18351 U.S. PTO 081006

PTO/SB/05 (09-04)
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UTILITY PATENT APPLICATION TRANSMITTAL

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

Attorney Docket No.	EV417728607US
First Inventor	Vipul Pabari
Title	Virtual Systems Management
Express Mail Label No.	EV417728607US

113260 U.S. PTO 1/503090 081006

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

ADDRESS TO: **Commissioner for Patents, P.O. Box 1450, Alexandria VA 22313-1450**

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* 48] Both the claims and abstract must start on a new page *(For information on the preferred arrangement, see MPEP 608.01(a))*
4. ☑ **Drawing(s)** (*35 U.S.C. 113*) [*Total Sheets* 18]
5. **Oath or Declaration** [*Total Sheets* _____]
   a. ☐ Newly executed (original or copy)
   b. ☐ A 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) name in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
6. ☐ **Application Data Sheet.** See 37 CFR 1.76
7. ☐ **CD-ROM or CD-R** in duplicate, large table or Computer Program *(Appendix)* ☐ Landscape Table on CD
8. **Nucleotide and/or Amino Acid Sequence Submission** *(if applicable, items a. – c. are required)*
   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))
   Name of Assignee _____
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** (PTO/SB/08 or PTO-1449) ☐ Copies of citations attached
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. ☐ **Nonpublication Request** under 35 U.S.C. 122(b)(2)(B)(i). Applicant must attach form PTO/SB/35 or equivalent.
17. ☐ Other: _____

18. If a CONTINUING APPLICATION, *check appropriate box, and supply the requisite information below and in the first sentence of the specification following the title, or in an Application Data Sheet under 37 CFR 1.76:*

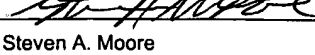
☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No.: .....

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

19. CORRESPONDENCE ADDRESS

☑ The address associated with Customer Number: 33123 ***OR*** ☐ Correspondence address below

Name					
Address					
City		State		Zip Code	
Country		Telephone		Fax	

Signature		Date	August 10, 2006
Name (Print/Type)	Steven A. Moore	Registration No. (Attorney/Agent)	55,462

This collection of information is required by 37 CFR 1.53(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.**

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MICROSOFT 1054
Microsoft v. ToutVirtual
IPR2026-00296

PTO/SB/17 (12-04)
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Effective on 12/08/2004.
Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

FEE TRANSMITTAL
For FY 2005

☑ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT	($) 825.00

Complete if Known	
Application Number	Not yet assigned
Filing Date	Herewith
First Named Inventor	Vipul Pabari
Examiner Name	Not yet assigned
Art Unit	Not yet assigned
Attorney Docket No.	41965-0003

METHOD OF PAYMENT (check all that apply)

☑ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____

☑ Deposit Account Deposit Account Number: 50-1213 Deposit Account Name: Heller Ehrman LLP

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**

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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	300	150	500	250	200	100	500.00
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee ($)	Small Entity Fee ($)
Each claim over 20 or, for Reissues, each claim over 20 and more than in the original patent	50	25
Each independent claim over 3 or, for Reissues, each independent claim more than in the original patent	200	100
Multiple dependent claims	360	180

Total Claims	Extra Claims	Fee ($)	Fee Paid ($)
29 - 20 or HP =	9	x 25	= 225.00

HP = highest number of total claims paid for, if greater than 20

Indep. Claims	Extra Claims	Fee ($)	Fee Paid ($)
4 - 3 or HP =	1	x 100	= 100.00

HP = highest number of independent claims paid for, if greater than 3

Multiple Dependent Claims	Fee ($)	Fee Paid ($)

3. APPLICATION SIZE FEE

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).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee ($)	Fee Paid ($)
67 - 100 =	0	/ 50 = 0 (round **up** to a whole number)	x 125	= 0

4. OTHER FEE(S)

	Fees Paid ($)
Non-English Specification, $130 fee (no small entity discount)	
Other: _____	

SUBMITTED BY

Signature	[signature]	Registration No. (Attorney/Agent) 55,462	Telephone 858.450.8400
Name (Print/Type)	Steven A. Moore		Date August 10, 2006

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.**

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Docket No. 41965-0003

Express Mail No. EV417728607US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

NON-PROVISIONAL PATENT APPLICATION:

VIRTUAL SYSTEMS MANAGEMENT

Inventor: Vipul Pabari

VIRTUAL SYSTEMS MANAGEMENT

Related Applications

This application claims priority to co-pending U.S. Provisional Patent Application No. 60/708,473, filed on August 15, 2005, the contents of which are incorporated herein by reference.

BACKGROUND OF THE INVENTION

1. Field of the Invention.

The present invention relates generally to computer network systems and, more particularly, to management of computer network virtualization environments.

2. Description of the Related Art.

Information Technology (IT) management tasks can be characterized into two general areas, managing present day operations and forecasting capacity for future operations. Ensuring the well being of the current IT environment while using current trends to predict needs and trends for the future business needs is a fine balance and a highly refined skill. Management needs all the help and tools it can find to assist it in these tasks. Today, all major IT management platforms support the International Telecommunications Union (ITU) standard for Element Management Systems (EMS), wherein general functionality can be split into five key areas: Fault, Configuration, Accounting, Performance, and Security (FCAPS).

This conventional methodology has created an element-driven management system, with a focus on ensuring that each of the individual elements are running to their full potential. As the number of elements grew, the need for aggregated and correlated information increased. As the number of data-center locations grew, the need for global visibility and control increased. Conventionally, IT capacity planning for day-to-day operations is typically carried out with a bottom-up data aggregation

and with the use of forecasting methods such as trending, simulation, and custom analytics.

Capacity planning for resources is also typically completed when new business applications are rolled out or during an application upgrade cycle. In this capacity planning scenario, the planning is typically carried out at the individual device level, which is then multiplied by the number of consumers and/or producers and further multiplied by the number of locations that need to be supported, giving a large number in the aggregate: (number of individual devices) x (number of consumers/producers) x (number of locations requiring support).

In order to estimate what resource capacity an enterprise will need to support the core business applications it provides, an enterprise will typically evaluate the worst case usage scenario, and bolster its capacity to ensure that a worst case scenario will be adequately supported. What is often overlooked is that this type of worst-case capacity planning typically is driven by the vendors who have built ROI calculators that are to their benefit.

By planning and bulking up resources to combat this evasive worst case scenario, enterprises typically end up with under-utilized IT resources. Applying the Pareto Principle, an estimate of how much under-utilized capacity can exist in a single enterprise would be as follows: only 20% of the available capacity ends up being used during 80% of the time during a given timeframe.

Many improvements have been made in the enterprise scenario for management of IT resources. At the macro-level, IT resources can be classified into 4 categories: (1) client resources (client resource examples include desktop machines, wireless, handheld devices, client grids (such as SETI@home and the like); (2) server resources (server resource examples include mainframe, File Server, Web server, peer-to-peer servers, blade servers, grid servers etc.); (3) network resources (network resource example include routers, switches, bridges, infiniband, wireless, radio, optical, fiber channel, link aggregation technologies (such as BitTorrent and the like); (4) storage resources (storage resource example include

databases, network attached storage, storage area networks, data grids etc.). While one can describe a capacity planning scenario for each of the categories above, they all follow a very similar capacity planning process.

In the following example, we will describe a typical server resource capacity planning scenario. Servers in the enterprise have evolved with new application architecture. Application topologies have evolved from Mainframe-Green Screen interaction, to Client/Server, to Client/Web Server/Application Server/Database, Peer-to-Peer, and so forth. Server resource capacity planning is typically achieved by stress-testing the application with a certain predetermined workload and a set, acceptable application response time. A hardware specification is defined to support a user-defined worst-case scenario. The application is rolled out on the new hardware into a production environment.

Server resource and application utilization is monitored by a FCAPS-compliant management platform to provide complete visibility over operations. In order to provide an aggregated summary view, such management platforms typically roll-up element-level metrics into higher level metrics through data correlation techniques.

Conventionally, with the emergence of resource virtualization and the increase in use of Web services, combined with service-oriented architectures (SOAs), the number of moving pieces that need to be managed for the enterprise continues to rise. For example, imagine an enterprise running composite applications. That enterprise would include using a mixture of legacy, local, and external Web services, running on virtual infrastructure spread globally across the enterprise, and frustrated end users can't complete their mission critical business tasks. It is difficult to achieve sufficient visibility and control to manage such an environment, and knowing where to begin to manage such an environment can be difficult.

Traditional methods of resource planning at the individual physical resource level begin to show their age. For example, correlation and aggregation of element

level data also becomes compute-intensive with the increase in the number of managed elements. It has been said that "The information technology industry is in a strange situation. We have enormously sophisticated engines that we're running--in the form of CPUs and communications equipment and so forth, but the way we keep them running is through an outdated vision." Doug Busch, Intel Vice President and CIO-Technology quoted in Intel Magazine, September/October 2004 (available at the URL of: www.intel.com/update/contents/it09041.htm as of June 2005). Management of virtual assets can be achieved conventionally with virtualization software tools, but such techniques are typically labor intensive and require manual selection and implementation of configurations and utilize relatively cumbersome configuration change management.

In network systems, with virtualization, it is possible to deploy physical resources in the form of virtual assets. The assets can thereby provide the functional equivalent of desktops (user interfaces), operating systems, applications, servers, data bases, and the like. Adding additional applications can be implemented by remotely executed software operations in virtual environments on one or more computers, rather than physical installations involving personnel with an installation CD media at each physical location (computer) of a network where the additional applications are desired.

The management of such virtual assets, however, is becoming increasingly complex and unwieldy. Many tools to assist in the management of virtualization environments are proprietary and work only with virtual environments from particular vendors. Similarly, some virtualization tools might only work with specific central processor units (CPUs) of machines that host the virtual environment, or might only work with specific operating systems or virtualization platforms of either the host machine or in the virtual environment. This characteristic can make it necessary to have multiple tools on hand for the various platforms and vendors that might be deployed throughout a network, as well as making it necessary to acquire and maintain the skill sets necessary to use such tools. The mere fact of requiring such

diverse tools is, itself, inefficient. Thus, although virtualization trends show much promise for more efficient utilization of physical resources by optimal deployment of virtual assets, the virtualization environment management task is daunting.

It would be advantageous if more efficient means for managing virtual environments across computer networks were available. The present invention satisfies this need.

SUMMARY

The present invention provides methods and apparatus for management of one or more virtual environments regardless of any underlying central processing unit (CPU) specification and regardless of any underlying operating system (OS) or virtualization environment. In one embodiment of the present invention the virtualization environment is managed through a Control Center application that provides an interface to virtualization environments in communication with the Control Center computer. The system, through the Control Center, provides active management of the virtualization environment by initiating automatic responses to operational situations that influence dynamic demands on the physical resources and virtual assets. In this way, multiple virtual environments can be managed through a single user interface of a Control Center application even where the underlying CPU of the system physical resources are different from that of the Control Center, even where the operating systems of the Control Center, physical resources, and virtual assets are different, and even where the virtualization environments being managed are different from each other.

In one embodiment, the Control Center can comprise a collection of functional elements characterized as an Asset Manager, a Provisioning Manager, a Dynamic Application Router, an Optimizer, a Performance Manager, and a Capacity Planning Manager. With these functional elements, the process of managing the virtual environment comprises a sequence of building an inventory of available physical resources and virtual assets, provisioning the assets for a desired network

virtual configuration, optimizing the mix of physical resources and virtual assets, reporting on the system performance, and planning for future trends and forecasting for needed capacity.

In another embodiment, management of computer network virtualization environments is provided by performing one or more functions from among the set of functions including (1) identification and management of network resources and virtual assets, (2) provisioning of virtual assets in response to network workflow demands, (3) dynamic deployment of virtual assets across the computer network, (4) performance measurement and reporting of resources and virtual assets, and (5) planning and forecasting of resource demands and asset utilization of the virtualization environment, such that the functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment. In this way, an inventory of resources and assets available at a network virtualization environment is determined, prioritization is assigned to an inventory of available resources and assets, and the inventory is utilized by allocating the virtual assets in the virtualization environment. The allocated virtualization environment is automatically managed by determining real time performance metrics for the environment, and producing a reallocation of the inventory based on the real time performance metrics. In this way, automatic and efficient virtualization management of a computer network is provided.

Other features and advantages of the present invention should be apparent from the following description of the preferred embodiment, which illustrates, by way of example, the principles of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

Various embodiments of the present invention taught herein are illustrated by way of example, and not by way of limitation, in the FIG. s of the accompanying drawings, in which:

FIG. 1 is a schematic diagram that illustrates a virtualization system embodiment constructed in accordance with the invention;

FIG. 2 is a schematic diagram that illustrates the Control Center components for the Control Center computers illustrated in FIG. 1;

FIG. 3 is a schematic diagram that illustrates the configuration of a virtualization platform network computer shown in FIG. 1;

FIG. 4 is a schematic diagram that shows the construction of the Control Agent in the computer of FIG. 3;

FIG. 5 is a flow diagram that illustrates the operation of the Control Center and Control Agent;

FIG. 6 is a representation of the virtualization configuration with which the present invention can be deployed;

FIG. 7 is a screen shot of a display produced by the user interface of the Control Center computers of FIG. 1;

FIG. 8 is a screen shot of the Physical View display page of the user interface, accessed from the Control Center computers of FIG. 1;

FIG. 9 is a screen shot illustration of a Control Center display that shows a topology view of the virtual environment under management;

FIG. 10 is an expanded view screen shot of the topology view shown in FIG. 9;

FIG. 11 is a block diagram representation of a server virtualization configuration management that can be implemented from a computer such as illustrated in FIG. 1;

FIG. 12 is a block diagram representation of a storage virtualization configuration management that can be implemented from a computer such as illustrated in FIG. 1;

FIG. 13 is a block diagram representation of a network router virtualization configuration management that can be implemented from a computer such as illustrated in FIG. 1;

FIG. 14 is a block diagram representation of a desktop computer virtualization configuration management that can be implemented from a computer such as illustrated in FIG. 1;

FIG. 15 is a screen shot of the Physical View display page of the user interface for a storage virtualization, accessed from the Control Center computers of FIG. 1;

FIG. 16 is a flow diagram that illustrates operation of the computer such as illustrated in FIG. 1;

FIG. 17 is a flow diagram that illustrates operation of Knowledge Block processing so the computer such as illustrated in FIG. 1 can operate; and

FIG. 18 is a flow diagram that illustrates operation of the Control Center interface for the computers illustrated in FIG. 1.

