. OR ("7474667").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2009/01/28 16:15
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S118	30	("20020010758" | "20020055917" | "20020136223" | "20020188689" | "20040059598" | "20040060056" | "20040100974" | "20040100975" | "5418628" | "5924074" | "6002689" | "6016307" | "6026091" | "6052442" | "6098138" | "6104718" | "6129449" | "6178170" | "6181703" | "6226686" | "6305007" | "6385198" | "6434403" | "6456594" | "6466236" | "6810429" | "6973479" | "7114170" | "7114171" | "7117246").PN. OR ("7263102").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2009/01/28 16:18

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S119	29	("20020055917" | "20020136223" | "20020188689" | "20040059598" | "20040060056" | "20040100974" | "20040100975" | "5418628" | "5924074" | "6002689" | "6016307" | "6026091" | "6052442" | "6098138" | "6104718" | "6129449" | "6178170" | "6181703" | "6226686" | "6305007" | "6385198" | "6434403" | "6456594" | "6466236" | "6810429" | "6973479" | "7114171" | "7117246").PN. OR ("7224698").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2009/01/28 16:19
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S122	790	"virtual community"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S123	610	router same (public with address$3) same (private with address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S124	3	S122 and S123	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
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S126	662	router same (public with address$3) and router same (private with address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S127	341	S126 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S128	467	rout$3 with (public near address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S129	3	S122 and S128	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46

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S130	0	S129 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S131	31	(community or group) same S123	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S132	15	S131 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S133	155	((group or community) with (member$4 or belong$3)) and (NAT with (public or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S134	67	S133 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S135	91	((group or community) with (member$4 or belong$3)) and ((group$1 or community) same rout$3) and (NAT with (public or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S136	45	S135 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S137	337874	((group or community) with (member$4 or belong$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S138	9951	S137 same server	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S139	182	S138 and ((rout$3 near2 (messag$3 or communication $1)) same (firewall or NAT or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S140	95	S139 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46

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S141	28	(Vpn or "virtual private network") same (assign$5 near address$3) same domain $1	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:46
S142	8	S141 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S143	3751	(Vpn or "virtual private network") with rout$3	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:46
S144	630	(Vpn or "virtual private network") with regist$6	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:46
S145	292	S143 and S144	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:46
S146	299	S144 same address$3	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:46
S147	64	S146 same S143	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:46
S148	26	S147 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S149	18	(Vpn or "virtual private network") with (public near3 domain$1)	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:46
S150	8	S149 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S151	430	(Vpn or "virtual private network") and community with (public near$2 domain $1)	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:46
S152	218	S151 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S153	5	S152 and S145	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S154	18	(Vpn or "virtual private network") and community with (domain$1 near name $1)	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:46

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S155	9	S154 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S156	122	(Vpn or "virtual private network") with communit$3	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:46
S157	4	S156 same domain	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:46
S158	1	S157 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S159	23	S156 and domain adj name$1	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:46
S160	18	S159 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S161	120	(S125 S127 S130 S132 S134 S136 S140) and @pd>"20070524"	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:47
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S163	241	(virtual near2 network) and (virtual near2 address$3) with regist$6	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:57
S164	121	S163 and (encapsulat$3 or tunnel$3)	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:57
S165	81	S164 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:57
S166	33	(virtual near2 network) and (assign$3 near4 (virtual near2 address$3)) with regist$6	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:57
S167	21	S166 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:57
S168	11	regist$6 with (p2p or "peer-to-peer" or "peer to peer") same (assign$5 near2 address$3)	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:57
S169	11	S168 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:57

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S170	215	regist$6 with (server$1 or manag$5) same (assign$5 near2 address$3) same domain$1	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:57
S171	19164	(broadcast$3 or multicast$3) with ((new or join$3))	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:57
S172	19	S170 and S171	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:57
S173	13	S172 and (virtual or vpn)	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:57
S174	182	((virtual near2 network) or vpn) with (domain$1 near2 (router$1 or manag$5 or server$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:57
S175	89	S174 and ((assign$5 or regist $6) with address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:57
S176	51	S175 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:57
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S180	1	"6430623".pn.	US-PGPUB; USPAT	OR	OFF	2009/08/19 20:29
S181	1	"7133404".pn.	US-PGPUB; USPAT	OR	OFF	2009/08/19 20:33
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S183	1	"6119171".pn.	US-PGPUB; USPAT	OR	OFF	2009/08/19 20:39
S184	1	"7152205".pn.	US-PGPUB; USPAT	OR	OFF	2009/08/20 13:50
S185	1	"20040249911".pn.	US-PGPUB; USPAT	OR	OFF	2010/01/07 11:19
S186	37	DNS with (virtual$1 near (domain or name$1))	US-PGPUB; USPAT	OR	OFF	2010/01/07 11:23
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S189	7	("20060190607" "20060195539" "20040088542" "20020103931" "20080232295" "20070286189" "20020026525").pn.	US-PGPUB; USPAT	OR	OFF	2010/01/29 10:49
S190	4	S189 and encapsulat$3	US-PGPUB; USPAT	OR	OFF	2010/01/29 10:50
S191	638	regist$7 with (virtual near2 network$1)	US-PGPUB; USPAT	OR	OFF	2010/01/29 11:04
S192	135	encapsulat$3 with (virtual near2 address$3)	US-PGPUB; USPAT	OR	OFF	2010/01/29 11:05
S193	1	S191 with S192	US-PGPUB; USPAT	OR	OFF	2010/01/29 11:05
S194	2	S191 same S192	US-PGPUB; USPAT	OR	OFF	2010/01/29 11:07
S195	194	(virtual near2 network$1) with domain near name$1	US-PGPUB; USPAT	OR	OFF	2010/01/29 11:08
S196	0	S191 same S192 same S195	US-PGPUB; USPAT	OR	OFF	2010/01/29 11:08
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S200	1	"20040249911".pn.	US-PGPUB; USPAT	OR	OFF	2010/10/27 11:33

EAST Search History (Interference)

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application Serial No. 10/403,818
Filing Date 03/31/2003
Inventorship ..... Alkhatib *et al.*
Applicant ..... Inpro Network Facility, LLC
Group Art Unit 2442
Examiner ..... Blair, Douglas B.
Confirmation No. 2698
Attorney's Docket No. INNF0017
Title: Secure Virtual Community Network System

RESPONSE TO FINAL OFFICE ACTION DATED SEPTEMBER 01, 2010

To: Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

From: David A. Morasch Tel. 509-755-7250
Fax 509-755-7252
Customer # 75671

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PTO/SB/08a(04-07)
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Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

	Complete if Known
Application Number	10/403,818
Filing Date	March 31, 2003
First Named Inventor	Alkhatib, Hasan
Art Unit	2442
Examiner Name	Blair, Douglas

Sheet	1	of	1	Attorney Docket No: INNF0017

US PATENT DOCUMENTS

Examiner Initial *	Cite No	Document Number	Publication Date	Name of Patentee or Applicant of Cited Document	Filing Date If Appropriate

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No	Foreign Patent Document	Publication Date	Name of Patentee or Applicant of cited Document	T[2]

OTHER DOCUMENTS -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No [1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
/DB/		"Final Office Action", Application 10/161,573, (07/23/10), 21 pages	
/DB/		"Final Office Action", Application 10/233,288, (08/03/10), 15 pages	
/DB/		"Non Final Office Action", Application 10/403,518, (08/03/10), 30 pages	
/DB/		"Advisory Action", Application 10/233,288, (10/15/10), 3 pages	

EXAMINER /Douglas Blair/ **DATE CONSIDERED** 10/26/2010

Substitute Disclosure Statement Form (PTO-1449)
* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional) 2 Applicant is to place a check mark here if English language Translation is attached

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10403818	ALKHATIB ET AL.
	Examiner	Art Unit
	DOUGLAS B BLAIR	2442

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	01/29/2009	08/27/2010	10/27/2010						
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	36	✓	✓	✓						

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IPR2025-00786

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10403818	ALKHATIB ET AL.
	Examiner	Art Unit
	DOUGLAS B BLAIR	2442

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
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CLAIM		DATE								
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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10403818	ALKHATIB ET AL.
	Examiner	Art Unit
	DOUGLAS B BLAIR	2442

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	01/29/2009	08/27/2010	10/27/2010						
	109	✓	=	=						

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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10403818	ALKHATIB ET AL.
	Examiner	Art Unit
	DOUGLAS B BLAIR	2442

SEARCHED			
Class	Subclass	Date	Examiner
	update	1/28/2009	DBB
	update	8/19/2009	DBB
	update	8/27/2010	DBB
	update	11/1/2010	DBB

SEARCH NOTES		
Search Notes	Date	Examiner
update	1/28/2009	DBB
inventor name search	1/28/2009	DBB
update	8/19/2009	DBB
update	8/27/2010	DBB
update	11/1/2010	DBB

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

IFW

OPAP IAP23 NOV 08 2010 PATENT & TRADEMARK OFFICE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No. 10/403,818
Confirmation No. 2698
Filing Date ..... March 31, 2003
Inventorship ..... Alkhatib, Hasan S.
Assignee ..... Inpro Network Facility, LLC
Group Art Unit 2442
Examiner ..... Blair, Douglas B.
Attorney's Docket No. INNF0017
Title: Secure Virtual Community Network System

NOTIFICATION OF LOSS OF ENTITLEMENT TO SMALL ENTITY STATUS

To: Honorable Commissioner of Patents
P.O. Box 1450
Alexandria, VA 22313-1450

From: David A. Morasch (Tel. 509-755-7250; Fax 509-755-7252)
Sadler, Breen, Morasch & Colby, p.s.
601 W. Main Avenue, Suite 1300
Spokane, WA 99201

Customer No. 75671

Due to an assignment of ownership in the above application, the entity status of the Assignee in this application should be changed to Large Entity Status.

Respectfully Submitted,

Date: Nov 5/2010

By: _____

David A. Morasch
Reg. No. 42,905
Attorney for Applicant
Sadler, Breen, Morasch & Colby, PS
601 W. Main Avenue, Suite 1300
Spokane, Washington 99201
Telephone: (509) 755-7250
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NOV 10 2010

PAGE 11/51 * RCVD AT 11/8/2010 2:08:31 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-5/4 * DNIS:2736500 * CSID:5097557252 * DURATION (mm-ss):09-52

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application Serial No. 10/403,818
Filing Date 03/31/2003
Inventorship ..... Alkhatib *et al.*
Applicant ..... Inpro Network Facility, LLC
Group Art Unit 2442
Examiner ..... Blair, Douglas B.
Confirmation No. 2698
Attorney's Docket No. INNF0017
Title: Secure Virtual Community Network System

RESPONSE TO OFFICE ACTION DATED NOVEMBER 05, 2010

To: Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

From: David A. Morasch Tel. 509-755-7250
Fax 509-755-7252
Customer # 75671

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LIST OF CLAIMS

Claims 16, 25, 37-40, 44-52, 63, 67, 77, and 101 were previously canceled.