In the drawings, like reference numerals refer to like structures. It will be recognized that some or all of the Figures are schematic representations for purposes of illustration and do not necessarily depict the actual relative sizes or locations of the elements shown. The Figures are provided for the purpose of illustrating one or more embodiments of the invention with the explicit understanding that they will not be used to limit the scope or the meaning of the claims.

DETAILED DESCRIPTION

In the following paragraphs, the present invention will be described in detail by way of example with reference to the attached drawings. While this invention is capable of embodiment in many different forms, there is shown in the drawings and

will herein be described in detail specific embodiments, with the understanding that the present disclosure is to be considered as an example of the principles of the invention and not intended to limit the invention to the specific embodiments shown and described. That is, throughout this description, the embodiments and examples shown should be considered as exemplars, rather than as limitations on the present invention. Descriptions of well known components, methods and/or processing techniques are omitted so as to not unnecessarily obscure the invention. As used herein, the "present invention" refers to any one of the embodiments of the invention described herein, and any equivalents. Furthermore, reference to various feature(s) of the "present invention" throughout this document does not mean that all claimed embodiments or methods must include the referenced feature(s).

FIG. 1 is an illustration of a network implementation of a virtualization environment 100 constructed in accordance with the invention for virtualization system management such that resource utilization is highly leveraged. Users at network computers 102, 104, 106 can communicate over a network 108 to gain access to system resources that are available through Control Center computers such as Control Center A 110 and Control Center B 112. Each of the Control Center computers 110, 112 executes application software and thereby manages one or more virtual environments regardless of any underlying central processing unit (CPU) and regardless of any underlying operating system (OS) or virtualization platform software. For example, a Control Center computer can manage resources and virtual assets that are powered by CPUs from Intel Corporation of Santa Clara, California USA or from Motorola, Inc. of Schaumberg, Illinois USA, or other vendors. The physical resources and virtual assets can be managed from the Control Center computers whether the underlying OS of the computers, resources, and assets is a Windows-based OS from Microsoft Corporation of Redmond, Washington USA or a Macintosh OS from Apple Computer Inc. of Cupertino, California USA or others, and whether the virtualization environment is a platform by VMWare, Inc. of Palo Alto, California USA or International Business Machines Corporation of Armonk, New

York USA or others. Operating parameters of the virtualization system management can be specified and changed at the Control Center computers 110, 112 through a user interface that is provided by the application software described herein executing at the respective Control Center computers 110, 112. The Control Center computers are represented in FIG. 1 as physical devices rather than virtual assets. Deployment of the Control Center on physical devices is typical, because otherwise a Control Center that is deployed on a virtual asset would leave the users with being dependent on their virtualization platform for configuration management and the like, in addition to the usual machine dependencies.

In this description, physical devices such as computers, printers, routers, and other "boxes" will be referred to as resources, whereas virtual devices that exist only as software instantiations of equipment objects in a virtual environment will be referred to as virtual assets. The resource-asset dichotomy will be maintained throughout this discussion.

The present invention provides automated management of network-based virtual environments through Control Center software that supports on-demand operation of one or more functions including (1) identification and management of enterprise resources and virtual assets, (2) provisioning of virtual assets in response to network workflow demands, (3) dynamic deployment (routing) of virtual assets across the network, (4) performance measurement and reporting of virtual assets and resources, and (5) planning and forecasting of resource demands and asset utilization. Such operations are carried out without regard to the mix of otherwise proprietary processors, operating systems, virtualization platforms, application software, and protocols. These features and functions are provided in a modular fashion so that desired functions can be included in the system, and functions not desired can be excluded from the system. In any implementation in accordance with the present invention, the virtualization management system is transparent to the virtual environment being managed, in that the system can support multiple

virtual environments with different protocols and operating specifications. Thus, the disclosed system is platform-independent.

FIG. 1 shows that the users 102, 104, 106 can communicate with the Control Centers 110, 112 through a network 108, which can comprise a local area network, a wide area network, or through an extended network such as the Internet, or any other network for communication among multiple computers. FIG. 1 also indicates that the users can be connected directly to a Control Center computer, if desired, such as for the user 106 indicated as User 3.

Each Control Center computer 110, 112 that is equipped with the virtualization management application described herein will have management of one or more physical assets within a domain or other subnet arrangement associated with the respective Control Center. FIG. 1 shows that Control Center A 110 manages multiple resources, two of which are shown: a first set of resources 120 and a second set of resources 122. For ease of illustration, each set 120, 122 may be considered in the context of a computer rack system containing multiple computer physical assets. It should be understood that additional physical resources can be managed by the Control Center A, but are not shown in FIG. 1 for simplicity of illustration.

The first set of resources 120 are illustrated as comprising two blade servers, indicated in FIG. 1 as Blade 1 and Blade 2. The second set of resources are illustrated as comprising two additional blade servers, Blade n and Blade n+1. Thus, a number of different resources can be accommodated. It should be understood that the resources could comprise other devices or equipment, such as memory devices, printers, routers, and the like. It should also be understood that the blade servers themselves (Blade 1, Blade 2, ..., Blade n, Blade n+1, ...) can be configured to support a variety of virtual assets, including desktop computer environments, data storage, application servers, routers, and the like. FIG. 1 shows that Control Center B 112 manages two sets of resources, illustrated as Rack B1 and Rack B2. As with the Control Center A, it should be understood that the actual

physical resources that make up Rack B1 130 and Rack B2 132 can comprise a variety of network-based computer equipment.

FIG. 2 is a schematic diagram that illustrates the application components for the virtualization management application of the Control Center computers 110, 112 illustrated in FIG. 1. The components enable the Control Center computers to function according to the description herein to provide automatic, network-based virtualization management independently of underlying processors, operating systems, and virtual environments. FIG. 2 shows the Control Center computer as including an Asset Manager 204, a Provisioning Manager 206, a Dynamic Application Router 208, an Optimizer 210, a Performance Manager 212, and a Capacity Planning Manager 214. In addition, a Virtual Mapping engine 216 is included, for determining the physical resources and virtual assets with which the Control Center will communicate. The Virtual Mapping engine is programmed to discover the physical resources, such as the physical devices with which the Control Center is in network communications, and also the virtual resources, such as virtual servers, storage, desktops, and the like with which the Control Center has access. The Virtual Mapping engine 216 can be self-starting, such as being launched at Control Center start-up or at some other predetermined system event, or the Virtual Mapping engine can be initiated by a user via a command.

As described further below, the illustrated embodiment of the Control Center 202 is configured in a modular fashion, such that the installation of the Control Center of the computers 110, 112 in FIG. 1 need not include every one of the modular components 204-214 illustrated in FIG. 2. Rather, system requirements and user needs may be such that less than all of the Control Center components are installed on any one Control Center machine of the system. Any installation of the Control Center, however, will include the Virtual Mapping engine 216, so that the Control Center will be suitably informed of its environment. A more detailed description of the functionality for each of the modular components 204-214 is provided below.

Asset Manager

The Asset Manager 204 provides visibility and management of all global virtual assets available to the Control Center. This component provides a global view of all the resources used in a virtualized infrastructure along with a physical and logical topology view. Thus, a user can view a global topology view and an inventory of virtual infrastructure from a central console. In addition, the component will support discovery and configuration of virtual resources, allow topology views for physical and logical infrastructure, provide inventory reports at local, remote, and global context, and simplify management of applications, hardware resources, virtual assets, and operating systems.

Provisioning Manager

The Provisioning Manager 206 provides an on-demand solution for provisioning of virtual assets for an automated workflow management. This component provides an automated solution allowing users to request and schedule their individual virtual asset needs and IT management to prioritize and provision the required assets on demand. The component can be used to provide a portal for users' virtual asset requests showing available virtual assets, as well as a supervisor portal to prioritize needs and approve asset needs by time and priority, and also provides an IT manager to provision the needed resources and keeping track of used and available assets, an automated workflow system for users and IT to track needs and resources, supports the ability to keep mission critical application and assets to put them on line on demand for emergency and disaster recovery needs, and provides a repository of virtual machines supporting VMWare, Microsoft and Xen virtual assets and their needed hardware components. The Provisioning Manager provides central management of global virtual machine images, provides an enterprise workflow system for adds, moves and changes in virtual infrastructure, and can be used to standardize and optimize virtual infrastructure use from lab to production environment, such as needed in different development testing scenarios.

Dynamic Application Router

The Dynamic Application Router 208 provides real time and dynamic routing of applications running on virtual infrastructure. With this component, users of the Control Center can move applications running on virtual assets by comparing application usage with business policy and drivers, and scheduling appropriate routing actions. This component can be used to move applications to different virtual assets as global business need changes, provide dynamic allocation of global virtual assets for workload optimization, enable zero down time in upgrading virtual environments, provide an optimizer for balancing resource and asset inventory against needs, a scheduler to auto schedule actions and provide reports, and provide alarms and triggers to notify users of out of balance inventory items. The component also provides an aggregated action library for all virtual infrastructure, performs zero downtime virtual asset maintenance and upgrades, ensures a high availability plan for mission critical applications running on virtual infrastructure, can compare business policy against real time asset usage and then make load balance changes, and can provide top 10 recommendations for solutions.

Optimizer

The Optimizer 210 component operates on the virtual assets of a physical resource to provide efficient configuration of the assets in accordance with a set of business rules. For example, the Optimizer component may operate on a user desktop or on a server that manages a virtual environment so as to configure an efficient combination of applications and assets, such as virtual devices of the host machine. In this way, the Optimizer provides a user with control over how virtual assets use the underlying physical resources. Users can set business policies based on application criticality and can let the Optimizer allocate appropriate physical resources in accordance with the business policies. The Optimizer can allocate resources such as CPU, network, memory, hard disk, and the like in accordance with the business policies that have been set by the user. Configuration of the business policies lets the user have a high degree of control over the

allocation of resources. For example, users can set a maximum limit on how much each virtual asset can use the underlying physical resource.

Performance Manager

The Performance Manager component 212 provides availability and performance management for all virtual assets in the system. This component shows performance of virtual asset usage, provides key performance matrices and metrics, and identifies future potential bottlenecks. The component can be used to provide real time monitoring and viewing of all virtual assets usage, measure and trend performance and show it against plan, provide triggers, alerts, and alarms for key performance matrices and metrics, identify current and predicted bottlenecks, and provides a cross-platform solution.

Capacity Planning Manager

The Capacity Planning Manager component 214 provides capacity planning, trending and forecasting based on usage and needs. This component provides capacity planning, trending and forecasting of virtual assets based on historical trends and future projected business needs. The component can be used to show used versus available capacity of virtual assets, trends capacity usage and compares it with thresholds, provides historical trend reports, provides forecasting of future needs, and provides alarms and triggers based on capacity usage and thresholds.

FIG. 3 is a schematic diagram that illustrates the configuration of an embodiment of a network computer device 300 constructed in accordance with the present invention to provide a virtualization environment that is managed by the Control Center described herein. The computer device is, therefore, a physical resource of the network 100. For example, the computer device 300 can comprise a blade server, such as one of the blade servers 120, 122 illustrated in FIG. 1. That is, the computer device 300 can comprise a desktop computer system, a laptop, a blade server, conventional server, or other computing machine that includes hardware components 302. In FIG. 3, the hardware components are illustrated as

including input/output facilities 304 (such as keyboard, display, mouse, and printer facilities), a central processor unit (CPU) 306, memory 308, mass storage 310 (such as disk drives), and a network interface card 312 for network communications. Those skilled in the art will understand that not all of the hardware components shown are necessary for successful operation of the computer device 300 in the network 100. The hardware components of the device 300 will depend on the system requirements and the function of the device within the network.

The computer device 300 includes an application that provides a virtualization layer 322 that manages virtual assets 326. Thus, the computer comprises a host machine for the virtualization environment. In FIG. 3, the virtual assets are illustrated as two virtual computers, or machines, a first Virtual Machine 328 and a second Virtual Machine 330. Each virtual machine can include an operating system (OS) for the virtual machine, computer applications programs executing on the virtual machine OS, and virtual hardware assets for the virtual machine. In FIG. 3, the first Virtual Machine 328 is shown as including an application program "App 1", an application program "App 2", and two instances or copies of an application program "App 3". The second Virtual Machine 330 is shown with one instance of App 1, one instance of App 3, and single instances of applications App 4 and App 5. As noted above, any one of the computer host machines, or boxes, of the network 100 can include a greater or lesser number of virtual machines. Two virtual machines are shown in FIG. 3 for purposes of illustration. Likewise, a greater or lesser number of applications running on the virtual OS can be provided. There is similar flexibility in the configuration (type and number) of OS and hardware assets of each virtual machine.

In accordance with the invention, a Control Center (such as illustrated in FIG. 2) manages the virtual assets of each computer host machine 300 for which the Control Center is responsible. To accomplish such functionality, the Control Center must communicate with the virtualization layer of the host machine. FIG. 3 shows that a Control Agent 324 can be installed on the host machine 300 to facilitate such

communication. The Control Agent 324 provides an interface between the hardware resources 302 of the host and the Virtualization Layer software 322. The Control Agent 324 facilitates communication between the external Control Center components 204-214 (FIG. 2) and the Virtualization Layer 322 of the host machine, and provides a common interface to the variety of virtualization software that might be available on the host machine. For example, the Virtualization Layer may be provided by products from VMWare, or Xen, or Microsoft, or IBM Corporation, or other visualization platforms or emulation interfaces. In this way, the Control Agent acts as a universal adapter between the Control Center and the virtualization layer platforms of the host machines in the network. In some cases, it might be possible for the Control Center components (FIG. 2) to communicate directly with the Virtualization Layer 322 without need for a Control Agent 324, in which case there will be no Control Agent 324 installed at the host machine.