Claims 1-15, 17-24, 26-36, 41-43, 53-62, 64-66, 68-76, 78-100, and 102-109 are pending, of which claims 1, 32, and 80-92 are currently amended:

1. (currently amended) A virtual network system, comprising:

a virtual network manager implemented [[as]] with a first device memory and a first device processor of a first computing device, the virtual network manager configured to register devices in a virtual network that is defined by a domain name, each device in the virtual network being identified to the other devices by a virtual network address that is unique for each device and not directly routable via a public network, the virtual network manager further configured to distribute a virtual network address to a device when the device is registered in the virtual network;

a route director implemented [[as]] with a second device memory and a second device processor of a second computing device, the route director configured to communicate data between the devices that are registered in the virtual network, the data being communicated as encapsulated packets from a source device to a destination device, an encapsulated packet including a first virtual network address that corresponds to the source device and a second virtual network address that corresponds to the destination device; and

the virtual network manager further configured to receive a DNS request from the source device, and return a public network address of the route director, a private network

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address for the destination device, and the second virtual network address that corresponds to the destination device.

2. (previously presented) The system of claim 1 wherein each of the devices communicate with the virtual network manager and the other devices in the virtual network via an associated agent.

3. (previously presented) The system of claim 1 wherein each of the devices include an agent configured to communicate with the virtual network manager and agents of the other devices in the virtual network.

4. (previously presented) The system of claim 2 wherein the associated agent is installed on a proxy device which is a proxy agent for one or more of the devices in the virtual network with respect to the virtual network manager and the route director.

5. (previously presented) The system of claim 2 wherein the virtual network manager is further configured to:

receive a request from the agent associated with a device in a private network to register the device in the virtual network; and

detect a presence of a NAT device via which the request is routed from the agent to the virtual network manager.

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6. (previously presented) The system of claim 1 wherein the virtual network manager is coupled to the public network and has an associated public network address.

7. (previously presented) The system of claim 1 wherein the route director is further configured to receive the encapsulated packets when routed to a public network address corresponding to the route director.

8. (previously presented) The system of claim 1 wherein each of the devices in the virtual network are further identified by at least one physical network address.

9. (previously presented) The system of claim 8 wherein the physical network addresses that are associated with the devices in the virtual network are dynamic.

10. (previously presented) The system of claim 8 wherein the physical network addresses that are associated with the devices in the virtual network are static.

11. (previously presented) The system of claim 8 wherein the physical network addresses that are associated with the devices in the virtual network are private network addresses, and wherein the virtual network addresses are unique in the virtual network so as not to conflict with the private network addresses.

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12. (previously presented) The system of claim 8 wherein the source device is coupled to a first private network and accesses a public network via a first NAT device configured to transmit the encapsulated packets, an encapsulated packet further including the physical network address of the source device as a private network address in the first private network.

13. (previously presented) The system of claim 12 wherein the physical network address of the source device is dynamic.

14. (previously presented) The system of claim 12 wherein the physical network address of the source device is static.

15. (previously presented) The system of claim 12 wherein the destination device is coupled to a second private network and accesses the public network via a second NAT device, the encapsulated packet further including the physical network address of the destination device as a private network address in the second private network.

16. (canceled)

17. (previously presented) The system of claim 15 wherein the physical network address of the destination device is dynamic.

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18. (previously presented) The system of claim 15 wherein the physical network address of the destination device is static.

19. (previously presented) The system of claim 15 wherein said first private network and said second private network share at least one network address.

20. (previously presented) The system of claim 1 wherein the route director is further configured to:

provide a device-specific pseudo address assignment for the device in the virtual network when the device communicates with the route director via a NAT device; and

store an association of the device-specific pseudo address with a public network address of the NAT device and a port number of the NAT device.

21. (previously presented) The system of claim 1 wherein the route director includes a translator for virtual network address information for a device in the virtual network that is implemented in a private network.

22. (previously presented) The system of claim 1 wherein the virtual network manager is coupled to the public network and includes a public network address.

23. (previously presented) The system of claim 22 wherein the route director is coupled to the public network and includes a different public network address than the public network address of the virtual network manager.

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24. (previously presented) The system of claim 22 wherein the route director is coupled to a private network and includes a private network address.

25. (canceled)

26. (previously presented) The system of claim 1 wherein the encapsulated packets further include virtual IP packets configured for communication of the data, the virtual IP packets being encrypted prior to being encapsulated.

27. (previously presented) The system of claim 26 wherein the virtual IP packets are encrypted using IPSEC.

28. (previously presented) The system of claim 26 wherein the virtual IP packets are encrypted using DES or triple DES.

29. (previously presented) The system of claim 5 wherein the virtual network manager is further configured to receive the request from the agent as a message, and detect the presence of the NAT device by comparing a field in a payload of the message with a source address in a header of the message.

30. (previously presented) The system of claim 1 wherein the virtual network manager includes a virtual community definition that is defined by the domain name, and includes one or more of the devices that are registered in the virtual network.

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31. (previously presented) The system of claim 1 wherein the route director is a public route director in the public network, the system further comprising a private route director in a private network configured to enable access to devices of the private network that are also in the virtual network from devices of the public network that are also in the virtual network.

32. (currently amended) A virtual network manager, comprising:

a network interface configured for data communication via a virtual network that is defined by a domain name having an associated public network address;

a memory and a processor to implement a register module configured to register devices in a virtual network, the register module further configured to:

receive a registration request from an agent associated with a device;

distribute a virtual network address to the device when the device is registered in the virtual network, the device being identified to other devices in the virtual network by the virtual network address; and

a DNS server for the virtual network, the DNS server configured to receive a DNS request from a first device in the virtual network, and return a network address associated with a network route director, a private network address associated with a second device in the virtual network, and a virtual network address associated with the second device.

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33. (previously presented) The virtual network manager of claim 32 further comprising an additional network interface configured for data communication via a public network.

34. (previously presented) The virtual network manager of claim 32 wherein the network interface is a UDP port configured for data communication via the virtual network.

35. (previously presented) The virtual network manager of claim 33 wherein the network interface is a UDP port configured for data communication via the virtual network, and wherein the additional network interface is a TCP port configured for registration communications via the public network.

36. (previously presented) The virtual network manager of claim 32 wherein the register module is further configured to receive the registration request from the agent that is installed on the device for data communication via the virtual network.

37-40. (canceled)

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41. (previously presented) The virtual network manager of claim 32 further comprising a join module configured to receive a join request from the agent associated with the device to indicate that the device is connected for data communication within the virtual network, the join module further configured to receive a leave request from the agent associated with the device to indicate that the device will be disconnected from data communication within the virtual network.

42. (previously presented) The virtual network manager of claim 41 wherein the join module is further configured to provide virtual network addresses to the devices that are registered in the virtual network.

43. (previously presented) The virtual network manager of claim 41 wherein the join module is further configured to maintain data to associate a virtual network address with a device in the virtual network.

44-52. (canceled)

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53. (previously presented) A virtual network system, comprising:

a computing device that includes at least a memory and a processor configured to implement a network manager of a virtual network that is defined by a public domain name, the network manager configured to distribute virtual network addresses to devices that register as members in the virtual network, each device in the virtual network being identified to the other devices by a virtual network address associated with the device;

a first virtual network agent associated with a first device that is registered as a member in the virtual network;

at least a second virtual network agent associated with at least a second device that is registered as a member in the virtual network;

a route director configured to route communications between the first device and the at least second device in the virtual network via the respective first and second virtual network agents, the communications configured for routing as encapsulated packets that include a first virtual network address that is not directly routable corresponding to the first device and a second virtual network address that is not directly routable corresponding to the at least second device; and

the network manager includes a DNS server configured to provide authoritative responses for DNS queries in the virtual network, the DNS server further configured to receive a DNS query from the first device and return a network address of the route director, a network address of the second device, and the virtual network address of the second device.

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54. (previously presented) The system of claim 53 wherein the route director is a public network route director that includes a public network interface and the network address is a public network address by which the first and second virtual network agents communicate with the public network route director.

55. (previously presented) The system of claim 53 wherein the route director is a private route director that includes a private physical network interface and the network address is a private physical network address.

56. (previously presented) The system of claim 53 wherein the first virtual network agent is installed on the first device for data communication via the virtual network.

57. (previously presented) The system of claim 56 wherein the first device is in a private physical network, has an associated private network address, and has the associated virtual network address that is not directly routable by which the first device can be identified by the at least second virtual network agent from outside of the private physical network.

58. (previously presented) The system of claim 56 wherein the first device is coupled to a public physical network, has an associated public network address, and has the associated virtual network address by which the first device can be identified by the at least second virtual network agent.

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59. (previously presented) The system of claim 53 wherein the first virtual network agent is a proxy agent for the first device with respect to the network manager and the route director.

60. (previously presented) The system of claim 53 wherein the first and second devices are configured to access the virtual network from separate private address physical realms.

61. (previously presented) The system of claim 53 wherein the network manager includes at least a first community definition and a second community definition, the first community definition being defined by the public domain name and includes one or more of the devices that are registered in the virtual network, and the second community definition being defined by a different public domain name and includes one or more different devices that are registered in the virtual network.

62. (previously presented) The system of claim 53 wherein the network manager includes a member authenticator configured to authenticate the devices that request to register with the network manager.

63. (canceled)

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64. (previously presented) A computer-implemented method, comprising:

receiving registration requests from devices that request to be registered as members of a virtual network that is defined by a domain name having an associated public network address in a public network, each of the devices having an associated private network address;

distributing a virtual network address to a device to register the device as a member in the virtual network, each device in the virtual network being identified to the other devices by the virtual network address that is associated with the device;

routing communications between the devices that are registered in the virtual network, the communications being routed as encapsulated packets from a source device to a destination device, an encapsulated packet including a first virtual network address that corresponds to the source device and a second virtual network address that corresponds to the destination device; and

transmitting a response to a DNS request received from one of the devices that are the members in the virtual network, the response to the DNS request including a public network address of a route director that registers the devices, a public network address of the destination device, and the second virtual network address that corresponds to the destination device.

65. (previously presented) The method of claim 64 further comprising providing the devices in the virtual network with a communication agent.

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66. (previously presented) The method of claim 65 wherein said providing the devices in the virtual network with a communication agent includes providing a proxy agent.

67. (canceled)

68. (previously presented) The method of claim 64 further comprising authenticating the devices as the members in the virtual network.

69. (previously presented) The method of claim 64 further comprising defining a member set of the virtual network that includes one or more of the devices, and assigning the domain name that defines the virtual network.

70. (previously presented) The method of claim 64 further comprising defining at least two member sets of the virtual network that each include one or more of the devices, the at least two member sets having at least one different device.

71. (previously presented) The method of claim 64 further comprising assigning the virtual network address to the device as an IPV4 compliant address.

72. (previously presented) The method of claim 71 wherein the IPV4 compliant address is non-routable.

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73. (previously presented) The method of claim 64 further comprising routing network traffic via the public network from a first device having a public network address to a second device having a different public network address, the network traffic being routed as data packets having a source address which is the virtual network address of the first device and a destination address which is the virtual network address of the second device, the data packets being encapsulated to include a second source address which is a public network address of the first device and a second destination address which is the different public network address of the second device.

74. (previously presented) The method of claim 64 further comprising routing network traffic from a first device in a private physical network having a private network address to a second device having a public network address, the network traffic being routed as data packets having a source address which is the virtual network address of the first device, a destination address which is the virtual network address of the second device, and a shim which includes the private network address, the data packets being encapsulated to include a second destination address which is the public network address of the second device.

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75. (previously presented) The method of claim 64 further comprising routing network traffic from a first device in a private physical network having a first private network address to a second device in a different private physical network having a second private network address, the network traffic being routed as encapsulated packets having a source address which is the virtual network address of the first device, a destination address which is the virtual network address of the second device, and a shim which includes the first and second private network addresses.

76. (previously presented) The method of claim 75 wherein the first private network address and the second private network address are identical.

77. (canceled)

78. (previously presented) The method of claim 64 further comprising:

receiving a join status request from a first device in the virtual network as a query to determine the status of a second device in the virtual network; and

responding to the join status request to indicate whether or not the second device is joined to the virtual network for data communication.

79. (previously presented) The method of claim 64 further comprising applying a group policy to the devices that are registered as the members of the virtual network.

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80. (currently amended) One or more processor readable storage media devices comprising processor readable code that, if executed by a computer device, implements a virtual network manager to:

receive registration requests from devices that request to be registered as members of a virtual network that is defined by a domain name having an associated public network address in a public network, each of the devices having an associated private network address;

distribute a virtual network address to a device to register the device as a member in the virtual network, each device in the virtual network being identified to the other devices by the virtual network address that is associated with the device;

manage communications routed between the devices that are registered in the virtual network, the communications routed as encapsulated packets from a source device to a destination device, an encapsulated packet including a first virtual network address that corresponds to the source device and a second virtual network address that corresponds to the destination device; and

transmit a response to a DNS request received from one of the devices that are the members in the virtual network, the response to the DNS request including a public network address of the virtual network manager, a public network address of the destination device, and the second virtual network address that corresponds to the destination device.

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81. (currently amended) One or more processor readable storage media devices as recited in claim 80 further comprising processor readable code that, if executed, implements the virtual network manager to provide the devices in the virtual network with a communication agent.

82. (currently amended) One or more processor readable storage media devices as recited in claim 81 wherein the virtual network manager provides the as a proxy agent.

83. (currently amended) One or more processor readable storage media devices as recited in claim 80 further comprising processor readable code that, if executed, implements the virtual network manager to define a member set of the virtual network that includes one or more of the devices, and the domain name that defines the virtual network.

84. (currently amended) One or more processor readable storage media devices as recited in claim 80 wherein the virtual network address includes a non-routable IPV4 compliant address.

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85. (currently amended) One or more processor readable storage media devices as recited in claim 80 further comprising processor readable code that, if executed, implements the virtual network manager to route network traffic via the public network from a first device having a public network address to a second device having a different public network address.

86. (currently amended) One or more processor readable storage media devices as recited in claim 80 further comprising processor readable code that, if executed, implements the virtual network manager to route network traffic from a first device in a private physical network having a private network address to a second device having a public network address.

87. (currently amended) One or more processor readable storage media devices as recited in claim 80 further comprising processor readable code that, if executed, implements the virtual network manager to route network traffic from a first device in a private physical network having a first private network address to a second device in a different private physical network having a second private network address.

88. (currently amended) One or more processor readable storage media devices as recited in claim 87 wherein the network traffic is routed to the first or second device via a NAT device.

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89. (currently amended) One or more processor readable storage media devices as recited in claim 87 wherein the first private network address and the second private network address are identical.

90. (currently amended) One or more processor readable storage media devices as recited in claim 85 wherein the network traffic is routed as encapsulated data packets.

91. (currently amended) One or more processor readable storage media devices as recited in claim 85 wherein the network traffic is routed as encrypted data traffic.

92. (currently amended) One or more processor readable storage media devices as recited in claim 80 further comprising processor readable code that, if executed, implements the virtual network manager to apply a group policy to the devices that are registered as the members of the virtual network.

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93. (previously presented) A virtual network system, comprising:

a computing device that includes at least a memory and a processor configured to implement a virtual network manager having a network interface coupled to a virtual network, the virtual network manager including at least one virtual community definition that is defined by a domain name having an associated public network address and a user set of one or more devices that are registered in the virtual network, each device in the virtual network being identified to the other devices by a virtual network address that is associated with the device, the virtual network manager configured to exchange virtual network information with the one or more devices of the user set, the virtual network being accessible by devices in the user set and devices outside of the user set, and the virtual network manager further configured to receive a DNS request from a source device, and return a public network address of a route director, a private network address for a destination device, and a virtual network address that corresponds to the destination device.

94. (original) The system of claim 93 wherein the virtual network manager includes a member register module.

95. (original) The system of claim 93 wherein the virtual network manager includes a member join module.

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96. (previously presented) The system of claim 95 wherein the member join module provides a virtual network address to a device that is registered as a member of the network.

97. (previously presented) The system of claim 93 wherein the virtual network manager is further configured to maintain data on an association between at least one virtual network address with at least one device that is registered as a member of the network.

98. (previously presented) The system of claim 93 wherein the virtual network manager includes a DNS server for the virtual community network.

99. (previously presented) The system of claim 93 wherein the virtual network manager includes a NAT device detector for devices connecting with the virtual network manager behind a NAT device.

100. (previously presented) The system of claim 93 wherein the virtual network manager includes at least a second virtual community definition.

101. (canceled)

102. (original) The system of claim 93 wherein the virtual network manager includes a member authenticator.

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103. (previously presented) The system of claim 93 wherein the virtual network manager includes a DNS server configured to provide authoritative responses for DNS queries from devices in the virtual community.

104. (previously presented) The system of claim 93 further comprising at least one route director configured to communicate with the one or more devices in the user set.

105. (previously presented) The system of claim 93 wherein each device registered in the network is configured to communicate with the virtual network manager and other devices in the user set via at least one agent.

106. (previously presented) The system of claim 93 wherein the user set includes at least a first device and a second device, and wherein at least one of said first device and said second device is coupled to a first private network and accesses a public network via a NAT device.

107. (original) The system of claim 106 wherein said first device is coupled to said first private network, and said second device is coupled to a second private network and accesses the public network via a second NAT device.

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108. (previously presented) The system of claim 93 wherein communications between the one or more devices in the user set are encrypted.

109. (previously presented) The system of claim 108 wherein the virtual network manager is configured to provide a shared message to the one or more devices in the user set to establish encrypted communications.

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REMARKS

Applicant respectfully requests allowance of the application. Claims 1-15, 17-24, 26-36, 41-43, 53-62, 64-66, 68-76, 78-100, and 102-109 are pending, of which claims 1, 32, and 80-92 have been amended to place the application in condition for allowance.

Allowable Subject Matter

Claims 53-62, 64-66, 68-76, 78, 79, 93-100, and 102-109 are allowed (*Office Action* p. 3). Applicant appreciates the allowability. These claims remain unchanged and are in condition for allowance.

Claims 1-15, 17-24, 26-36, 41-43, and 80-92 are indicated as being allowable over the references of record, but are subject to the §101 rejection below (*Office Action* p. 3). Amendments to the independent claims 1, 32, and 80 have been provided herein to overcome the §101 rejection, and the application is in condition for allowance.

Interview Summary

Applicant appreciates the Examiner calling to discuss an Examiner's Amendment on October 28, 2010, and the efforts to clarify pending issues to advance prosecution of the application. As noted in the pending Office Action, Applicant preferred to address the remaining §101 rejection in this written Response.

35 U.S.C. §101 Rejection

Claims 1-15, 17-24, 26-36, 41-43, and 80-92 are rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter (*Office Action* pp. 2, 3).

With reference to independent claim 1, the Office indicates that "a virtual network manager implemented as a first computing device and a route director implemented as a

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second computing device" can be accomplished with software, and is therefore non-statutory. Similarly, the Office indicates that the "virtual network manager" recited in independent claim 32 is software *per se*. Without conceding the propriety of the rejection, independent claims 1 and 32 have been amended to clarify that the recited virtual network manager and/or route director are implemented with a memory and a processor of a computing device. Accordingly, independent claims 1 and 32 recite statutory subject matter and Applicant requests that the §101 rejection be withdrawn. Claims 1 and 32, along with respective dependent claims 2-15, 17-24, 26-31, 33-36, and 41-43 are in condition for allowance.

With reference to claim 80, the Office indicates that "processor readable storage media" could be interpreted broadly as to cover transitory storage media in light of the specification, and is therefore non-statutory. Without conceding the propriety of the rejection, independent claim 80 has been amended to recite "processor readable storage media ***devices***" to clarify ***non***-transitory storage media. Additionally, Applicant submits for the record that the term "processor-readable storage media devices", as recited in claims 80-92, does not include "transitory" media. Accordingly, independent claim 80 recites statutory subject matter and Applicant requests that the §101 rejection be withdrawn. Claim 80 along with dependent claims 81-92 are in condition for allowance.

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Conclusion

Applicant submits that all objections and/or rejections of the pending claims 1-15, 17-24, 26-36, 41-43, 53-62, 64-66, 68-76, 78-100, and 102-109 have been addressed, and respectfully requests issuance of the application. If any issues remain that preclude issuance of the application, the Examiner is requested to contact the undersigned attorney before issuing a subsequent Action.

Respectfully Submitted,

Dated: December 02, 2010

By: / Dave Morasch 42905 /
David A. Morasch
SBMC, p.s.
Reg. No. 42,905
(509) 755-7250

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American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Hasan S Alkhatib et al.	Examiner:	Douglas B Blair
Serial No.:	10/403,818	Group Art Unit:	2442
Filed:	March 31, 2003	Docket:	INNF0017
Title:	Secure virtual community network system		

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

In compliance with the duty imposed by 37 C.F.R. § 1.56, and in accordance with 37 C.F.R. §§ 1.97 *et. seq*., the referenced materials are brought to the attention of the Examiner for consideration in connection with the above-identified patent application. Applicants respectfully request that this Supplemental Information Disclosure Statement be entered and the documents listed on the attached Form 1449 be considered by the Examiner and made of record. Pursuant to the provisions of MPEP 609, Applicants request that a copy of the 1449 form, initialed as being considered by the Examiner, be returned to the Applicants with the next official communication.

Pursuant to 37 C.F.R. §1.97(c)(2), Applicants have included the fee of $180.00 as set forth in 37 C.F.R. §1.17(p). Please charge any additional fees or credit any overpayment to Deposit Account No. 50-4143.

Pursuant to 37 C.F.R. 1.98(a)(2), Applicant believes that copies of cited U.S. Patents and Published Applications, and Non-Published Applications identifiable by USPTO Serial Number, are no longer required to be provided to the Office. Notification of this change to this effect was provided in the United States Patent and Trademark Office OG Notices dated October 12, 2004 and October 19, 2004. Thus, Applicant has not included copies of any US Patents or US Patent Applications identifiable by serial number that may be cited with this submission. Should the Office require copies to be provided, Applicant respectfully requests that notice of such requirement be directed to Applicant's below-signed representative. Applicant acknowledges the requirement to submit copies of foreign patent documents and non-patent literature in accordance with 37 C.F.R. 1.98(a)(2).

Respectfully submitted,

Hasan S Alkhatib et al.