For example, if the Asset Manager component 204 can communicate directly with the Virtualization Layer using native interfaces of the virtualization layer, then the Control Agent 324 is not needed. This would likely be the case if, for example, the virtualization layer is provided by VMWare, which includes controls needed for external communications. Other virtualization software, such as provided by Xen and Microsoft, does not typically include such native controls and therefore a Control Agent 324 would be necessary. Those skilled in the art will appreciate that such controls typically include actions such as "Move VM", "Migrate VM", "Clone VM", and the like, which support movement, migration, and cloning of virtual machines and which usually can be invoked programmatically by all virtualization platforms. It is these controls that may be implemented by the Control Agent 324 , in the absence of a native control in the virtualization platform. If the host machine does include a Control Agent 324, then the Control Agent 324 will have components to facilitate communication between the Control Center and the Virtualization Layer 322. In an alternative embodiment, the Control Agent 324 can be integrated into the Control Center itself, such that the Control Center can communicate directly with the

Virtualization Layer 322 of the host machine, regardless of the virtualization middleware that is actually installed at the host machine. Those skilled in the art will understand how to integrate the functionality of the Control Agent 324 described herein into the Control Center, without further explanation, in view of the description provided.

FIG. 4 is a schematic diagram that shows the construction of the Control Agent 324 with components for virtualization communication and management. These are the components that enable the Control Agent 324 of a host machine (that is, the machine on which the Control Agent 324 is installed) to communicate with the Control Center of an external network machine. FIG. 4 shows that the Control Agent 324 includes a Communication Abstraction Layer/Adapter 402. This component ensures that the Control Agent 324 can communicate with the hardware resources of the host machine, such as network communications devices, through which the Control Agent 324 can send and receive data with one of the external Control Centers 110, 112.

In the Control Agent 324, an Action Event Receiver 404 receives notifications about incoming events for which a response or action is required. Such notifications will typically involve, for example, changes in status of a virtual machine or requests for action or service. The Control Agent 324 also includes a Server Monitor 404 that checks for status of the virtual applications of the host machine, and also checks the status of the external Control Center with which it is communicating. As noted above, each host machine is associated, or managed, by a designated Control Center. The Control Agent 324 also includes an Event Dispatcher 408, which initiates actions by the host machine in response to the incoming events received by the Action Event Receiver 404. A Control Center Interface Layer 414 provides a monitoring interface function, a management interface function, and a statistics interface function for data exchange between the Control Agent 324 and the associated Control Center. A Virtual Platform Abstraction Layer 416 permits

communications between the host machine 302 resources and a set of multiple middleware adapters 418, as described further below.

In the server virtualization of the illustrated embodiment, the Control Agent 324 acts as a proxy between the Control Center 110, 112 and server instances. The Control Agent manages the messaging between the Control Center and the actual VMs. The Control Agent 324 will be created per host and per VM, as required. The Control Agent communicates with the Control Center through a communications protocol, such as the WS Management Catalog Protocol specification, wherein the Control Agent 324 is implemented as a service and will have the set of virtual assets that it manages. Other communications schemes can be used, as will be known to those skilled in the art. The VM's and Hosts are the available resources, as specified by the protocol. The Control Agent 324 is assigned a unique URI and will provide a selector to select a VM instance running within the server.

The Control Agent 324 can create a VM using a Resource configuration feature. The Control Agent 324 is responsible for a variety of tasks, including:

collecting Statistics from the VM's and hosts;

monitoring the health of the VM's and hosts;

generating Alarms when the VM's are out of balance;

monitoring the various events generated by the VM's and sending an appropriate alert to the Server;

communicating the VM / host status to the server;

performing management actions such as Create a VM, Suspend VM, Stop VM, and Move VM.

The Control Agent 324 also supports communication between the Abstraction Layer 416 and different Virtualization servers (virtualization platforms). The Abstraction Layer supports interfaces for monitoring, managing, and collecting statistics from the VMs and hosts.

The Control Center 110, 112 can start the Control Agent 324. The Control Agent 324 has its lifecycle independent of the Control Center and can handle reconnection with the Control Center, when it starts.

The Control Agent 324 also controls and monitors the health of the host machine. The Control Agent 324 is responsible for mining the system performance statistics such as the network performance, memory usage, and the disk usage of the host and passing these statistics on to the Control Center.

If a particular VM fails, the Control Agent 324 tries to restart the VM, or if that fails, sends out an alarm message to the virtual server.

Data constructs, such as Communication Objects, implement the communication protocols between the Control Agent 324 and the Control Center 110, 112. The communication protocol can be based on the WS Catalog protocol, in use by VMWare. Other suitable protocols will occur to those skilled in the art, in view of this description.

The Control Center has virtualization management responsibilities that include:

managing / monitoring Control Agents 324 ;

triggering Business Rules in the case of Alarm messages;

launching / moving applications to different virtual machines based on the VM work load (the Server makes the decisions and the request is sent to the Control Agent 324 to perform the operation;

balancing workload across different hosts /VM's;

performing Scheduled events;

re-initiating a Control Agent 324 in case of a failure;

aggregating the performance statistics across all the Control Agents 324 ;

providing management API's for the Control Center console (user interface) with which an administrator can monitor / manage individual host machines (physical devices) and VMs.

The Control Center includes the following functional components to perform the above-mentioned responsibilities:

an Event Receiver that receives messages from the Control Agent 324 and passes them on to an Action Manager. The Event Receiver is also responsible for generating a timeout event that will be triggered if no Ping/Alarm/Report Status messages are received after a configured period of time;

a Host Monitor that sends out heartbeat messages s to the Control Agent 324 (similar to a ping) to ensure that the host is available. When a Host Monitor detects that a host is not available, it will provide the Host Manager with that information;

Host States, which include two distinct states, from the point view of other machines managed by the server: either Offline, in which the host is not a fully active member of the virtualization infrastructure, wherein the host and VMs deployed may or may not be running; and Online, in which the host is a fully active member of the virtualization infrastructure, wherein the host maintains heartbeats, mines system performance statistical data, and can own and run Control Agents 324;

a Host Manager that is responsible for controlling host machines with Control Agents 324. For each Host, the Host Manager will launch one Control Agent 324. When a Host Monitor detects that a host is not available, the Host Manager tries to send a double-check ping message to the suspected unavailable host. If that host does not respond, the Host Manager will first try to launch a new Control Agent 324 process over that host before changing the Host State to indicate it as 'Offline' and implementing fail-over of its VM's to other Hosts;

a Scheduler that is responsible for scheduling applications based on a business policy. The Scheduler generates a set of actions to be performed based on certain business rules and the business policy.

The actions are passed on to an Action Manager. The Action Manager is responsible for executing the actions;

an Action Manager that receives actions from the Event Receiver, Host Manager, and the Scheduler. The choice of host for performing actions such as CreateVM, MoveVM is made by a Load Balancer process. The Action Manager submits a list of hosts and VM actions to the Load Balancer process. The Load Balancer, based on certain business rules and also the load on the hosts, maps the VMs to the host machines.

The operation of the components described above can be better understood with reference to FIG. 5, which illustrates the operation of the Control Center and Control Agent 324. The operation of FIG. 5 begins with a halt condition of a VM, for example "VM1", which generates an event message that is sent to an Event Receiver of the Control Center. This condition is represented by the diagram box numbered 502. Next, at box 504, the Control Agent attempts to restart VM1. In this example, the restart fails, and therefore the Control Agent 324 sends a message to the corresponding Server Monitor (box 506). That is, a condition is detected by the Control Agent 324 and, once detected, the Control Agent 324 will attempt to rectify the condition. If that attempt fails, then the Control Agent 324 informs the Control Center with an event message and the Control Center processes the event with the Event Receiver.

At box 508, the Control Agent 324 message is received at an Event Receiver, and Business Rules are executed to determine the available hosts for supporting the type of virtual machine that has failed. At box 510, the Load Balancing procedure identifies a host machine from the list of available hosts. Next, at box 512, the Event Dispatcher sends the failure event message to the Control Agent 324 of the selected host machine. Lastly, the Action Event Receiver of the selected host machine receives the event message and performs the action (startup VM) to restore the failed virtual machine.

Returning to the description of FIG. 4, the Control Center Interface Layer 414 enables the Control Agent 324 to communicate with the associated Control Center to provide the Control Center with information about the status of the host machine (monitoring function), receive instructions and commands from the Control Center (management), and report on operational information (statistics). Thus, the Interface Layer extends these three functional areas involving administration, monitoring, and performance statistics.

The Administration aspect of the Control Agent 324 provides all the methods that are required for managing a virtual server, such as the GSX / ESX server platform from VMWare, and the virtual machines under its supervision. All methods related to starting, stopping, cloning, and moving a virtual machine are managed through the Administration interface.

The Monitoring aspect of the Control Agent 324 provides methods to check virtual machine status and review heartbeat information for a virtual machine. The monitoring interface includes methods to get the statistical information and compare it with specified thresholds and generate Action Events. The Control Agent 324 operation includes a "getAllEvents" method that validates each threshold value and generates the necessary Action Events.

The Statistical aspect of the Control Agent 324 collects the statistical information. The methods used by the Control Agent in these duties are responsible for obtaining performance statistics for CPU performance, disk performance, memory performance, and network performance. Those skilled in the art will understand the various performance metrics by which such performance is typically judged. The Control Agent 324 operation therefore includes methods such as getCPUperfStats, getDiskPerfStats, getMemoryPerfStats and getNetworkPerfStats, which are responsible for returning corresponding specific statistical objects such as CPUStats, DiskStats, MemoryStats, and NetworkStats. These methods are supported for a variety of servers, such as ESX servers, and some servers will

require the Control Agent 324 to make system calls to obtain the information, such as for GSX servers.

As noted above, the Virtual Platform Abstraction Layer 416 of the Control Agent 324 includes a set of multiple middleware adapters 418. The middleware adapters communicate with the virtualization environments of the host machine 302. These virtualization environments are shown in FIG. 4 as including platforms by VMWare 420, Xen 422, Microsoft 424, IBM 426, and also emulation solutions 428. It should be understood that these depicted platforms are for purpose of illustration only; additional or alternative virtualization platforms can also be accommodated.

To provide an abstraction layer over a variety of virtualization servers such as from VMWare, Xen, and Microsoft, the Abstraction Layer 416 of the Control Agent 324 provides a common API access for the virtualization servers. To do so, the Control Agent 324 includes components in accordance with the virtualization platform and communication management protocol, components such as:

- a Communication Object Layer that manages services management events and translates to corresponding method calls, in accordance with the communication management protocol in use for the virtualization platform, such as JMS Events and in the case of the VMWare virtualization platform;
- an Agent Interface comprising a generic interface that supports at least three interfaces including Administration, Monitoring, and Statistics, and uses a factory pattern to create an Agent Object specific to VMWare, Xen or Microsoft, or whatever the virtualization platform as desired;
- a Virtualization Platform Agent, such as a VMWare Agent as an implementation class for an Agent Interface that is specific to VMWare platforms, and which uses JNI to call the COM layer on MS platform and uses JPL on Linux and Solaris;

a JNI DLL comprising an ATL dll that wraps the VMCOM object, wherein the COM functionality is exposed as method calls that can be accessed through JNI;

VMCOM interfaces, such as VMserverCtl, VMCtl, IConnectParams;

a VMIQAgent that is designed to be a web service with certain exposed methods, which for applicable communication management protocols may comprise a JMS Client application that produces / subscribes to certain sets of events for the required communication protocols. On startup, the VMIQAgent will use the Agent Factory class to create the VMWare Agent object. The information about the Virtualization server can be maintained as a part of the Agent Configuration file, which will only maintain the Virtualization server name, such that the details of the server, such as whether it is a GSX Server or ESX Server, will be obtained by querying the server itself.

For example, the Control Agent 324 may include a "VMWareAgentImpl" class for implementation of a Control Agent 324 interface to VMWare systems. This implementation class makes calls to classes called "VMServerCtl" and "VMCtl", wherein the VMServerCtl class includes methods related to the GSX and ESX servers. The VMServerCtl class is implemented as a singleton class. There would be only one instance of the Server object. This discussion assumes that there will be only one server per host (GSX server or ESX server). A host will not have the virtual machines of multiple virtualization servers (such as VmWare, Xen, and Microsoft). The server object will maintain a map of the VMName-to-VMCtl objects. The lookup will be on VMNames. The user can give the same name to multiple virtual machines on a server. Currently, VMWare does support duplicate names. The VMCtl and VMServerCTL classes invoke the com / perl interfaces of VMWare using JNI wrapper and JPL, respectively. The JNIWrapper is a DLL file which exposes methods from the VMCOM object.

The operations of the Control Center and Control Agent 324 to manage the virtual environment will support various use cases, or operating scenarios, including creation and startup of virtual machines (VMs). Such operations are described as follows for a VMWare environment (corresponding operations for other virtualization environments will be known to those skilled in the art, in view of this description):

Create VM

1. In order to create a VM on a particular host, the VM Manager first copies the "vmdk" file and the "vmx" file to the host machine using ssh and then send an event to the host.
2. The event message contains the following information

VM Name--Name of the VM to be created

VMTemplateInfo--Template details include type of server, location of the vmx and .vmdk files.

3. The event is received by the Control Agent 324.
4. createVM method is invoked by passing the VMName and the template info
5. VMWareAgentImpl class then modifies the display name to the VMName and the vmdk file reference in the vmx file.
6. VMWareAgentImpl class then checks for an existing VM with the same name and checks to see if the configuration file is the same. If not, then registers the VM with the GSX / ESX server.

StartVM

1. VM Manager sends an event to the VMIQAgent on a particular host to start a VM. The message contains the VMName.
2. The VMIQAgent receives the message and then calls the VMWareAgentImpl 's StartVM Method.
3. VMWareAgentImpl looks up the VMCtl object corresponding to the VMName in the VMMap

4. Calls a StartVM method of the VMCtl object by passing the vmx file name.
5. The StartVM method returns a task handle.
6. The task status is monitored by the VMWareAgentImpl
7. The VMCOM object returns a task handle. If the task state is completed then the Completed status is returned to the Manager.
8. The VMWareAgentImpl class monitors the task status.
9. If the task status is VM_QUESTION, then a new event is raised to the VM Manager with the QuestionInfo as the message.
10. The event is received by the VMManager - Either through an autoresponse or a manual process an answer is sent back to the VMIQAgent
11. Control Agent 324 receives the message – Message has a reference to the VMName, task id and the answer.
12. VMWareAgentImpl then calls answerVM method of the VMCOM object to set the answer.
13. Procedure is repeated till the task status is set to completed.

Other actions can be supported by suitable methods, as desired:

1. CreateVirtualDisk
2. ChangePermissions
3. Consolidate_VM
4. Snapshot_VM
5. Revert_VM
6. Enable / Disable host
7. Configure CPU, Configure disk, Configure memory, configure Host, Configure Network.