By their Representatives,

Date December 2, 2010 By / Dave Morasch 42905 /
David A. Morasch
Reg. No. 42,905

PTO/SB/08a(04-07)
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Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Complete if Known	
Application Number	10/403,818
Filing Date	March 31, 2003
First Named Inventor	Alkhatib, Hasan
Art Unit	2442
Examiner Name	Blair, Douglas

Sheet	1	of	1	Attorney Docket No: INNF0017

US PATENT DOCUMENTS					
Examiner Initial *	**Cite No**	**Document Number**	**Publication Date**	**Name of Patentee or Applicant of Cited Document**	**Filing Date If Appropriate**

FOREIGN PATENT DOCUMENTS					
Examiner Initials*	**Cite No**	**Foreign Patent Document**	**Publication Date**	**Name of Patentee or Applicant of cited Document**	**T[2]**

OTHER DOCUMENTS -- NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	**Cite No [1]**	**Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.**	**T[2]**
		"Non Final Office Action", Application 10/403,829, (11/19/10),19 pages	

EXAMINER **DATE CONSIDERED**

Substitute Disclosure Statement Form (PTO-1449)
* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional) 2 Applicant is to place a check mark here if English language Translation is attached

Electronic Patent Application Fee Transmittal	
Application Number:	10403818
Filing Date:	31-Mar-2003
Title of Invention:	Secure virtual community network system
First Named Inventor/Applicant Name:	Hasan S. Alkhatib
Filer:	William Breen/Kenneth Linder
Attorney Docket Number:	INNF0017
Filed as Large Entity	

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	180	180
		Total in USD ($)		**180**

Electronic Acknowledgement Receipt	
EFS ID:	8957711
Application Number:	10403818
International Application Number:	
Confirmation Number:	2698
Title of Invention:	Secure virtual community network system
First Named Inventor/Applicant Name:	Hasan S. Alkhatib
Customer Number:	75671
Filer:	William Breen/Kenneth Linder
Filer Authorized By:	William Breen
Attorney Docket Number:	INNF0017
Receipt Date:	02-DEC-2010
Filing Date:	31-MAR-2003
Time Stamp:	18:44:17
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$180
RAM confirmation Number	5512
Deposit Account	504143
Authorized User	SADLER,LANCE R.
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		INNF0017NFOAResponse5.pdf	191255 b4dc933ca5ce8f495f6d26ecf4d60f63f4ab4d0e	yes	28

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Amendment/Req. Reconsideration-After Non-Final Reject	1	1
Claims	2	25
Applicant summary of interview with examiner	26	26
Applicant Arguments/Remarks Made in an Amendment	27	28

Warnings:

Information:

2		INNF0017IDS.pdf	161221 4e6e50214209f62acba8f6114e015ff1e9128af3	yes	3

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Transmittal Letter	1	2
Information Disclosure Statement (IDS) Filed (SB/08)	3	3

Warnings:

Information:

3	NPL Documents	10403829NonFinalOA111910.pdf	794526 0aebb4ac79315497ad67992d3c88022d7685170b	no	19

Warnings:

Information:

4	Fee Worksheet (PTO-875)	fee-info.pdf	30020 f4b7a584f8698fa5d1ed6688b63423bb08cf72ab	no	2

Warnings:

Information:

Total Files Size (in bytes):	1177022

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (07-06)
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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
10/403,818	03/31/2003	

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☐		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT 12/02/2010	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 90	Minus	** 104	= 0	X $ =		OR	X $52=	0
Independent (37 CFR 1.16(h))	* 6	Minus	***6	= 0	X $ =		OR	X $220=	0
☐ Application Size Fee (37 CFR 1.16(s))									
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	0

AMENDMENT	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))									
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/AMANDA FORD/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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NOTICE OF ALLOWANCE AND FEE(S) DUE

75671 7590 01/14/2011

Sadler, Breen, Morasch & Colby, ps
601 W. Main Ave.
Suite 1300
Spokane, WA 99201

EXAMINER	
BLAIR, DOUGLAS B	
ART UNIT	PAPER NUMBER
2442	

DATE MAILED: 01/14/2011

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/403,818	03/31/2003	Hasan S. Alkhatib	INNF0017	2698

TITLE OF INVENTION: SECURE VIRTUAL COMMUNITY NETWORK SYSTEM

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1510	$300	$0	$1810	04/14/2011

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

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American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

75671 7590 01/14/2011

Sadler, Breen, Morasch & Colby, ps
601 W. Main Ave.
Suite 1300
Spokane, WA 99201

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/403,818	03/31/2003	Hasan S. Alkhatib	INNF0017	2698

TITLE OF INVENTION: SECURE VIRTUAL COMMUNITY NETWORK SYSTEM

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1510	$300	$0	$1810	04/14/2011

EXAMINER	ART UNIT	CLASS-SUBCLASS
BLAIR, DOUGLAS B	2442	709-245000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

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3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:

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❑ A check is enclosed.

❑ Payment by credit card. Form PTO-2038 is attached.

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

❑ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

❑ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

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This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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AA/SWA Ex. 1002, p.761 of 833
American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/403,818	03/31/2003	Hasan S. Alkhatib	INNF0017	2698

75671 7590 01/14/2011

Sadler, Breen, Morasch & Colby, ps
601 W. Main Ave.
Suite 1300
Spokane, WA 99201

EXAMINER	
BLAIR, DOUGLAS B	
ART UNIT	PAPER NUMBER
2442	

DATE MAILED: 01/14/2011

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 248 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 248 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

PTOL-85 (Rev. 08/07) Approved for use through 08/31/2010.

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American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

Notice of Allowability	Application No. 10/403,818	Applicant(s) ALKHATIB ET AL.	
	Examiner DOUGLAS B. BLAIR	Art Unit 2442	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *the amendment filed on 12/2/2010*.

2. ☒ The allowed claim(s) is/are *1-15,17-24,26-36,41-43,53-62,64-66,68-76,78-100 and 102-109*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date See Continuation Sheet
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☒ Other *Explanation for Reconsideration of IDS's*.

/Douglas B Blair/
Primary Examiner, Art Unit 2442

AA/SWA Ex. 1002, p.763 of 833
American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

Continuation of Attachment(s) 3. Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date: 12/2/10, 12/5/07, 5/29/09.

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American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

Information Disclosure Statement

The information disclosure statements filed on 12/5/2007 and 5/29/2009 have been reconsidered because the applicant did not include dates for citation number 5 on the 12/5/2007 IDS and citation number 2 for the 5/29/2009 IDS. Non-patent literature references without dates cannot be considered.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DOUGLAS B. BLAIR whose telephone number is (571)272-3893. The examiner can normally be reached on 9:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glen Burgess can be reached on (571) 272-3949. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Douglas B Blair/
Primary Examiner, Art Unit 2442

Notice of References Cited	Application/Control No. 10/403,818	Applicant(s)/Patent Under Reexamination ALKHATIB ET AL.	
	Examiner DOUGLAS B. BLAIR	Art Unit 2442	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-7,853,714	12-2010	Moberg et al.	709/238
*	B	US-7,844,718	11-2010	Polcha et al.	709/229
*	C	US-7,827,304	11-2010	Park et al.	709/238
	D	US-			
	E	US-			
	F	US-			
	G	US-			
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	I	US-			
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*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
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*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

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PTO/SB/08a(04-07)
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Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Complete if Known	
Application Number	10/403,818
Filing Date	March 31, 2003
First Named Inventor	Alkhatib, Hasan
Art Unit	2142
Examiner Name	Blair, Douglas

Sheet	1	of	1	Attorney Docket No: INNF0017

US PATENT DOCUMENTS

Examiner Initial *	Cite No	Document Number	Publication Date	Name of Patentee or Applicant of Cited Document	Filing Date If Appropriate
/DB/		US-20020026525	02/28/2002	Armitage, Grenville J.	04/03/2001

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No	Foreign Patent Document	Publication Date	Name of Patentee or Applicant of cited Document	T[2]

OTHER DOCUMENTS -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No [1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
/DB/		TANENBAUM, ANDREW S., "Computer Networks", Third Edition,(1996),1-37	
		"Excerpts from Help Section of Microsoft Outlook", pertaining to rules and forwarding email,1-3	
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/DB/		PERKINS, CHARLES E., "Mobile IP", IEEE Communications Magazine, Sun Microsystems,(May 1997),84-99	
/DB/		TERAOKA, FUMIO et al., "VIP: A Protocol Providing Host Mobility", Communications of the ACM, Volume 37, No. 8,(August 1994),67-75, 113	
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EXAMINER /Douglas Blair/ **DATE CONSIDERED** 01/07/2011

Substitute Disclosure Statement Form (PTO-1449)
* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional) [2] Applicant is to place a check mark here if English language Translation is attached

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**		
	Application Number	10403818
	Filing Date	2003-03-31
	First Named Inventor	Alkhatib
	Art Unit	2142
	Examiner Name	Blair, Douglas B.
	Attorney Docket Number	TTCC-1021US0

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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/DB/	2	6058431		2000-05-02	Srisuresh	
/DB/	3	6128664		2000-10-13	Yanagidate	
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	First Named Inventor	Alkhatib
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	Examiner Name	Blair, Douglas B.
	Attorney Docket Number	TTCC-1021US0

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	First Named Inventor	Alkhatib
	Art Unit	2142
	Examiner Name	Blair, Douglas B.
	Attorney Docket Number	TTCC-1021US0

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American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	10403818
	Filing Date	2003-03-31
	First Named Inventor	Alkhatib
	Art Unit	2142
	Examiner Name	Blair, Douglas B.
	Attorney Docket Number	TTCC-1021US0

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American Airlines, et. al. v. Intellectual Ventures, et.al.
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	First Named Inventor	Alkhatib
	Art Unit	2142
	Examiner Name	Blair, Douglas B.
	Attorney Docket Number	TTCC-1021US0

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/DB/	50	6304906		2001-10-16	Bhatti	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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/DB/	1	KESSLER, Gary C., "Mobile IP: Harbiner of Untethered Computing," http://www.garykessler,net/librarymobileip.htm, 1/20/2004	☐
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/DB/	4	Computer Dictionary; Microsoft Press; 3rd Edition; 1997; p. 264.	☐
	5	Excerpts from the Help section of Microsoft Outlook pertaining to rules and forwarding email. Microsoft Corporation.	☐

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	10403818
	Filing Date	2003-03-31
	First Named Inventor	Alkhatib
	Art Unit	2142
	Examiner Name	Blair, Douglas B.
	Attorney Docket Number	TTCC-1021US0

/DB/	6	K. EGEVANG and P. FRANCIS, RFC 1631, The IP Network Address Translator (NAT), May 1994.	☐

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Examiner Signature	/Douglas Blair/	Date Considered	01/07/2011

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American Airlines, et. al. v. Intellectual Ventures, et.al.
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CONFIRMATION NO. 2698

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
10/403,818	03/31/2003 RULE	709	2442	INNF0017

APPLICANTS

Hasan S. Alkhatib, Saratoga, CA;
Fouad A. Tobagi, Los Altos, CA;
Farid F. Elwailly, San Jose, CA;

**** CONTINUING DATA ***************************

**** FOREIGN APPLICATIONS ***************************

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Foreign Priority claimed	35 USC 119(a-d) conditions met	Verified and Acknowledged	Met after Allowance	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
❑ Yes ☑ No	❑ Yes ☑ No	/DOUGLAS B BLAIR/ Examiner's Signature	❑ Initials	CA	21	109	6

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Spokane, WA 99201
UNITED STATES

TITLE

Secure virtual community network system

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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	326	(virtual near2 network) and (virtual near2 address$3) with regist$6	US-PGPUB; USPAT	OR	OFF	2010/12/21 21:00
L2	146	L1 and (encapsulat$3 or tunnel$3)	US-PGPUB; USPAT	OR	OFF	2010/12/21 21:00
L3	90	L2 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/12/21 21:00
L4	37	(virtual near2 network) and (assign$3 near4 (virtual near2 address$3)) with regist$6	US-PGPUB; USPAT	OR	OFF	2010/12/21 21:00
L5	21	L4 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/12/21 21:00
L6	14	regist$6 with (p2p or "peer-to-peer" or "peer to peer") same (assign$5 near2 address$3)	US-PGPUB; USPAT	OR	OFF	2010/12/21 21:00
L7	14	L6 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/12/21 21:00
L8	248	regist$6 with (server$1 or manag$5) same (assign$5 near2 address$3) same domain$1	US-PGPUB; USPAT	OR	OFF	2010/12/21 21:00
L9	23563	(broadcast$3 or multicast$3) with ((new or join$3))	US-PGPUB; USPAT	OR	OFF	2010/12/21 21:00
L10	19	L8 and L9	US-PGPUB; USPAT	OR	OFF	2010/12/21 21:00
L11	13	L10 and (virtual or vpn)	US-PGPUB; USPAT	OR	OFF	2010/12/21 21:00
L12	236	((virtual near2 network) or vpn) with (domain$1 near2 (router$1 or manag$5 or server$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/12/21 21:00
L13	111	L12 and ((assign$5 or regist $6) with address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/12/21 21:00

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L14	54	L13 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/12/21 21:00
L15	18	(L3 L5 L7 L11 L14) and @pd>"20090128"	US-PGPUB; USPAT	OR	OFF	2010/12/21 21:00
L16	15	L15 and @pd>"20090819"	US-PGPUB; USPAT	OR	OFF	2010/12/21 21:00
L17	3	(L15 L16) and @pd>"20101101"	US-PGPUB; USPAT	OR	OFF	2010/12/21 21:00
L18	30	(((virtual near2 network) or vpn) with (domain$1 near2 (router$1 or manag$5 or server$1))).clm.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/12/21 21:21
L19	1	(regist$6 with (p2p or "peer-to-peer" or "peer to peer") same (assign$5 near2 address $3)).clm.	US-PGPUB; USPAT	OR	OFF	2010/12/21 21:24
S1	33	"virtual community" near2 network$2	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:48
S2	19	S1 and @ad<"20030331"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/14 10:09
S3	5	S2 and ((private or public) with address)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/13 20:00
S4	45	((virtual near (community or network)) and (private near address$3) and (public near address$3) and (IP near address$2))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/13 20:04
S5	27	S4 and @ad<"20030331"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/13 20:04
S6	53	("6226751").URPN.	USPAT	OR	OFF	2006/09/13 20:30
S7	1	"20040249911".pn.	US-PGPUB; USPAT	OR	OFF	2006/09/14 09:59

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S8	139	("domain name" or DNS) with (VPN)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/14 10:08
S9	74	S8 and @ad<"20030331"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/14 10:09
S10	22	S9 and (NAT with (public or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:59
S11	1801	709/245.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2006/09/14 11:02
S12	454	"virtual community"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:49
S13	353	router same (public with address$3) same (private with address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:50
S14	353	S13 same S13	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:50
S15	0	S12 same S13	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:50
S16	3	S12 and S13	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:50
S17	0	S16 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:51
S18	387	router same (public with address$3) and router same (private with address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:50

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S19	260	S18 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:52
S20	0	S19 and S12	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:51
S21	306	rout$3 with (public near address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:51
S22	0	S12 same S21	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:52
S23	3	S12 and S21	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:52
S24	0	S23 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:55
S25	1	S12 same public near address $3	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:53
S26	0	S12 same (rout$3 with internet)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:53
S27	1	S12 same private near address $3	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:54
S28	15	(community or group) same S13	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:54
S29	7	S28 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 12:59

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S30	85	((group or community) with (member$4 or belong$3)) and (NAT with (public or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:00
S31	49	S30 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:01
S32	55	((group or community) with (member$4 or belong$3)) and ((group$1 or community) same rout$3) and (NAT with (public or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:25
S33	34	S32 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:27
S34	272055	((group or community) with (member$4 or belong$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:25
S35	6111	S34 same server	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:25
S36	124	S35 and ((rout$3 near2 (messag$3 or communication $1)) same (firewall or NAT or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:26
S37	68	S36 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:27
S38	35	S37 and "domain name"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2007/05/24 13:27
S39	1	"20020152297".pn.	US-PGPUB; USPAT	OR	OFF	2007/05/25 18:47
S40	706	"virtual community"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57

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S41	533	router same (public with address$3) same (private with address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S42	3	S40 and S41	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S43	0	S42 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S44	582	router same (public with address$3) and router same (private with address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S45	321	S44 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S46	411	rout$3 with (public near address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S47	3	S40 and S46	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S48	0	S47 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S49	25	(community or group) same S41	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S50	12	S49 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S51	136	((group or community) with (member$4 or belong$3)) and (NAT with (public or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57

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S52	64	S51 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S53	77	((group or community) with (member$4 or belong$3)) and ((group$1 or community) same rout$3) and (NAT with (public or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S54	42	S53 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S55	318137	((group or community) with (member$4 or belong$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S56	8828	S55 same server	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S57	168	S56 and ((rout$3 near2 (messag$3 or communication $1)) same (firewall or NAT or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S58	89	S57 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 13:57
S59	91	(S43 S45 S48 S50 S52 S54 S58) and @pd>"20070524"	US-PGPUB; USPAT	OR	OFF	2009/01/07 13:57
S60	1	"20040249911".pn.	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:00
S61	1008	(Vpn or "virtual private network") and (assign$5 near address$3) and domain$1	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:01
S62	25	(Vpn or "virtual private network") same (assign$5 near address$3) same domain $1	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:02
S63	8	S62 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 14:02

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S64	196	("20020078198" | "20020133534" | "20030041091" | "20030041136" | "20030084162" | "20030212795" | "20040006708" | "20040111612" | "20040148439" | "5361256" | "5563878" | "5623605" | "5701427" | "5717687" | "5734651" | "5751961" | "5764906" | "5777989" | "5781550" | "5790548" | "5793763" | "5805818" | "5805820" | "5815664" | "5856974" | "5867667" | "5884246" | "5889953" | "5913210" | "5937162" | "5937163" | "6226751" | "6594704" | "6701437" | "6832322" | "6970941" | "6003084" | "6006272" | "6032196" | "6047325" | "6055575" | "6061738" | "6119171" | "6353614" | "6353886" | "6381638" | "6430622" | "6430623" | "6438597" | "6438612" | "6452925" | "6457061" | "6480508" | "6490289" | "6496867" | "6507873" | "6523068" | "6556584" | "6557037" | "6557306" | "6591306" | "6618757" | "6629137" | "6631416" | "6651101" | "6657991" | "6662223" | "6697377" | "6742045" | "6747979" | "6754706" | "6772210" | "6778528" | "6779035" | "6781982" | "6948003" | "6973485" | "6981020" | "6982953" | "6983319" | "6993012" | "6993595" | "6996628" | "6996631" | "7010702" | "7092390" | "7107464" | "7107614" | "7133368" | "7227864" | "7003481" | "7032242" | "7139828").PN.	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 14:04
S65	3296	(Vpn or "virtual private network") with rout$3	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:05
S66	559	(Vpn or "virtual private network") with regist$6	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:05
S67	268	S65 and S66	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:06

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S68	267	S66 same address$3	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:06
S69	106	S66 same S65	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:06
S70	60	S68 same S65	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:06
S71	24	S70 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 14:07
S72	16	(Vpn or "virtual private network") with (public near3 domain$1)	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:29
S73	7	S72 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 14:29
S74	394	(Vpn or "virtual private network") and community with (public near$3 domain $1)	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:35
S75	392	(Vpn or "virtual private network") and community with (public near$2 domain $1)	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:35
S76	210	S75 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 14:35
S77	5	S76 and S67	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 14:36
S78	2	(Vpn or "virtual private network") and community with (public adj domain$1)	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:37
S79	232	(Vpn or "virtual private network") and community with (domain$1)	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:38
S80	18	(Vpn or "virtual private network") and community with (domain$1 near name $1)	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:38
S81	9	S80 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 14:39

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S82	25	(Vpn or "virtual private network") and domain$1 and S64	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:41
S83	106	(Vpn or "virtual private network") with communit$3	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:50
S84	4	S83 same domain	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:50
S85	1	S84 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 14:50
S86	19	S83 and domain adj name$1	US-PGPUB; USPAT	OR	OFF	2009/01/07 14:52
S87	14	S86 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/07 14:53
S88	1442	(virtual near2 network) and (virtual near2 address$3) and regist$6	US-PGPUB; USPAT	OR	OFF	2009/01/28 10:36
S89	226	(virtual near2 network) and (virtual near2 address$3) with regist$6	US-PGPUB; USPAT	OR	OFF	2009/01/28 10:36
S90	115	S89 and (encapsulat$3 or tunnel$3)	US-PGPUB; USPAT	OR	OFF	2009/01/28 10:38
S91	81	S90 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/28 10:40
S92	0	S91 and subdomain$1	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/28 10:41
S93	19	S91 and (virtual near2 domain $1)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/28 10:41
S94	33	(virtual near2 network) and (assign$3 near4 (virtual near2 address$3)) with regist$6	US-PGPUB; USPAT	OR	OFF	2009/01/28 10:55
S95	21	S94 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/28 10:55
S96	11	regist$6 with (p2p or "peer-to-peer" or "peer to peer") same (assign$5 near2 address$3)	US-PGPUB; USPAT	OR	OFF	2009/01/28 11:06

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S97	11	S96 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/28 11:07
S98	200	regist$6 with (server$1 or manag$5) same (assign$5 near2 address$3) same domain$1	US-PGPUB; USPAT	OR	OFF	2009/01/28 11:09
S99	17536	(broadcast$3 or multicast$3) with ((new or join$3))	US-PGPUB; USPAT	OR	OFF	2009/01/28 11:10
S100	2	S98 same S99	US-PGPUB; USPAT	OR	OFF	2009/01/28 11:10
S101	19	S98 and S99	US-PGPUB; USPAT	OR	OFF	2009/01/28 11:12
S102	13	S101 and (virtual or vpn)	US-PGPUB; USPAT	OR	OFF	2009/01/28 11:12
S103	13	S102 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/28 11:12
S104	156	((virtual near2 network) or vpn) with (domain$1 near2 (router$1 or manag$5 or server$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/28 11:18
S105	78	S104 and ((assign$5 or regist $6) with address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/28 11:19
S106	48	S105 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/01/28 11:19
S107	277	("20030005334" | "20030126467" | "20030196122" | "20040073812" | "20040088586" | "20040088706" | "20040098624" | "20040103321" | "20040103322" | "20050021595" | "20050022030" | "20050149747" | "20050229248" | "20050235346" | "20050235347" | "20050235348" | "20050235359" | "20060005236" |	US-PGPUB; USPAT; USOCR	OR	OFF	2009/01/28 11:34

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		"20060021020" |				
		"20060053486" |				
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		"5509010" | "5511166" |				