FIG. 6 is a representation of the virtualization environment that can be managed using a computer with the Control Center application described herein, such as the Control Center A 110 and the Control Center B 112 illustrated in FIG. 1.

FIG. 6 is a schematic diagram that illustrates the various levels of virtualization that can be reached and managed with the Control Centers. In FIG. 6, multiple end users 602, 604, 606 can access physical resources and virtual assets of the host computer 300. FIG. 6 shows a conceptualized depiction of the access as the multiple users being accommodated through multiple virtual desktops, or user interfaces, through a desktop virtualization layer 608. The desktop virtualization layer presents the users with a collection of virtual assets available to the users as they communicate over the network (see the system configuration illustrated in FIG. 1). The assets can include multiple applications of the host machine, depicted as "App 1" 610, "App 2" 612, and "App 3" 614 for purposes of illustration. The applications may include word processing, email, Web browsers, servers, and the like. The applications can be supported by middleware software through an application virtualization layer 616. The middleware applications are represented by "MW 1" 618, "MW 2" 620, "MW 3" 622. The middleware applications 618, 620, 622 can access data stores through a storage virtualization layer 624. The data stores are represented in FIG. 6 by databases 626, 628, 630 indicated as DB 1, DB 2, and DB 3, respectively. In accordance with the invention, the Control Center application can perform configuration management and forecasting services for the host computer and the available virtual assets through each of the various virtualization layers 608, 616, 624.

FIG. 7 is a screen shot of a Control Center display produced by the user interface of the Control Center computers 110, 112 of FIG. 1. That is, the Control Center virtualization management application provides a user interface that includes a display such as illustrated in FIG. 7. The "Virtual Manager" program window shows a list of applications in a left window pane corresponding to a virtual environment for the specified host machine, which is illustrated as "XPRO2005" in the left window pane. The Control Center display shows that the XPRO2005 computer includes three applications, which are operating systems, as shown in the detail pane on the right side of the display. The three operating systems are

illustrated in FIG. 7 as "Windows XP Professional", "SuSE Linux Enterprise Server", and "Windows 2000 Advanced Server". Other operating systems can be supported by the Control Center.

The setting pane on the right side, below the OS listing pane, shows the user interface feature for setting operating parameters of the Control Center. The priority of the virtual machine under management (VM Priority) can be set with a display slider from low priority to high priority. A high priority setting means that the VM will have a high probability of being instantiated on the host machine under management. A low priority setting means that the VM is a likely candidate for deletion from the virtualization of the host machine if resource utilization is great and if other VMs have a higher priority setting. The virtualization parameters that can be set for the virtualization environment through the user interface of FIG. 7 include settings for operation of CPU, memory, hard disk, and network.

The installed Control Center application provides a network-based, intelligent orchestration engine for automatic management of virtual assets across multiple computer virtualization platforms around a network. The exact management functions that can be performed by the Control Center will depend on the number of components selected for installation on the Control Center computer. The full complement of components are illustrated in FIG. 2 and were described above. The illustrated embodiment described herein is constructed with a modular approach, so that users can select desired components and can leave out the rest. The following description of operating feature details assumes a full installation of all the FIG. 2 Control Center components, except where noted, and the full installation will be referred to as the "application" except where a particular component is singled out for description or mention. It should be understood that installing any one of the FIG. 2 components will provide a user interface that includes the Control Center, albeit with functionality in accordance with the installed components.

The Control Center application provides a centralized repository for virtual infrastructure configuration change management with an audit trail for IT compliance

requirements. In accordance with the application, macro-level policies are defined based on business needs. These are implemented as Application Criticality Rules (ACRs), described further below. The Control Center operates as a virtual controller that can mediate between physical server, network, applications; and storage resources. Such mediation can occur based on a combination of portable, application-provided as well as user-defined, Knowledge Blocks (KBs). The Control Center can also provide Adaptive Application Routing (AAR) for virtual assets based on the ACRs. With the Knowledge Blocks, the Control Center can take intelligent actions based on the KBs when any of the ACRs are violated.

The ACRs allow a user to specify business rules for controlling priority settings for applications. For example, in a system with a set of five application App1, App2, App3, App4, and App5, one of the rules could specify that, each morning from 6:00 am to 10:00 am, the five applications will have priorities set as follows: App1 has high priority, App2 has low priority, App3 has medium priority, App4 has low priority, and App5 has high priority. If preferred, the Control Center can provide a priority setting that is numerical, such as a range of integral numbers between 0 (zero) and 10 (ten). Other priority range indicators can be used as desired, such as colors or other indexes. If traffic to an application is detected as being above a threshold level, another business rule could specify a dynamic response, that the priority for the corresponding application can be adjusted higher. Conversely, action could be specified to reduce priority if traffic is detected as abnormally low. Another business rule could be set for prospective action, for example, such that a particular application is given an increased priority according to time of day.

Control Center management of virtual assets and mediation between physical resources in conjunction with the ACRs provides a robust load balancing functionality with the ability to distribute server load among potential host machines, and determine when and how to increase or decrease the number of VM's to improve overall system throughput.

For purposes of the load balancing function, load can be calculated on a server by following several alternative criteria, or parameters. One parameter can be CPU run queue length, which returns the load as the average number of processes in the operating system (OS) run queue over a specific time period in seconds, normalized over the number of processors. Another parameter is CPU utilization, which returns the load as the CPU usage percentage. Other suitable parameters can include Network Performance (traffic throughput), Disk Performance, which can be measured by the number of bytes read and/or written in a specific time period in seconds, and Memory Performance, mainly by the ratio of the active memory used as compared with total managed memory. If desired, a weighted formula can be used for computing the load on a particular host based on these parameters.

With such parameters available, the load balancing strategy can be implemented with two different strategies: Static load balancing and dynamic load balancing. Static load balancing is similar to having a pre-defined set of minimum and maximum number of VM's that can run on a given host. The Dynamic load balancing approach suggests that, based on the current and the future load on a host, a decision is made as to which VM should run on which host. Once a set of hosts are identified, then the load balancer processing can pick a particular host, by a round-robin or a weighted round-robin method. The load balancer processing would first try to assign the high priority VM's to hosts with minimum load.

The Control Center also provides an interface to the installed configuration management application, which operates in conjunction with observed real-time events on the network. This is achieved through a four-step process that includes (1) monitor, discover and alert tasks, (2) applying user-guided fix automation tasks, (3) automatically applying basic KBs, and automatically applying more complex KBs and user-defined KBs. In addition, the Control Center provides a mechanism to centrally schedule resource re-allocation in response to defined business events.

FIG. 8 and the following drawing FIG. s illustrate the automatic virtualization management in accordance with an embodiment of the invention in the context of managing a collection of virtual assets comprising application servers, but it should be understood that the Control Center virtualization management application being described can also be used to manage other virtual assets, such as user desktops (user interfaces), data storage such as database arrays and attached storage, and network traffic devices such as routers and switches.

FIG. 8 is a screen shot of the Physical View display page of the user interface, accessed from the Control Center computers 110, 112 of FIG. 1. FIG. 8 shows that the Physical View display enables a user to visualize resource utilization relationships. For example, FIG. 8 graphically illustrates two subnets attached to the Control Center computer, indicated as Net 1 and Net 2. This illustrated arrangement is analogous to Control Center B of FIG. 1, which shows Rack B1 and Rack B2 under management of Control Center B. Thus, Rack B1 could correspond to Net 1 and Rack B2 could correspond to Net 2. Alternatively, Net 1 and Net 2 could correspond to other types of network subdivisions. For example, Net 1 and Net 2 could relate to geographical divisions of the network, or could correspond to departmental groupings or subnet groupings.

In FIG. 8, Net 1 is shown as a virtual environment that includes Server 1 and Server 2, each of which manages a VNet 1 and a VNet 2, respectively. Operating on VNet 1 are an instance of App 1, an instance of App 2, and an instance of App 3. Under Server 2, the operating applications include one instance of App 1, an instance of App 4, and an instance of App 5. Thus, VNet 1 and VNet 2 are virtual networks that are deployed within Server 1 and Server 2. This view shows the application topology within the virtual infrastructure, and shows which virtual asset is running on what physical resource (dependency) and how they are interconnected via virtual networks and physical networks.

Knowledge Block

The Knowledge Block feature can be used to specify analysis rules that can detect application performance degradation. In response to such detection, an alert can be sent over the network, such as an alert message being sent to a network administrator. After an alert message has been sent, the configuration management application can wait for an administrative action, or the application can be set up so as to execute an automatic action. For example, in response to a "crash" of a virtual machine, the application can find the last known "good" VM image from a repository and can deploy that image to the affected machine. In response to overtaxed applications, the application can deploy a new application instance, and can add new application instance information into a network load balancer to indicate the new instance is available and should be considered as part of the "available application pool". In addition, the application can remove a degrading application from the available application pool, or can move a degrading application VM from a group of production servers to a debug server pool. Other functions that can be performed by the application in accordance with Knowledge Blocks include the capture of log files from the degrading application VM, the capture of archive logs and sending of email alert messages to an administrator with the archive log location, and the halting of a degrading application VM and removal of it from the debug server pool.

FIG. 9 is an illustration of a Control Center display that shows a topology view of the virtual environment under management. FIG. 9 shows physical resources and virtual assets such as depicted in FIG. 8, but illustrates particular user interface features of the Control Center software. Thus, FIG. 9 shows three physical servers, representing networks, indicated by network addresses 255.101.0.0, 255.102.0.0, and 255.103.0.0. Machine 1 and Machine 2, which are physical resources, are shown connected to the 255.101.0.0 server, and Machine 3, another physical resource device, is shown connected to the 255.102.0.0 server. Various network management operations can be carried out with a drag-and-drop user interface,

represented by the icons arrayed along the left side of the display window. For the objects in the large window pane, these operations represent moving display objects, connecting objects, and creating instances of objects such as networks, storage, routers, hubs, and the like.

FIG. 10 is an illustration of the FIG. 9 topology view showing Machine 3 expanded. The expanded (Level 1) view shows that Machine 3 is installed with virtual server applications that include "SSB Server", "Oracle with mail", and "SS2000 with mail". These virtual assets are connected so as to comprise a virtual network connected to the 255.101.0.0 server. The menu choices CPU, MEM, NET, and I/O in the Level 1 window for Machine 3 indicate that additional configuration details for these respective characteristics of Machine 3 are available in a Level 2 display (not illustrated) by selection of the corresponding display icons.

FIG. 11 is a block diagram representation of a server virtualization configuration management scheme that can be implemented from a computer such as the Control Center computers 110, 112 illustrated in FIG. 1. FIG. 11 depicts the virtualization management 1102 of the network computer system 100 (FIG. 1) as comprising an association or mapping between the actual Physical Resources, such as a collection of computer hardware machines 1104, to a collection of Virtual Machine Assets 1106, or applications, in accordance with a set of application critical Rules 1108. In a typical system, for example, two physical machines might be sufficient to deploy forty virtual machines, each of which can be assigned a different application to operate and thereby provide services to network users. The configuration of the Virtual Machines 1106 and their corresponding operational applications will be governed by the set of Rules 1108. Thus, if a rule specifies that a particular application has a high priority at a particular time of day, then a respective one of the Control Center computers 110, 112 (FIG. 1) will adjust the deployment of applications among the Virtual Machines 1106 under its management at the appropriate times.

The server virtualization implementation described thus far can be used to control and manage a complete virtualization environment, including assets such as storage assets, virtual routers, and virtual desktops. Such configurations are depicted in FIG. 12, FIG. 13, and FIG. 14.

FIG. 12 is a block diagram representation of how storage in physical servers can be allocated by the virtual server using the system management of the present invention. FIG. 12 depicts the configuration management 1202 of the network computer system 100 (FIG. 1) as comprising an association or mapping between actual Physical Resources comprising a collection of disk drives or storage devices 1204 to a collection of Logical Units 1206, such as network virtual storage drives, in accordance with a set of application critical Rules 1208. That is, the storage servers (physical resources comprising disks) are mapped to virtual assets (logical units). In a typical system, for example, two physical machines (CPUs with attached data devices) might be sufficient to implement forty logical units, each of which can be assigned a different network drive assignment, such as drive c:, or d:, or e:, and so forth, to operate and thereby provide data storage for network users. The configuration of the Logical Units 1206 and their corresponding virtual drives will be governed by the set of Rules 1208. Thus, if a rule specifies that a particular network drive should have a capacity of 50 GB while a particular application is running, to act as temporary storage for the application, then the configuration management application 110, 112 will adjust the data capacity configuration of the logical unit 1206 to provide the desired capacity, and will load the desired data, for the appropriate operational conditions.

FIG. 13 is a block diagram representation a network router virtualization configuration that can be managed through a virtual server that is managed from a Control Center computer 110, 112 such as illustrated in FIG. 1. FIG. 13 depicts the configuration management 1302 of the network computer system 100 (FIG. 1) for a collection of actual Physical Resources comprising a collection of processing devices for network path control, such as programmable machines or computers

otherwise configurable through a virtualization layer to provide control of network paths, such as devices that can operate as routers 1304. The devices 1304 are associated with or mapped to assigned network paths 1306, such as virtual private network (VPN) devices, or secure routers. The mapping is in accordance with a set of application critical Rules 1308. In a typical system, for example, two physical machines (CPUs with attached network communications abilities) might be sufficient to implement a set of forty VPN servers, each of which can be assigned to different network paths or addresses. The configuration of the Network Path devices 1306 and their corresponding routing operations will be governed by the set of Rules 1308. Thus, if a rule specifies that a particular VPN router 1306 should handle traffic for a particular address, then the Control Center virtualization management application will adjust the network path assignment of the VPN router 1306 to provide the desired assignment.

FIG. 14 is a block diagram representation of a desktop computer virtualization configuration that can be managed through a virtual server that is managed from a Control Center such as illustrated in FIG. 1. FIG. 14 depicts the configuration management scheme 1402 of the network computer system 100 (FIG. 1) as comprising an association or mapping between actual Physical Resources comprising a collection of computers or other processing devices 1404 to a collection of Installed virtual asset Applications 1406, such as virtual machine applications including word processing, email, spreadsheet, and Web browser, in accordance with a set of application critical Rules 1408. In a typical system, for example, a collection of physical computing machines 1404 (processing devices such as desktops, laptops, and PDAs) might be sufficient to implement forty virtual user interfaces, each of which can provide a collection of installed applications 1406. The configuration of the Installed Applications 1406 will be governed by the set of Rules 1408. Thus, if a rule specifies that a particular user interface should include word processing and a Web browser during specified times of day, but then delete the browser application at other times of day, then the Control Center

virtualization management application will adjust the deployed applications of the logical unit 1406 to provide the desired user interface, for the appropriate operational (time-of-day) conditions.