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		"5513178" | "5519707" |					
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		"5546379" | "5548645" |					
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		"6141689" | "6157624" | "6195357" | "6208656" | "6321333" | "6324525" | "6360256" | "6363363" | "6366893" | "6453419" | "6484143" | "6654892" | "6658568" | "6687833" | "6728748" | "6751738" | "6754831" | "6792337" | "6795917" | "6804783" | "6931452" | "6947981" | "6954790" | "6973034" | "7028049" | "7028336" | "7116707" | "7249376" | "7249378" | "7269847").PN. OR ("7424737").URPN.				
S108	0	("7424737").URPN.	USPAT	OR	OFF	2009/01/28 11:34
S109	0	("7424737").URPN.	USPAT	OR	OFF	2009/01/28 11:34
S110	80	("7424737" "6751738" "6804783" "6052788" "5893830").URPN.	USPAT	OR	OFF	2009/01/28 11:36
S111	1	"20020026525".pn.	US-PGPUB; USPAT	OR	OFF	2009/01/28 12:23
S112	915	private near rout$3	US-PGPUB; USPAT	OR	OFF	2009/01/28 15:53
S113	97	S112 with (encapsulat$4 or tunnel$3)	US-PGPUB; USPAT	OR	OFF	2009/01/28 15:53
S114	43	S113 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT	OR	OFF	2009/01/28 15:54
S115	11	S114 and ((domain$1 near name$1) or dns)	US-PGPUB; USPAT	OR	OFF	2009/01/28 15:55
S116	12	("20020055917" | "20020188689" | "20040059598" | "20040060056" | "5418628" | "5602843" | "5924074" | "6052442" | "6305007" | "6810429" | "7117246" | "7224698").PN. OR ("7474667").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2009/01/28 16:15
S117	34	("20020046292" | "20020055917" | "20020069261" | "20020136223" | "20020188689" | "20030212657" | "20030217333" | "20040059598" | "20040060056" | "20040100974" | "20040100975" | "20050111467" | "20060248208" | "5418628" |	US-PGPUB; USPAT; USOCR	OR	OFF	2009/01/28 16:16

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		"5924074" | "6002689" | "6016307" | "6026091" | "6052442" | "6098138" | "6104718" | "6129449" | "6178170" | "6181703" | "6226686" | "6305007" | "6385198" | "6434403" | "6456594" | "6466236" | "6810429" | "6973479" | "7114171" | "7117246").PN. OR ("7379464").URPN.				
S118	30	("20020010758" | "20020055917" | "20020136223" | "20020188689" | "20040059598" | "20040060056" | "20040100974" | "20040100975" | "5418628" | "5924074" | "6002689" | "6016307" | "6026091" | "6052442" | "6098138" | "6104718" | "6129449" | "6178170" | "6181703" | "6226686" | "6305007" | "6385198" | "6434403" | "6456594" | "6466236" | "6810429" | "6973479" | "7114170" | "7114171" | "7117246").PN. OR ("7263102").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2009/01/28 16:18
S119	29	("20020055917" | "20020136223" | "20020188689" | "20040059598" | "20040060056" | "20040100974" | "20040100975" | "5418628" | "5924074" | "6002689" | "6016307" | "6026091" | "6052442" | "6098138" | "6104718" | "6129449" | "6178170" | "6181703" | "6226686" | "6305007" | "6385198" | "6434403" | "6456594" | "6466236" | "6810429" | "6973479" | "7114171" | "7117246").PN. OR ("7224698").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2009/01/28 16:19

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S120	93	("20020078198" | "20020133534" | "20030041091" | "20030041136" | "20030084162" | "20030212795" | "20040006708" | "20040111612" | "20040148439" | "5361256" | "5563878" | "5623605" | "5701427" | "5717687" | "5734651" | "5751961" | "5764906" | "5777989" | "5781550" | "5790548" | "5793763" | "5805818" | "5805820" | "5815664" | "5856974" | "5867667" | "5884246" | "5889953" | "5913210" | "5937162" | "5937163" | "6226751" | "6594704" | "6701437" | "6832322" | "6970941" | "6003084" | "6006272" | "6032196" | "6047325" | "6055575" | "6061738" | "6119171" | "6353614" | "6353886" | "6381638" | "6430622" | "6430623" | "6438597" | "6438612" | "6452925" | "6457061" | "6480508" | "6490289" | "6496867" | "6507873" | "6523068" | "6556584" | "6557037" | "6557306" | "6591306" | "6618757" | "6629137" | "6631416" | "6651101" | "6657991" | "6662223" | "6697377" | "6742045" | "6747979" | "6754706" | "6772210" | "6778528" | "6779035" | "6781982" | "6948003" | "6973485" | "6981020" | "6982953" | "6983319" | "6993012" | "6993595" | "6996628" | "6996631" | "7010702" | "7092390" | "7107464" | "7107614" | "7133368" | "7227864" | "7003481" | "7032242" | "7139828").PN.	US-PGPUB; USPAT	OR	OFF	2009/01/29 16:27
S121	1	"20040249911".pn.	US-PGPUB; USPAT	OR	OFF	2009/01/29 17:22
S122	790	"virtual community"	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46

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S123	610	router same (public with address$3) same (private with address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S124	3	S122 and S123	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S125	0	S124 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S126	662	router same (public with address$3) and router same (private with address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S127	341	S126 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S128	467	rout$3 with (public near address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S129	3	S122 and S128	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S130	0	S129 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S131	31	(community or group) same S123	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S132	15	S131 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S133	155	((group or community) with (member$4 or belong$3)) and (NAT with (public or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46

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S134	67	S133 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S135	91	((group or community) with (member$4 or belong$3)) and ((group$1 or community) same rout$3) and (NAT with (public or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S136	45	S135 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S137	337874	((group or community) with (member$4 or belong$3))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S138	9951	S137 same server	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S139	182	S138 and ((rout$3 near2 (messag$3 or communication $1)) same (firewall or NAT or private))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S140	95	S139 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S141	28	(Vpn or "virtual private network") same (assign$5 near address$3) same domain $1	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:46
S142	8	S141 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S143	3751	(Vpn or "virtual private network") with rout$3	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:46
S144	630	(Vpn or "virtual private network") with regist$6	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:46
S145	292	S143 and S144	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:46
S146	299	S144 same address$3	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:46

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S147	64	S146 same S143	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:46
S148	26	S147 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S149	18	(Vpn or "virtual private network") with (public near3 domain$1)	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:46
S150	8	S149 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S151	430	(Vpn or "virtual private network") and community with (public near$2 domain $1)	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:46
S152	218	S151 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S153	5	S152 and S145	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S154	18	(Vpn or "virtual private network") and community with (domain$1 near name $1)	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:46
S155	9	S154 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S156	122	(Vpn or "virtual private network") with communit$3	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:46
S157	4	S156 same domain	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:46
S158	1	S157 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S159	23	S156 and domain adj name$1	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:46

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S160	18	S159 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:46
S161	120	(S125 S127 S130 S132 S134 S136 S140) and @pd>"20070524"	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:47
S162	36	(S161 S142 S148 S150 S153 S155 S158 S160) and @pd>"20090107"	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:47
S163	241	(virtual near2 network) and (virtual near2 address$3) with regist$6	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:57
S164	121	S163 and (encapsulat$3 or tunnel$3)	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:57
S165	81	S164 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:57
S166	33	(virtual near2 network) and (assign$3 near4 (virtual near2 address$3)) with regist$6	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:57
S167	21	S166 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:57
S168	11	regist$6 with (p2p or "peer-to-peer" or "peer to peer") same (assign$5 near2 address$3)	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:57
S169	11	S168 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:57
S170	215	regist$6 with (server$1 or manag$5) same (assign$5 near2 address$3) same domain$1	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:57
S171	19164	(broadcast$3 or multicast$3) with ((new or join$3))	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:57
S172	19	S170 and S171	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:57
S173	13	S172 and (virtual or vpn)	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:57
S174	182	((virtual near2 network) or vpn) with (domain$1 near2 (router$1 or manag$5 or server$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:57

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S175	89	S174 and ((assign$5 or regist $6) with address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:57
S176	51	S175 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/08/19 19:57
S177	3	(S165 S167 S169 S173 S176) and @pd>"20090128"	US-PGPUB; USPAT	OR	OFF	2009/08/19 19:57
S178	1	("20020026525").PN.	US-PGPUB; USPAT	OR	OFF	2009/08/19 20:12
S180	1	"6430623".pn.	US-PGPUB; USPAT	OR	OFF	2009/08/19 20:29
S181	1	"7133404".pn.	US-PGPUB; USPAT	OR	OFF	2009/08/19 20:33
S182	1	"6772227".pn.	US-PGPUB; USPAT	OR	OFF	2009/08/19 20:34
S183	1	"6119171".pn.	US-PGPUB; USPAT	OR	OFF	2009/08/19 20:39
S184	1	"7152205".pn.	US-PGPUB; USPAT	OR	OFF	2009/08/20 13:50
S185	1	"20040249911".pn.	US-PGPUB; USPAT	OR	OFF	2010/01/07 11:19
S186	37	DNS with (virtual$1 near (domain or name$1))	US-PGPUB; USPAT	OR	OFF	2010/01/07 11:23
S187	25	S186 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT	OR	OFF	2010/01/07 11:24
S188	6	("20060190607" "20060195539" "20040088542" "20020103931" "20080232295" "20070286189").pn.	US-PGPUB; USPAT	OR	OFF	2010/01/29 10:27
S189	7	("20060190607" "20060195539" "20040088542" "20020103931" "20080232295" "20070286189" "20020026525").pn.	US-PGPUB; USPAT	OR	OFF	2010/01/29 10:49
S190	4	S189 and encapsulat$3	US-PGPUB; USPAT	OR	OFF	2010/01/29 10:50
S191	638	regist$7 with (virtual near2 network$1)	US-PGPUB; USPAT	OR	OFF	2010/01/29 11:04
S192	135	encapsulat$3 with (virtual near2 address$3)	US-PGPUB; USPAT	OR	OFF	2010/01/29 11:05
S193	1	S191 with S192	US-PGPUB; USPAT	OR	OFF	2010/01/29 11:05

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S194	2	S191 same S192	US-PGPUB; USPAT	OR	OFF	2010/01/29 11:07
S195	194	(virtual near2 network$1) with domain near name$1	US-PGPUB; USPAT	OR	OFF	2010/01/29 11:08
S196	0	S191 same S192 same S195	US-PGPUB; USPAT	OR	OFF	2010/01/29 11:08
S197	20	S191 and S192 and S195	US-PGPUB; USPAT	OR	OFF	2010/01/29 11:08
S198	17	S197 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT	OR	OFF	2010/01/29 11:12
S199	1	"7490151".pn.	US-PGPUB; USPAT	OR	OFF	2010/08/27 09:51
S200	1	"20040249911".pn.	US-PGPUB; USPAT	OR	OFF	2010/10/27 11:33
S201	40	DNS with (virtual$1 near (domain or name$1))	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:35
S202	26	S201 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:35
S203	749	regist$7 with (virtual near2 network$1)	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:35
S204	161	encapsulat$3 with (virtual near2 address$3)	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:35
S205	3	S203 same S204	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:35
S206	222	(virtual near2 network$1) with domain near name$1	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:35
S207	0	S203 same S204 same S206	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:35
S208	20	S203 and S204 and S206	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:35
S209	17	S208 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:35
S210	2	(S202 S205 S207 S209) and @pd>"20100107"	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:35
S211	318	(virtual near2 network) and (virtual near2 address$3) with regist$6	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:36
S212	143	S211 and (encapsulat$3 or tunnel$3)	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:36
S213	89	S212 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/11/01 09:36
S214	37	(virtual near2 network) and (assign$3 near4 (virtual near2 address$3)) with regist$6	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:36

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American Airlines, et. al. v. Intellectual Ventures, et.al.
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S215	21	S214 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/11/01 09:36
S216	14	regist$6 with (p2p or "peer-to-peer" or "peer to peer") same (assign$5 near2 address$3)	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:36
S217	14	S216 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/11/01 09:36
S218	242	regist$6 with (server$1 or manag$5) same (assign$5 near2 address$3) same domain$1	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:36
S219	23125	(broadcast$3 or multicast$3) with ((new or join$3))	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:36
S220	19	S218 and S219	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:36
S221	13	S220 and (virtual or vpn)	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:36
S222	231	((virtual near2 network) or vpn) with (domain$1 near2 (router$1 or manag$5 or server$1))	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/11/01 09:36
S223	107	S222 and ((assign$5 or regist $6) with address$3)	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/11/01 09:36
S224	52	S223 and (@ad<"20030331" @rlad<"20030331")	US-PGPUB; USPAT; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/11/01 09:36
S225	15	(S213 S215 S217 S221 S224) and @pd>"20090128"	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:36
S226	12	S225 and @pd>"20090819"	US-PGPUB; USPAT	OR	OFF	2010/11/01 09:36

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L20	0	(regist$6 with (p2p or "peer-to-peer" or "peer to peer") same (assign$5 near2 address $3)).clm.	US-PGPUB	OR	OFF	2010/12/21 21:25

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L21	18	(((virtual near2 network) or vpn) with (domain$1 near2 (router$1 or manag$5 or server$1))).clm.	US-PGPUB	OR	OFF	2010/12/21 21:28
L22	15	(regist$6 with (server$1 or manag$5) same (assign$5 near2 address$3) same domain$1).clm.	USPAT; UPAD	OR	OFF	2010/12/21 21:29
L23	3	(((virtual near (community or network)) and (private near address$3) and (public near address$3) and (IP near address$2))).clm.	US-PGPUB	OR	OFF	2010/12/21 21:30

12/21/10 9:34:02 PM
C:\Documents and Settings\dblair\My Documents\EAST\workspaces\10403818.wsp

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American Airlines, et. al. v. Intellectual Ventures, et.al.
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PTO/SB/08a(04-07)
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Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

	Complete if Known
Application Number	10/403,818
Filing Date	March 31, 2003
First Named Inventor	Alkhatib, Hasan
Art Unit	2442
Examiner Name	Blair, Douglas

Sheet	1	of	1	Attorney Docket No: INNF0017

US PATENT DOCUMENTS					
Examiner Initial *	**Cite No**	**Document Number**	**Publication Date**	**Name of Patentee or Applicant of Cited Document**	**Filing Date If Appropriate**

FOREIGN PATENT DOCUMENTS					
Examiner Initials*	**Cite No**	**Foreign Patent Document**	**Publication Date**	**Name of Patentee or Applicant of cited Document**	**T[2]**

OTHER DOCUMENTS -- NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	**Cite No [1]**	**Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.**	**T[2]**
/DB/		"Non Final Office Action", Application 10/403,829, (11/19/10),19 pages	

EXAMINER /Douglas Blair/ **DATE CONSIDERED** 12/21/2010

Substitute Disclosure Statement Form (PTO-1449)
* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. 1 Applicant's unique citation designation number (optional) 2 Applicant is to place a check mark here if English language Translation is attached

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10403818	ALKHATIB ET AL.
	Examiner	**Art Unit**
	DOUGLAS B BLAIR	2442

ORIGINAL		INTERNATIONAL CLASSIFICATION	
CLASS	SUBCLASS	CLAIMED	NON-CLAIMED
709	245	G 0 6 F 15 / 16 (2006.0)	

CROSS REFERENCE(S)					
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
726	15				

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
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2	2	18	18	33	34		50	50	66	64	82	80	98		
6	3	19	19	32	35		51		67	65	83	81	99		
3	4	20	20	34	36		52	51	68	66	84	82	100		
4	5	21	21		37	38	53	52	69	67	85		101		
7	6	22	22		38	39	54	53	70	68	86	83	102		
8	7	23	23		39	40	55	54	71	69	87	84	103		
9	8	24	24		40	41	56	55	72	70	88	85	104		
10	9		25	35	41	42	57	56	73	71	89	86	105		
11	10	25	26	36	42	43	58	57	74	72	90	87	106		
12	11	26	27	37	43	44	59	58	75	73	91	88	107		
13	12	27	28		44	45	60	59	76	74	92	89	108		
14	13	5	29		45	46	61		77	75	93	90	109		
15	14	28	30		46	47	62	60	78	76	94				
16	15	29	31		47		63	61	79	77	95				
	16	30	32		48	48	64	62	80	78	96				

NONE (Assistant Examiner)	(Date)	**Total Claims Allowed:** 90	
/DOUGLAS B BLAIR/ Primary Examiner.Art Unit 2442 (Primary Examiner)	12/21/2010 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 4

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American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10403818	ALKHATIB ET AL.
	Examiner	**Art Unit**
	DOUGLAS B BLAIR	2442

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	01/29/2009	08/27/2010	10/27/2010	12/21/2010					
1	1	✓	=	✓	=					
2	2	✓	=	✓	=					
6	3	✓	=	✓	=					
3	4	✓	=	✓	=					
4	5	✓	=	✓	=					
7	6	✓	=	✓	=					
8	7	✓	=	✓	=					
9	8	✓	=	✓	=					
10	9	✓	=	✓	=					
11	10	✓	=	✓	=					
12	11	✓	=	✓	=					
13	12	✓	=	✓	=					
14	13	✓	=	✓	=					
15	14	✓	=	✓	=					
16	15	✓	=	✓	=					
	16	✓	-	-	-					
17	17	✓	=	✓	=					
18	18	✓	=	✓	=					
19	19	✓	=	✓	=					
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22	22	✓	=	✓	=					
23	23	✓	=	✓	=					
24	24	✓	=	✓	=					
	25	-	-	-	-					
25	26	✓	=	✓	=					
26	27	✓	=	✓	=					
27	28	✓	=	✓	=					
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28	30	✓	=	✓	=					
29	31	✓	=	✓	=					
30	32	✓	✓	✓	=					
31	33	✓	✓	✓	=					
33	34	✓	✓	✓	=					
32	35	✓	✓	✓	=					
34	36	✓	✓	✓	=					

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American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10403818	ALKHATIB ET AL.
	Examiner	**Art Unit**
	DOUGLAS B BLAIR	2442

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	01/29/2009	08/27/2010	10/27/2010	12/21/2010					
	37	-	-	-	-					
	38	-	-	-	-					
	39	-	-	-	-					
	40	-	-	-	-					
35	41	✓	✓	✓	=					
36	42	✓	✓	✓	=					
37	43	✓	✓	✓	=					
	44	✓	-	-	-					
	45	-	-	-	-					
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	47	-	-	-	-					
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55	72	✓	✓	=	=					

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IPR2025-00786

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10403818	ALKHATIB ET AL.
	Examiner	**Art Unit**
	DOUGLAS B BLAIR	2442

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	01/29/2009	08/27/2010	10/27/2010	12/21/2010					
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57	74	✓	✓	=	=					
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86	105	✓	=	=	=					
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88	107	✓	=	=	=					
89	108	✓	=	=	=					

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American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10403818	ALKHATIB ET AL.
	Examiner	**Art Unit**
	DOUGLAS B BLAIR	2442

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	01/29/2009	08/27/2010	10/27/2010	12/21/2010					
90	109	✓	=	=	=					

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American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	10403818	ALKHATIB ET AL.
	Examiner	**Art Unit**
	DOUGLAS B BLAIR	2442

SEARCHED

Class	Subclass	Date	Examiner
	update	1/28/2009	DBB
	update	8/19/2009	DBB
	update	8/27/2010	DBB
	update	11/1/2010	DBB
709	245	12/21/2010	DBB
726	15	12/21/2010	DBB

SEARCH NOTES

Search Notes	Date	Examiner
update	1/28/2009	DBB
inventor name search	1/28/2009	DBB
update	8/19/2009	DBB
update	8/27/2010	DBB
update	11/1/2010	DBB
update	12/21/2010	DBB

INTERFERENCE SEARCH

Class	Subclass	Date	Examiner
	see attached history	12/21/2010	DBB

PTO/SB/80 (11-08)
Approved for use through 11/30/2011. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(b).

I hereby appoint:

☑ Practitioners associated with the Customer Number: 23446

OR

☐ Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used).

Name	Registration Number	Name	Registration Number

as attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(b).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(b) to:

☑ The address associated with Customer Number: 23446

OR

☐ Firm or Individual Name			
Address			
City		State	Zip
Country			
Telephone		Email	

Assignee Name and Address:

Inpro Network Facility, LLC
2711 Centerville Road, Suite 400
Wilmington, Delaware 19808

A copy of this form, together with a statement under 37 CFR 3.73(b) (Form PTO/SB/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(b) may be completed by one of the practitioners appointed in this form if the appointed practitioner is authorized to act on behalf of the assignee, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature	Dana Morris	Date	1/14/11
Name	Dana Morris	Telephone	
Title	Authorized Person for Inpro Network Facility, LLC		

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

DECLARATION REGARDING AUTHORITY TO SIGN ON BEHALF OF A LEGAL ENTITY
(37 C.F.R. 3.73(b)(2)(i))

I, Dana Morris (whose title is supplied below), hereby declare that I am authorized to sign on behalf of Inpro Network Facility, LLC.

Dana Morris
Authorized Person for Inpro Network Facility, LLC

1/14/11
[date]

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The information provided by you in this form will be subject to the following routine uses:

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
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5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

INPF097

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STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: Inpro Network Facility, LLC

Application No./Patent No.: 10/403,818 Filed/Issue Date: March 31, 2003

Entitled: Secure virtual community network system

Inpro Network Facility, LLC, a LLC
(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that it is:

1. ☑ the assignee of the entire right, title, and interest; or

2. ☐ an assignee of less than the entire right, title and interest
(The extent (by percentage) of its ownership interest is _____%)

in the patent application/patent identified above by virtue of either:

A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

OR

B. ☑ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Hasan S. Alkhatib To: IP Dynamics, Inc.
The document was recorded in the United States Patent and Trademark Office at
Reel 014340, Frame 0968, or for which a copy thereof is attached.

2. From: IP Dynamics, Inc. To: Inpro Network Facility, LLC
The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

3. From: _____ To: _____
The document was recorded in the United States Patent and Trademark Office at
Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet.

☑ As required by 37 CFR 3.73(b)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (*i.e.*, a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (~~whose title is supplied~~ below) is authorized to act on behalf of the assignee.