Although FIG. 11 describes the virtualization management of virtual assets in the context of virtual machines or servers, as noted above, the Control Center application 202 (FIG. 2) described herein also can be used for management of other network virtual assets, such as virtual storage devices, network path devices, and user interfaces (desktops).

FIG. 15 is an illustration of a storage virtualization configuration that can be managed in accordance with the present invention. Those skilled in the art will recognize that FIG. 15 is similar to the illustration of FIG. 8 except for depicting storage devices and virtual storage assets (logical units, or LUNs) in place of servers and virtual applications, respectively. Thus, corresponding details of the discussion above for the server virtualization may be applied to the storage virtualization depicted in FIG. 15, which those skilled in the art will understand in view of this description. Similarly, the present invention can be used in conjunction with other corresponding virtualizations, such as routers and desktops.

FIG. 16 is a flow diagram that illustrates operation of the computer installed with the Control Center application 110, 112 such as illustrated in FIG. 1. When the application is launched, generally on boot up of the computer, the application will first perform a monitor and inventory operation 1602 that will determine the collection of virtual assets available to the computer. The monitor and inventory operation involves the Control Center application communicating with the virtualization platform software to determine a pool of available resource and asset inventory, including user interface inventory (such as installed applications), network servers, network storage devices, network routers and switches, and the like, all accessible from the host machine. As noted above, such communications are facilitated in appropriate situations by the presence of a Control Agent in each host machine. The Control Agent can provide the necessary communications facilities

for communications between the host machine and the associated Control Center computer.

After the Control Center determines the collection of available virtualization assets, the next operation is for the application to apply the application rules 1604. These include the Application Critical Rules such as illustrated above in FIG. s 11-14 and any rules defined by the user in Knowledge Blocks or imported as Knowledge Blocks. The next operation is for the Control Center application to enforce the rules 1606. For example, the rules may specify the number of application servers of a particular type that are deployed at given times of the day, or in response to detected network traffic conditions. Other discretionary operations may then continue.

FIG. 17 is a flow diagram that illustrates operation of Knowledge Block processing for the Control Center computer such as illustrated in FIG. 1. In the first operation, the group of rules can be created 1702. These rules can include rules that are default rules common to all implementations of the application, and can also include rules that the user has fashioned for particular purposes using the rule editor. In the next operation, Knowledge Block rules can optionally be imported or exported 1704. In the last Knowledge Block processing operation, the rules are applied 1706. As noted above, application of the rules can result in automatic configuration changes that the Control Center application implements through an interface with the virtualization layer software. Other processing can then take place.

FIG. 18 is a flow diagram that illustrates operation of the Control Center computers 110, 112 illustrated in FIG. 1. In the first operation, real-time performance metrics are obtained 1802. Such metrics include utilization rate for each of the virtual assets, such as virtual network servers, virtual routers, virtual storage, and the like. Such metrics are also used in the load balancing function, as described above. Next, the Control Center application checks for any automatic configuration changes that are called for 1804. For example, one of the rules might

specify a specific mix of virtual servers at a given time of day. Depending on the time of day, then, the application might instantiate more or fewer virtual servers, as specified by the rule (KB).

If configuration changes are called for, an affirmative outcome at the decision box 1804, then the Control Center issues commands to the virtualization layer software to implement the desired configuration changes 1806. Those skilled in the art will understand how to implement such configuration changes without further explanation, given the description herein. If no configuration changes are called for, a negative outcome at the decision box 1804, then the Control Center next checks to determine if any of the ACRs or Knowledge Block rules have been violated by any system configuration settings or performance metrics, as indicated by the decision box 1808. If there has been a rules violation, an affirmative outcome at the decision box, then the application reports the violation 1810. The report can take the form of an alert email message generated by the Control Center application that is sent to a network administrator or other predetermined email mailing address. After the alert email message has been sent 1810, the Control Center issues commands to the virtualization layer software to implement the desired configuration changes 1812. Those skilled in the art will understand how to implement such configuration changes without further explanation, given the description herein. Operation then returns to determining real-time system performance metrics 1802 and the loop repeats for as long as the Control Center application is executing. If there was no rules violation, a negative outcome at the decision box 1808, then no configuration change is carried out and, instead, operation returns to determining the performance metrics and the loop repeats itself.

In this way, the Control Center provides automatic virtualization management for computer network systems that include network virtual assets. A wide range of installation enhancements can be implemented, including business (application critical) rules, import and export of rules, and administrator alert messages.

The present invention has been described above in terms of presently preferred embodiments so that an understanding of the present invention can be conveyed. One skilled in the art will appreciate that the present invention can be practiced by other than the above-described embodiments, which are presented in this description for purposes of illustration and not of limitation. The specification and drawings are not intended to limit the exclusionary scope of this patent document. It is noted that various equivalents for the particular embodiments discussed in this description may practice the invention as well. That is, while the present invention has been described in conjunction with specific embodiments, it is evident that many alternatives, modifications, permutations and variations will become apparent to those of ordinary skill in the art in light of the foregoing description. Accordingly, it is intended that the present invention embrace all such alternatives, modifications and variations as fall within the scope of the appended claims. The fact that a product, process or method exhibits differences from one or more of the above-described exemplary embodiments does not mean that the product or process is outside the scope (literal scope and/or other legally-recognized scope) of the following claims.

CLAIMS

What is claimed is:

1. A method for automatic management of a virtualization environment in a computer network, the method comprising:

determining an inventory of network resources and virtual assets available to a virtualization environment of the computer network;

assigning prioritization to members of the available inventory for the virtualization environment;

provisioning virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment;

determining real time performance metrics for the provisioned virtualization environment;

producing a reallocation of the virtual assets automatically in response to the real time performance metrics; and

initiating the reallocation of the virtual assets.

2. The method of claim 1, further comprising receiving user input that specifies parameters to be considered with the real time performance metrics in producing the reallocation of assets.

3. The method of claim 2, wherein the received user input comprises a Knowledge Block that determines one or more of the reallocation parameters.

4. The method of claim 2, wherein the received user input specifies parameters that detect operational degradation of a member of the available inventory.

5. The method of claim 4, wherein the available inventory member that is detected as degraded is removed from the available inventory.

6. The method of claim 4, wherein the available inventory that is detected as degraded is moved from the available inventory to a debug inventory pool.

7. The method of claim 4, wherein log files are retrieved from the available inventory that is detected as degraded.

8. The method of claim 7, wherein the log files are stored in an archive and an alert message is sent to a network administrator with an identification of the log file archive location.

9. The method of claim 4, wherein the available inventory that is detected as degraded is halted and is removed from the available inventory to a debug inventory pool.

10. The method of claim 9, wherein the halted available inventory is removed from the debug inventory pool.

11. The method of claim 3, wherein the Knowledge Block specifies parameters that send an alert message to an administrator of the network in response to an alert condition.

12. The method of claim 3, wherein the Knowledge Block specifies parameters that receive an instruction from an administrator of the network in response to an alert condition.

13. The method of claim 3, wherein the Knowledge Block specifies parameters that identify a last known acceptable virtual machine image that includes one or more applications from the set of available inventory.

14. The method of claim 3, wherein the Knowledge Block specifies parameters that deploy an instance of an application selected from among the available inventory.

15. The method of claim 2, wherein the received user input specifies a priority for one or more of the available inventory.

16. The method of claim 2, wherein the user input specifies a time period during which the reallocation will be applied.

17. The method of claim 1, further comprising:

providing a user interface through which user input can be received and wherein the user input adjusts scheduling of producing the reallocation.

18. The method of claim 1, wherein producing a reallocation comprises adding a new application instance to the available inventory.

19. The method of claim 1, wherein producing a reallocation comprises updating the available inventory to include any changes made by the reallocation.

20. The method of claim 1, wherein the inventory of available inventory includes one or more application programs.

21. The method of claim 20, wherein one of the application programs comprises a network load balancer.

22. The method of claim 20, wherein one of the application programs comprises a network server.

23. The method of claim 1, wherein:

determining, by an Asset Manager Component, an inventory of available network resources and virtual assets;

assigning prioritization to the available inventory and provisioning virtual assets from among the available inventory, performed by a Provisioning Manager component;

determining, by a Performance Manager component, a real time performance metrics; and

automatically producing and initializing, by an Optimizer component, a reallocation of the virtual assets.

24. The method of claim 23, wherein automatically producing a reallocation of the virtual assets comprises forecasting future system needs, which is performed by a Capacity Planning Manager component.

25. A method for automatic management of a virtualization environment in a computer network, the method comprising:

performing one or more functions from the group of functions consisting of

(1) identification and management of network resources and virtual assets,

(2) provisioning of virtual assets in response to network workflow demands,

(3) dynamic deployment of virtual assets across the computer network,

(4) performance measurement and reporting of resources and virtual assets, and

(5) planning and forecasting of resource demands and asset utilization of the virtualization environment;

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment.

26. A method of managing a virtualization environment in a computer network, the method comprising:

providing a virtualization environment at a computer in communication with the computer network;

determining an inventory of network resources and virtual assets available to the virtualization environment;

performing at least one function from among the group of functions consisting of

(1) identification and management of network resources and virtual assets,

(2) provisioning of virtual assets in response to network workflow demands,

(3) dynamic deployment of virtual assets across the computer network,

(4) performance measurement and reporting of resources and virtual assets, and

(5) planning and forecasting of resource demands and asset utilization of the virtualization environment,

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment.

27. An apparatus that performs automatic management of a virtualization environment in a computer network, the method comprising:

a network communications unit that enables communications between the apparatus and the computer network;

an operating system of the apparatus that supports a virtualization environment in communication with the apparatus; and

a Virtual Mapping layer that determines an inventory of network resources and virtual assets available to the virtualization environment, wherein the Virtual Mapping layer determines the inventory without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment.

28. The apparatus of claim 27, further comprising one or more components that receive the inventory of available resources and assets from the Virtual Mapping layer and perform one or more functions from the group of functions consisting of:

(1) identification and management of network resources and virtual assets,

(2) provisioning of virtual assets in response to network workflow demands,

(3) dynamic deployment of virtual assets across the computer network,

(4) performance measurement and reporting of resources and virtual assets, and

(5) planning and forecasting of resource demands and asset utilization of the virtualization environment;

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment.

29. The apparatus of claim 27, further comprising a component selected from a group consisting of:

an Asset Manager component that determines an inventory of available network resources and virtual assets;

a Provisioning Manager component that assigns a prioritization to the available inventory and provisions virtual assets from among the available inventory;

a Performance Manager component that determines real time performance metrics; and

an Optimizer component that automatically produces a reallocation of the virtual assets and initiates the reallocation.

VIRTUAL SYSTEMS MANAGEMENT

ABSTRACT

Automatic configuration management of a network is provided by determining an inventory of resources at a virtualization layer of a node of the network, assigning prioritization to members of a set of network configuration elements, allocating virtual resources among the set of network configuration elements, establishing a network configuration. The configuration is managed by determining real time performance metrics for the configuration, producing a reallocation of the virtual resources based on the performance metrics that are estimated to change the established configuration, change the performance metrics, and initiating the reallocation of the virtual resources. This Abstract is provided for the sole purpose of complying with the Abstract requirement that allows a reader to quickly ascertain the subject matter of the disclosure contained herein. This Abstract is submitted with the understanding that it will not be used to interpret or to limit the scope or the meaning of the claims.

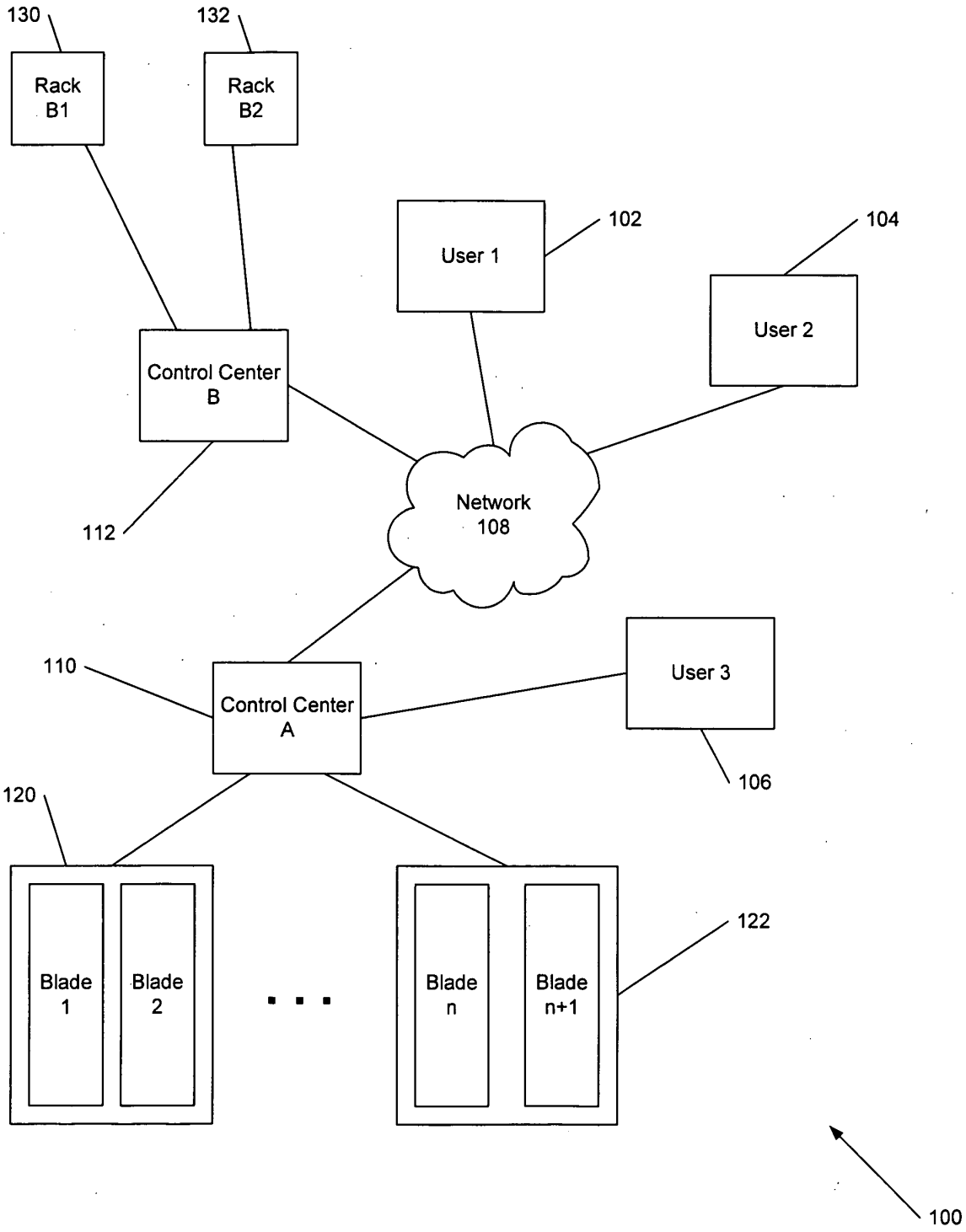

130
132
Rack B1
Rack B2
User 1
102
104
User 2
Control Center B
Network 108
112
110
Control Center A
User 3
106
120
Blade 1
Blade 2
Blade n
Blade n+1
122
100