/DAM/	Jan. 22, 2008
Signature	Date
David A. Morasch	509-755-7262
Printed or Typed Name	Telephone Number
Attorney of Record, Reg. No. 42905	
Title	

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: **Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Electronic Acknowledgement Receipt	
EFS ID:	9410695
Application Number:	10403818
International Application Number:	
Confirmation Number:	2698
Title of Invention:	SECURE VIRTUAL COMMUNITY NETWORK SYSTEM
First Named Inventor/Applicant Name:	Hasan S. Alkhatib
Customer Number:	75671
Filer:	Peter J. McAndrews/Silvia DiSera
Filer Authorized By:	Peter J. McAndrews
Attorney Docket Number:	INNF0017
Receipt Date:	09-FEB-2011
Filing Date:	31-MAR-2003
Time Stamp:	16:33:27
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	IP_Dynamics_BK_POA_sb80_Declaration_Executed.pdf	1510800 d0fbbf26b20ca598efe61a02c334553049f40147	no	3
Warnings:					
Information:					

2	Assignee showing of ownership per 37 CFR 3.73(b).	23590US01_0817USAP142562_373b.pdf	61671 36d440e8904d5bcf98d64d6c75f81e75346bc678	no	1

Warnings:	
Information:	
Total Files Size (in bytes):	1572471

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	10403818
	Filing Date	2003-03-31
	First Named Inventor	Alkhatib
	Art Unit	2142
	Examiner Name	Blair, Douglas B.
	Attorney Docket Number	TTCC-1021US0

/DB/	42	6119171		2000-09-12	Alkhatib	
/DB/	43	6122276		2000-09-19	Boe	
/DB/	44	6137791		2000-10-24	Frid	
/DB/	45	6154839		2000-11-28	Arrow	
/DB/	46	6219715		2001-04-17	Ohno	
/DB/	47	6243749		2001-06-05	Sitaraman	
/DB/	48	6249801		2001-06-19	Zisapel	
/DB/	49	6266707		2001-07-24	~~6266707~~ Boden et al.	
/DB/	50	6304906		2001-10-16	Bhatti	

2-10-11 ES

If you wish to add additional U.S. Patent citation information please click the Add button. Add

U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

Bib Data Sheet

CONFIRMATION NO. 2698

SERIAL NUMBER	FILING OR 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
10/403,818	03/31/2003 RULE	709	2442	INNF0017

APPLICANTS

Hasan S. Alkhatib, Saratoga, CA;
Fouad A. Tobagi, Los Altos, CA;
Farid F. Elwailly, San Jose, CA;

**** CONTINUING DATA ***************************

**** FOREIGN APPLICATIONS *********************

IF REQUIRED, FOREIGN FILING LICENSE GRANTED
** 06/27/2003

Foreign Priority claimed	STATE OR COUNTRY	SHEETS DRAWING	TOTAL CLAIMS	INDEPENDENT CLAIMS
☐ yes ☐ no	CA	21	109	6
35 USC 119 (a-d) conditions met ☐ yes ☐ no ☐ Met after Allowance				
Verified and Acknowledged Examiner's Signature Initials				

ADDRESS
23446

TITLE

SECURE VIRTUAL COMMUNITY NETWORK SYSTEM

FILING FEE RECEIVED	FEES: Authority has been given in Paper
1367	No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:

☐ All Fees
☐ 1.16 Fees (Filing)
☐ 1.17 Fees (Processing Ext. of time)
☐ 1.18 Fees (Issue)
☐ Other _____
☐ Credit

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/403,818	03/31/2003	Hasan S. Alkhatib	INNF0017

CONFIRMATION NO. 2698

POA ACCEPTANCE LETTER

23446
MCANDREWS HELD & MALLOY, LTD
500 WEST MADISON STREET
SUITE 3400
CHICAGO, IL 60661

OC000000045948139

Date Mailed: 03/16/2011

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 02/09/2011.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/tcouch/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

AA/SWA Ex. 1002, p.816 of 833
American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/403,818	03/31/2003	Hasan S. Alkhatib	INNF0017

CONFIRMATION NO. 2698

POWER OF ATTORNEY NOTICE

75671
Sadler, Breen, Morasch & Colby, ps
601 W. Main Ave.
Suite 1300
Spokane, WA 99201

OC000000045948088

Date Mailed: 03/16/2011

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 02/09/2011.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

/tcouch/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

75671 7590 01/14/2011

McAndrews, Held, and Malloy, Ltd.
500 W. Madison St., 34th Floor
Chicago, IL 60661

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being electronically filed with the USPTO on the date indicated below.

Andrew B. Karp	(Depositor's name)
/Andrew B. Karp/	(Signature)
April 12, 2011	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/403,818	03/31/2003	Hasan S. Alkhatib	23590US01	2698

TITLE OF INVENTION: SECURE VIRTUAL COMMUNITY NETWORK SYSTEM

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	$1510	$300	$0	$1810	04/14/2011

EXAMINER	ART UNIT	CLASS-SUBCLASS
BLAIR, DOUGLAS B	2442	709-245000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
1 McAndrews, Held & Malloy, Ltd.
2
3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: Inpro Network Facility, LLC

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Wilmington, DE

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:
☒ Issue Fee
☒ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
☐ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number 13-0017 (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.
☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature /Andrew B. Karp/ Date April 12, 2011

Typed or printed name Andrew B. Karp Registration No. 61,586

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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AA/SWA Ex. 1002, p.818 of 833
American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

Electronic Patent Application Fee Transmittal

Application Number:	10403818
Filing Date:	31-Mar-2003
Title of Invention:	SECURE VIRTUAL COMMUNITY NETWORK SYSTEM
First Named Inventor/Applicant Name:	Hasan S. Alkhatib
Filer:	Andrew Bernard Karp/Winona Jackson
Attorney Docket Number:	23590US01

Filed as Large Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl issue fee	1501	1	1510	1510
Publ. Fee- early, voluntary, or normal	1504	1	300	300

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**1810**

Electronic Acknowledgement Receipt	
EFS ID:	9864943
Application Number:	10403818
International Application Number:	
Confirmation Number:	2698
Title of Invention:	SECURE VIRTUAL COMMUNITY NETWORK SYSTEM
First Named Inventor/Applicant Name:	Hasan S. Alkhatib
Customer Number:	23446
Filer:	Andrew Bernard Karp/Winona Jackson
Filer Authorized By:	Andrew Bernard Karp
Attorney Docket Number:	23590US01
Receipt Date:	12-APR-2011
Filing Date:	31-MAR-2003
Time Stamp:	17:30:26
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$1810
RAM confirmation Number	4669
Deposit Account	130017
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	23590US01_0817USAP142562_Issue_Fee_Payment.pdf	218508 507f764ab341ba123b4927c3c19539832d9747f4	no	1
Warnings:					
Information:					
2	Fee Worksheet (PTO-875)	fee-info.pdf	32179 cb4d77ac71b1d86651b673fc879c6f99c1d81f3a	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	250687		

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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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United States Patent and Trademark Office
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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/403,818	05/24/2011	7949785	23590US01	2698

23446 7590 05/04/2011

MCANDREWS HELD & MALLOY, LTD
500 WEST MADISON STREET
SUITE 3400
CHICAGO, IL 60661

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 685 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Hasan S. Alkhatib, Saratoga, CA;
Fouad A. Tobagi, Los Altos, CA;
Farid F. Elwailly, San Jose, CA;

PTO/SB/44 (09-07)
Approved for use through 08/31/2010. OMB 0651-0033
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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(Also Form PTO-1050)

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 7,949,785 B2
APPLICATION NO.: 10/403,818
ISSUE DATE : May 24, 2011
INVENTOR(S) : Alkhatib et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Page 3, item (56), under “Other Publications”, in Column 1, Line 11, delete “Nelowrks.” and insert - - Networks. - -.

Page 3, item (56), under “Other Publications”, in Column 2, Line 22, delete “Infrastucture” and insert - - Infrastructure - -.

Column 40, line 15, in Claim 64, delete “the” and insert - - the communication agent - -.

MAILING ADDRESS OF SENDER (Please do not use customer number below):

_____
_____
_____
_____
_____

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal	
Application Number:	10403818
Filing Date:	31-Mar-2003
Title of Invention:	SECURE VIRTUAL COMMUNITY NETWORK SYSTEM
First Named Inventor/Applicant Name:	Hasan S. Alkhatib
Filer:	Blayne Donnis Green/Kevin Wyllie
Attorney Docket Number:	23590US01
Filed as Large Entity	

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Certificate of correction	1811	1	100	100
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
		Total in USD ($)		**100**

Electronic Acknowledgement Receipt	
EFS ID:	11091143
Application Number:	10403818
International Application Number:	
Confirmation Number:	2698
Title of Invention:	SECURE VIRTUAL COMMUNITY NETWORK SYSTEM
First Named Inventor/Applicant Name:	Hasan S. Alkhatib
Customer Number:	23446
Filer:	Blayne Donnis Green/Kevin Wyllie
Filer Authorized By:	Blayne Donnis Green
Attorney Docket Number:	23590US01
Receipt Date:	30-SEP-2011
Filing Date:	31-MAR-2003
Time Stamp:	16:58:16
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$100
RAM confirmation Number	6836
Deposit Account	
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)

1	Request for Certificate of Correction	CoC_7949785.pdf	81021 d5cd1faacc8012126018d0ec375bc746b1c02129	no	2
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30221 d4e8b178136cc15a2596484822e68e0a364286c1	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	111242	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 7,949,785 B2
APPLICATION NO. : 10/403818
DATED : May 24, 2011
INVENTOR(S) : Alkhatib et al.

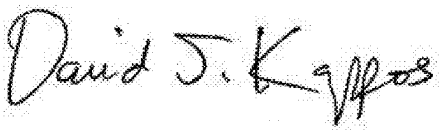
It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Title Page 3, item (56), under "Other Publications", in Column 1, Line 11, delete "Nelowrks." and insert -- Networks. --.

Title Page 3, item (56), under "Other Publications", in Column 2, Line 22, delete "Infrastucture" and insert -- Infrastructure --.

Column 40, line 15, in Claim 64, delete "the" and insert -- the communication agent --.

Signed and Sealed this
First Day of November, 2011



David J. Kappos
Director of the United States Patent and Trademark Office

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BIB DATA SHEET

CONFIRMATION NO. 2698

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
10/403,818	03/31/2003 RULE	709	2442	23590US01

APPLICANTS

INVENTORS

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Fouad A. Tobagi, Los Altos, CA;
Farid F. Elwailly, San Jose, CA;

**** CONTINUING DATA ***************************

**** FOREIGN APPLICATIONS ***************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ****
06/27/2003

Foreign Priority claimed	Met after Allowance	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
☐ Yes ☑ No	☐	CA	21	109	6
35 USC 119(a-d) conditions met ☐ Yes ☑ No					
Verified and Acknowledged /DOUGLAS B BLAIR/ Examiner's Signature	Initials				

ADDRESS

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30 SOUTH 17TH STREET, 18TH FLOOR
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UNITED STATES

TITLE

SECURE VIRTUAL COMMUNITY NETWORK SYSTEM

FILING FEE RECEIVED		
0.00	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

BIB (Rev. 05/07).

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/403,818	03/31/2003	Hasan S. Alkhatib	23590US01

CONFIRMATION NO. 2698

3624
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POA ACCEPTANCE LETTER

DC00000007602174 6

Date Mailed: 08/02/2024

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 08/01/2024.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/rbell/

AA/SWA Ex. 1002, p.832 of 833
American Airlines, et. al. v. Intellectual Ventures, et.al.
IPR2025-00786

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/403,818	03/31/2003	Hasan S. Alkhatib	23590US01

CONFIRMATION NO. 2698

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POWER OF ATTORNEY NOTICE

Date Mailed: 08/02/2024

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 08/01/2024.

- The Power of Attorney to you in this application has been revoked by the applicant. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/rbell/