FIG. 1

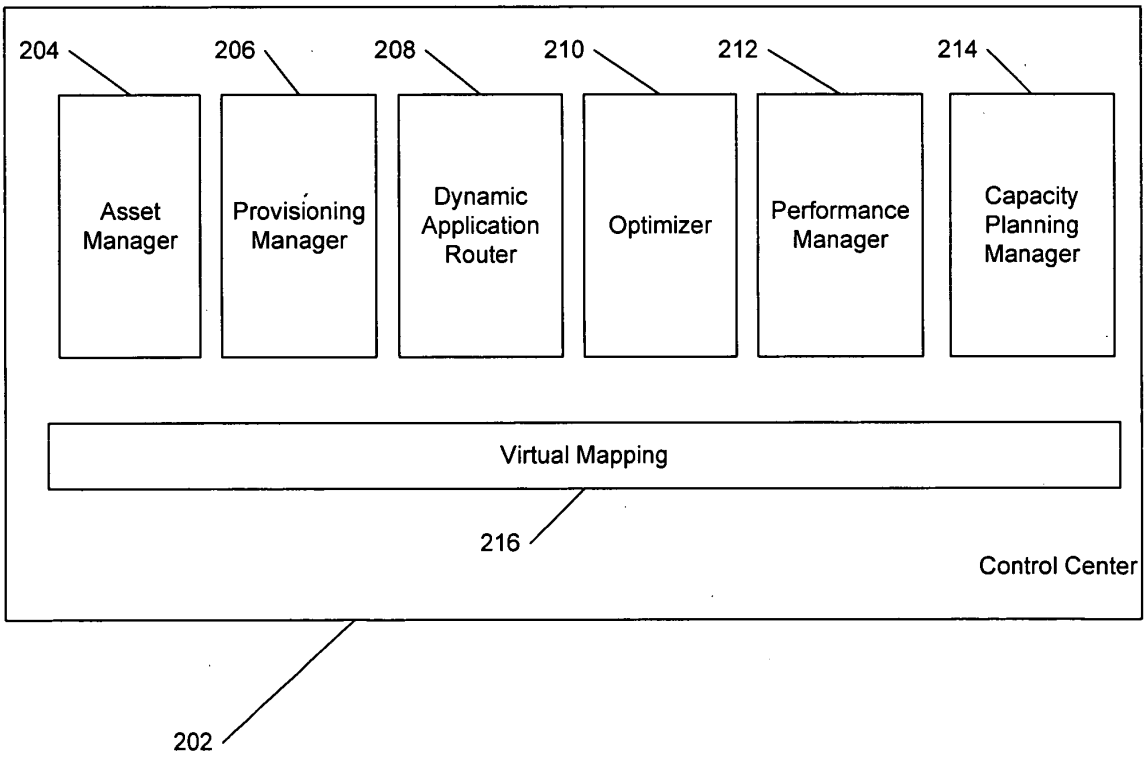

204
206
208
210
212
214
Asset Manager
Provisioning Manager
Dynamic Application Router
Optimizer
Performance Manager
Capacity Planning Manager
Virtual Mapping
216
Control Center
202

FIG. 2

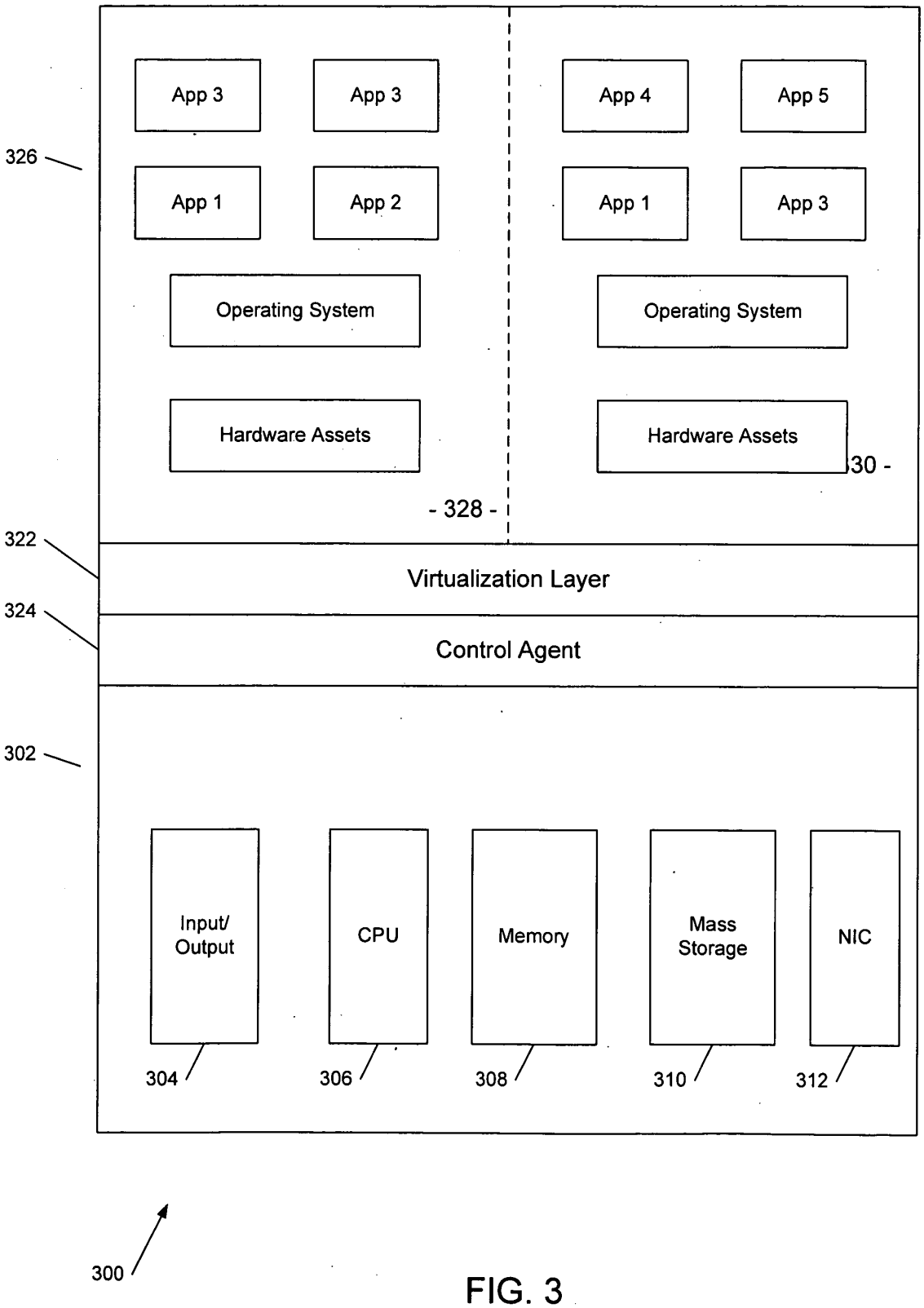

App 3
App 3
App 4
App 5
App 1
App 2
App 1
App 3
Operating System
Operating System
Hardware Assets
Hardware Assets
326
30
328
322
Virtualization Layer
324
Control Agent
302
Input/ Output
CPU
Memory
Mass Storage
NIC
304
306
308
310
312
300

FIG. 3

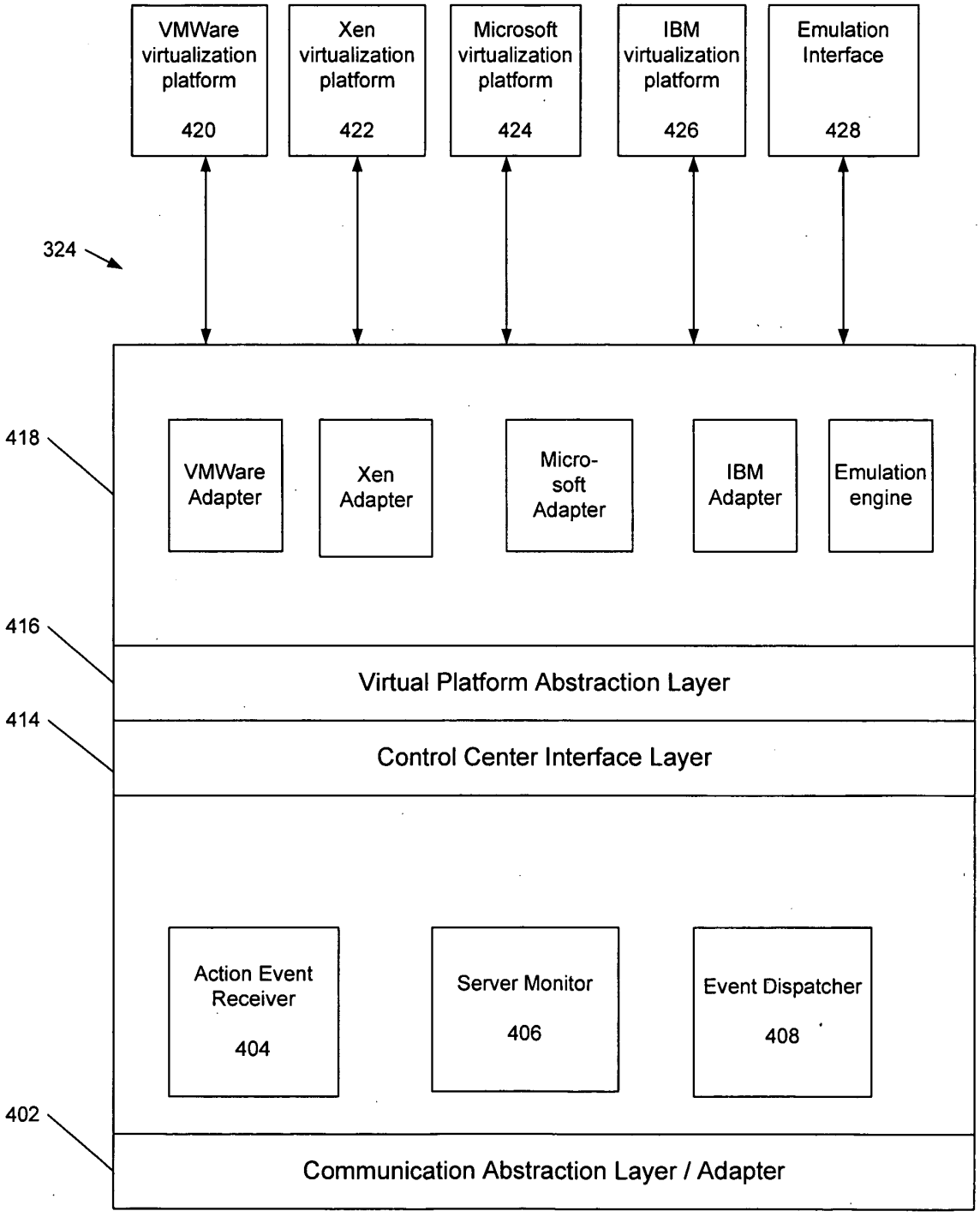

VMWare virtualization platform 420
Xen virtualization platform 422
Microsoft virtualization platform 424
IBM virtualization platform 426
Emulation Interface 428
324
418
VMWare Adapter
Xen Adapter
Micro-soft Adapter
IBM Adapter
Emulation engine
416
Virtual Platform Abstraction Layer
414
Control Center Interface Layer
Action Event Receiver 404
Server Monitor 406
Event Dispatcher 408
402
Communication Abstraction Layer / Adapter

FIG. 4

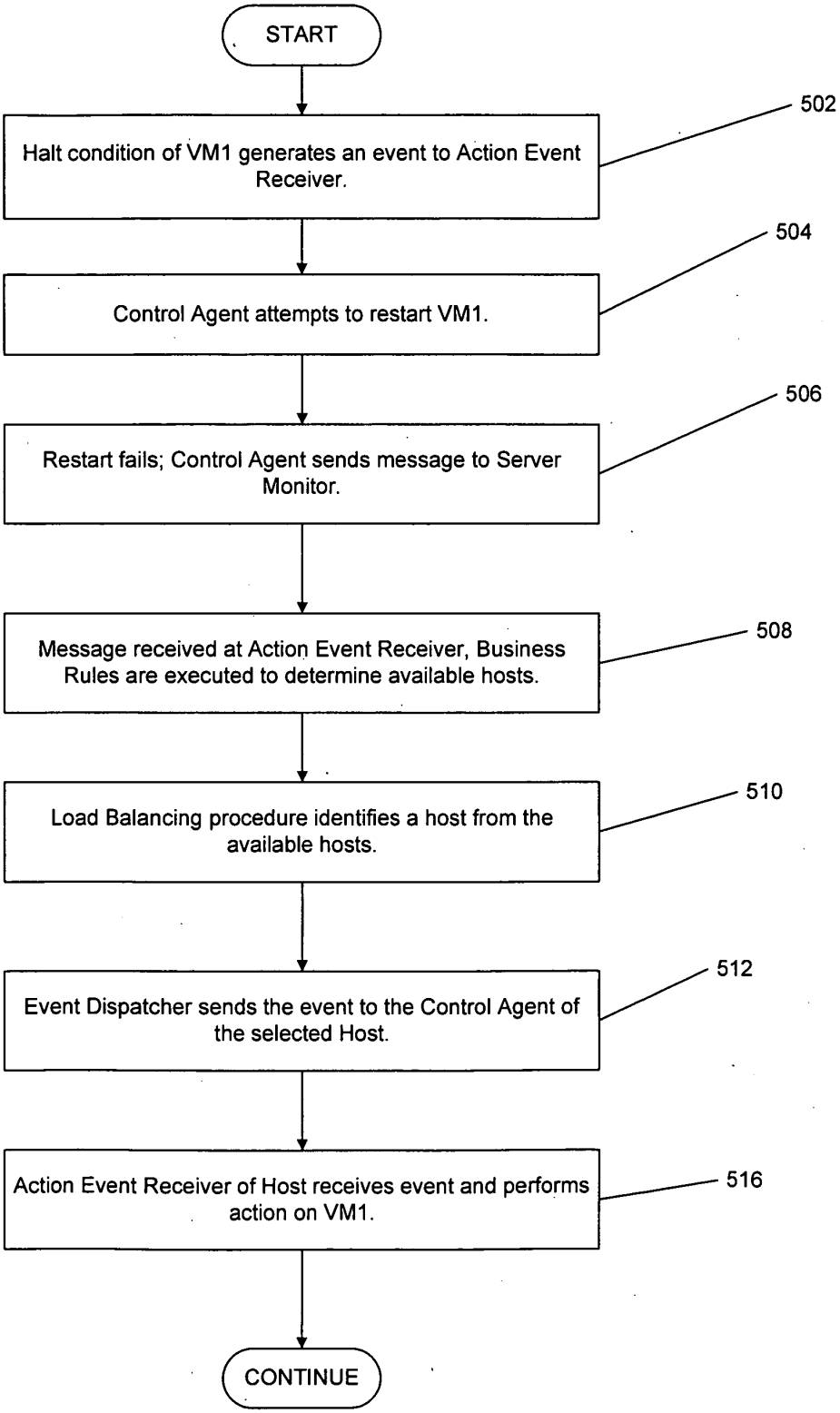

START
Halt condition of VM1 generates an event to Action Event Receiver.
502
Control Agent attempts to restart VM1.
504
Restart fails; Control Agent sends message to Server Monitor.
506
Message received at Action Event Receiver, Business Rules are executed to determine available hosts.
508
Load Balancing procedure identifies a host from the available hosts.
510
Event Dispatcher sends the event to the Control Agent of the selected Host.
512
Action Event Receiver of Host receives event and performs action on VM1.
516
CONTINUE

FIG. 5

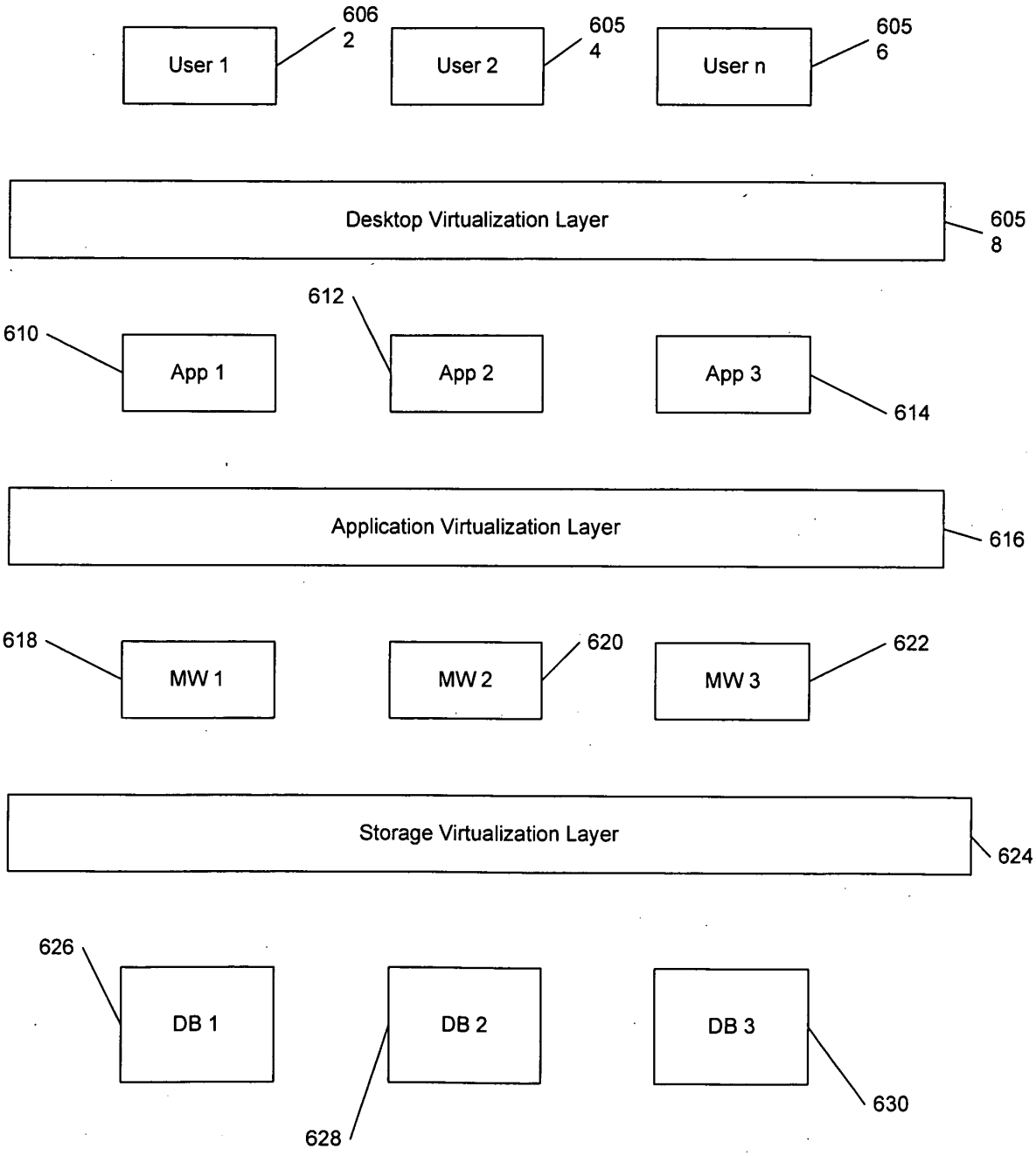
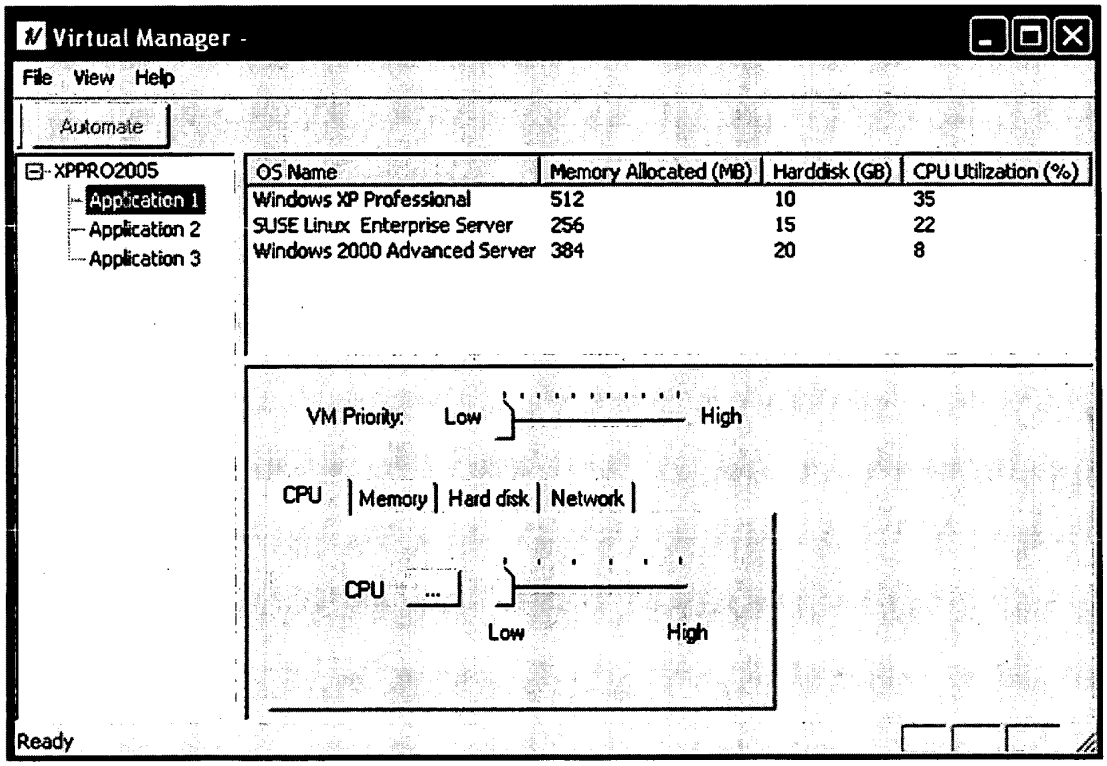
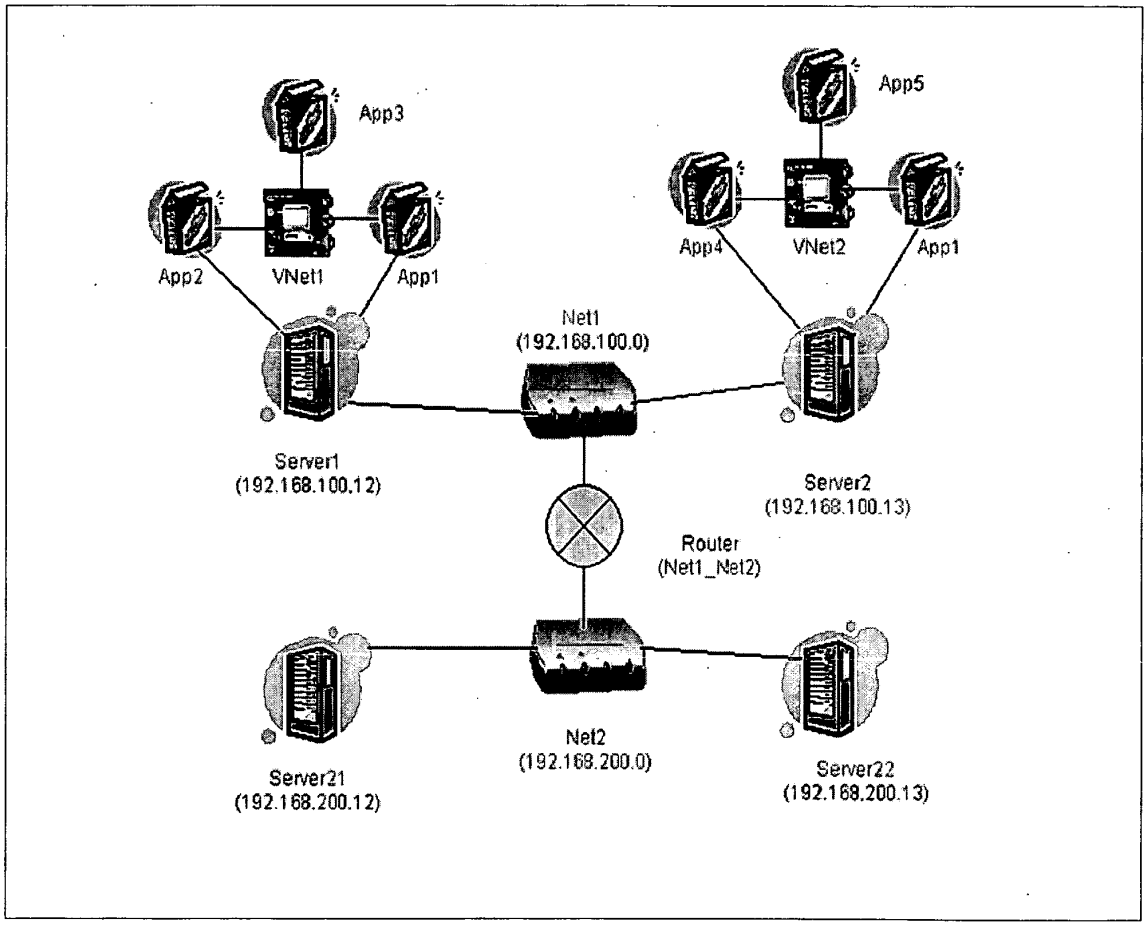

User 1
606 2
User 2
605 4
User n
605 6
Desktop Virtualization Layer
605 8
610
App 1
612
App 2
App 3
614
Application Virtualization Layer
616
618
MW 1
MW 2
620
MW 3
622
Storage Virtualization Layer
624
626
DB 1
DB 2
628
DB 3
630

FIG. 6



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FIG. 7



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FIG. 8

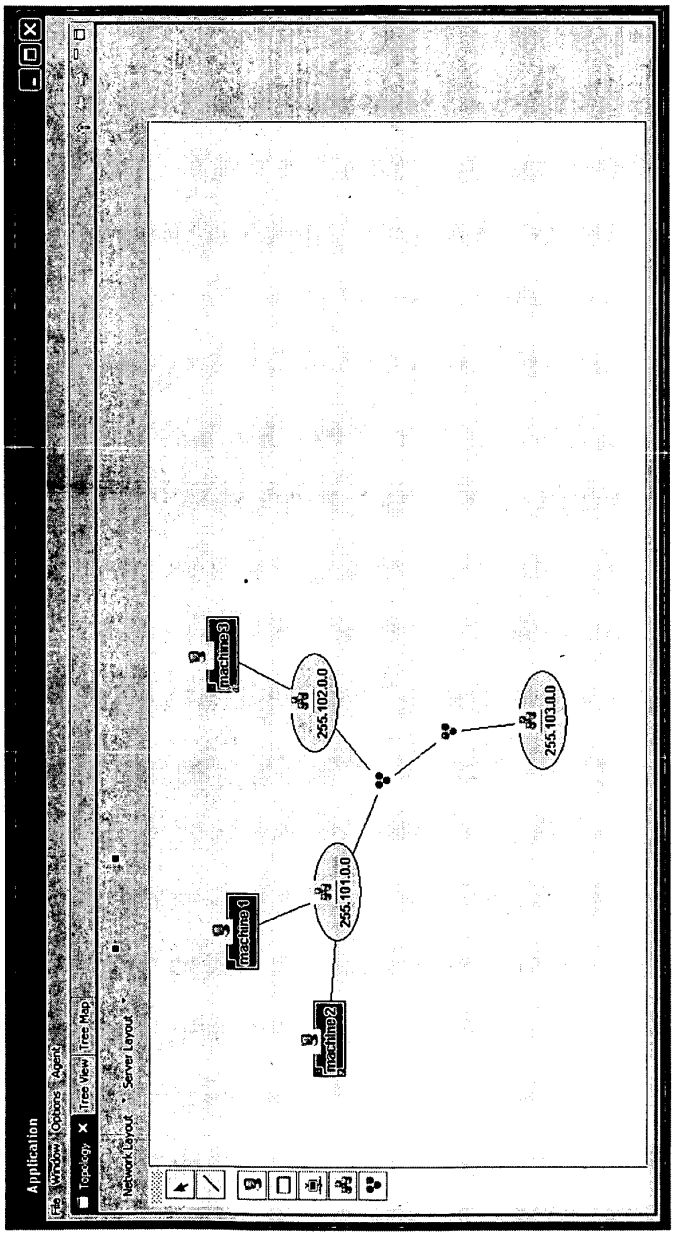


FIG. 9

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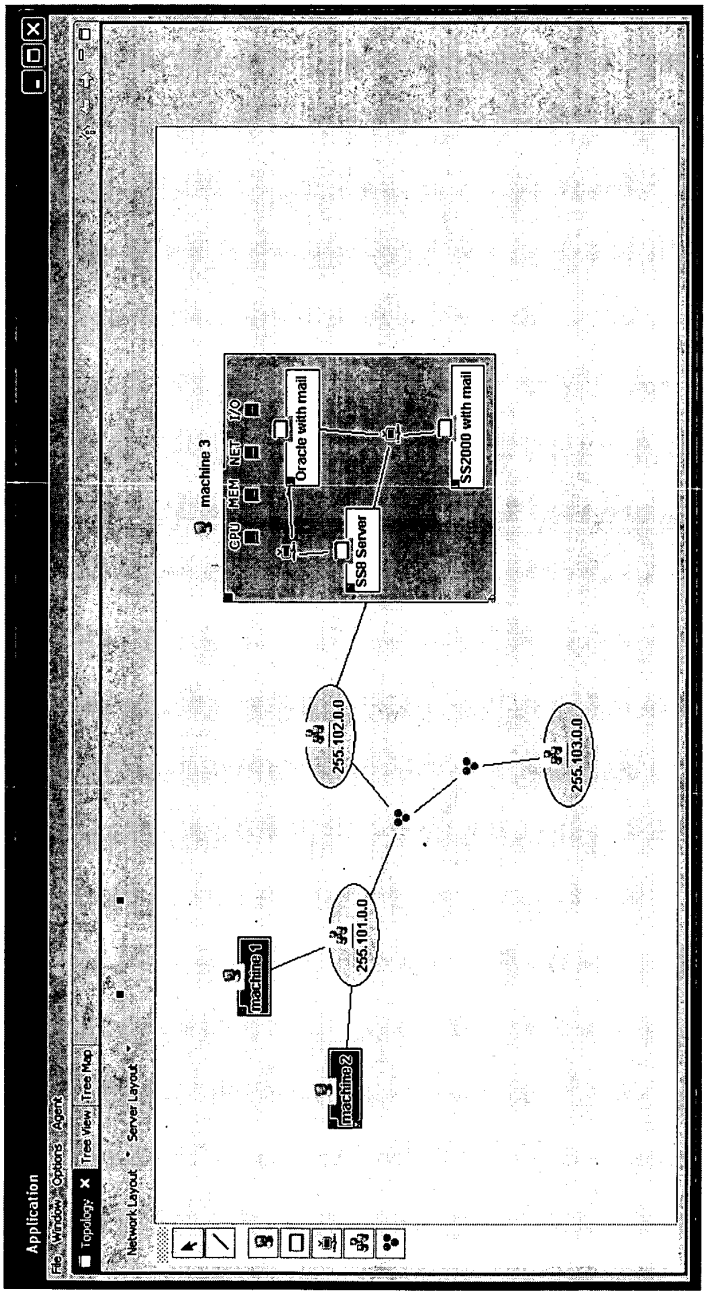
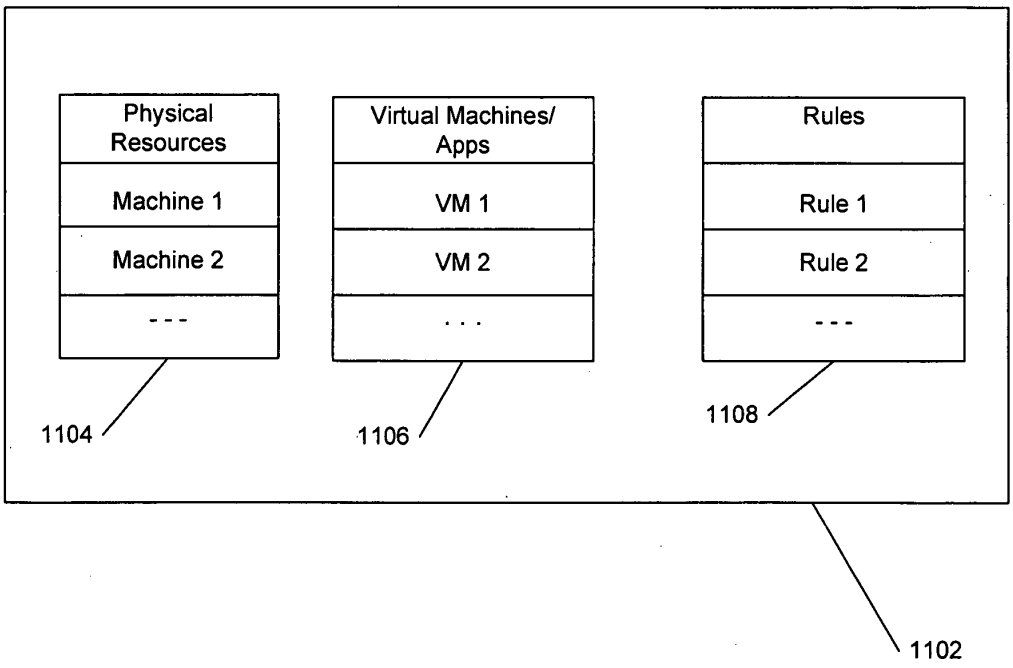


FIG. 10

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Physical Resources
Machine 1
Machine 2

Virtual Machines/ Apps
VM 1
VM 2
. . .
Rules
Rule 1
Rule 2

1104
1106
1108
1102

FIG. 11

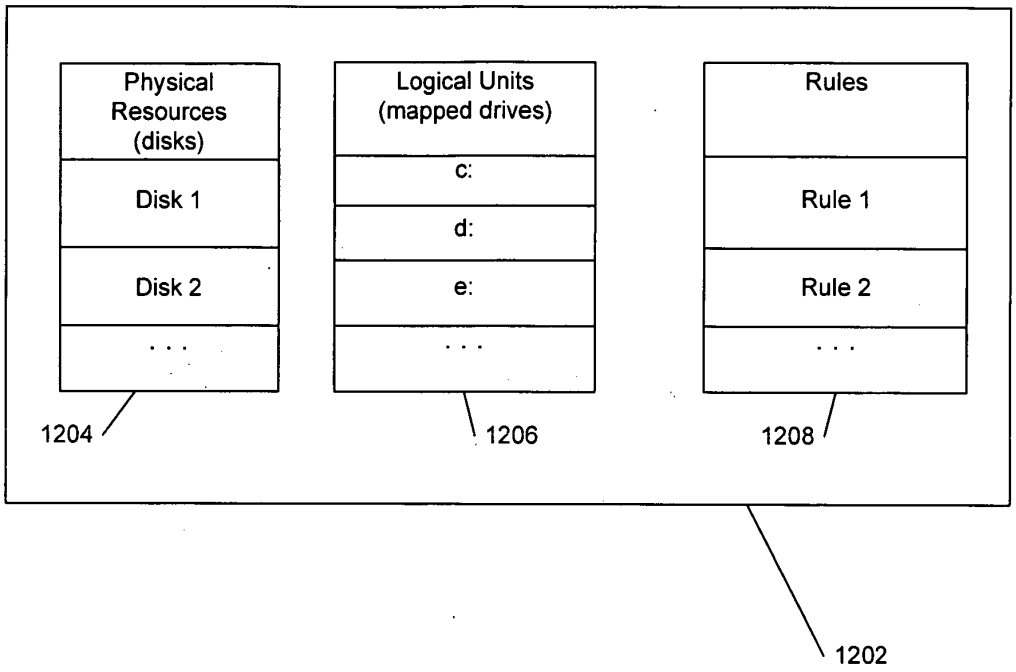

Physical Resources (disks)
Disk 1
Disk 2
. . .
Logical Units (mapped drives)
c:
d:
e:
. . .
Rules
Rule 1
Rule 2
. . .
1204
1206
1208
1202

FIG. 12

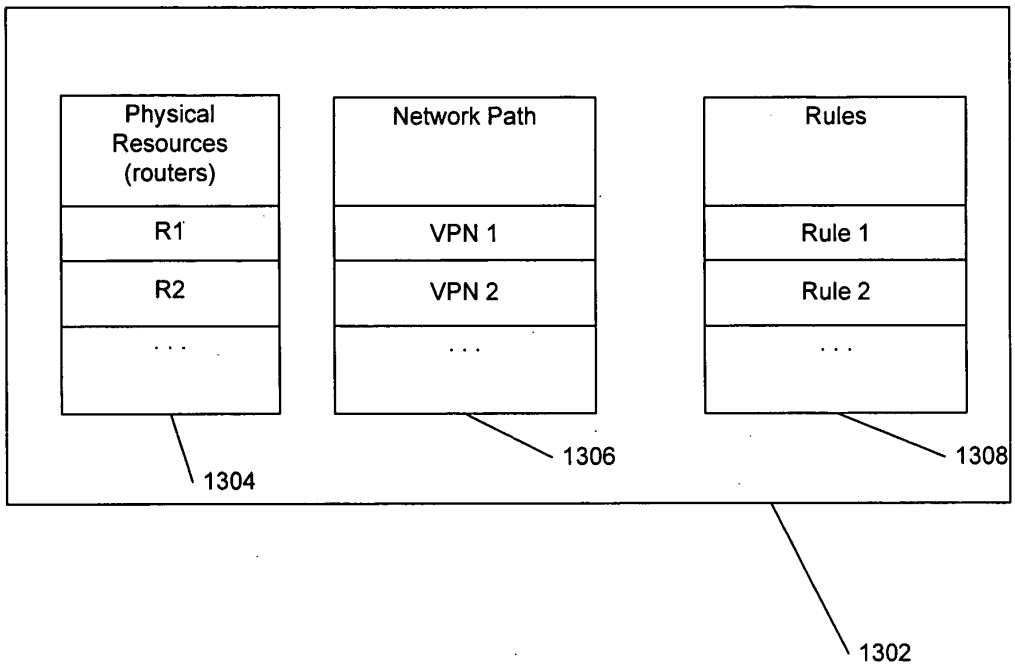
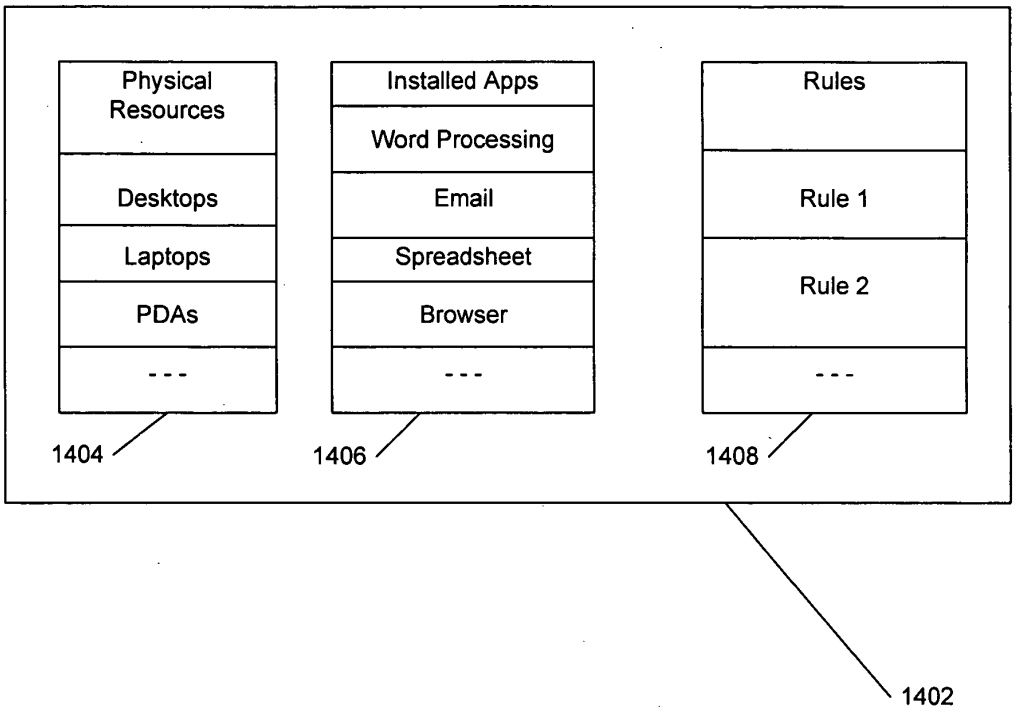

Physical Resources (routers)
R1
R2
. . .
Network Path
VPN 1
VPN 2
. . .
Rules
Rule 1
Rule 2
. . .
1304
1306
1308
1302

FIG. 13


Physical Resources
Desktops
Laptops
PDAs

Installed Apps
Word Processing
Email
Spreadsheet
Browser

Rules
Rule 1
Rule 2

1404
1406
1408
1402

FIG. 14

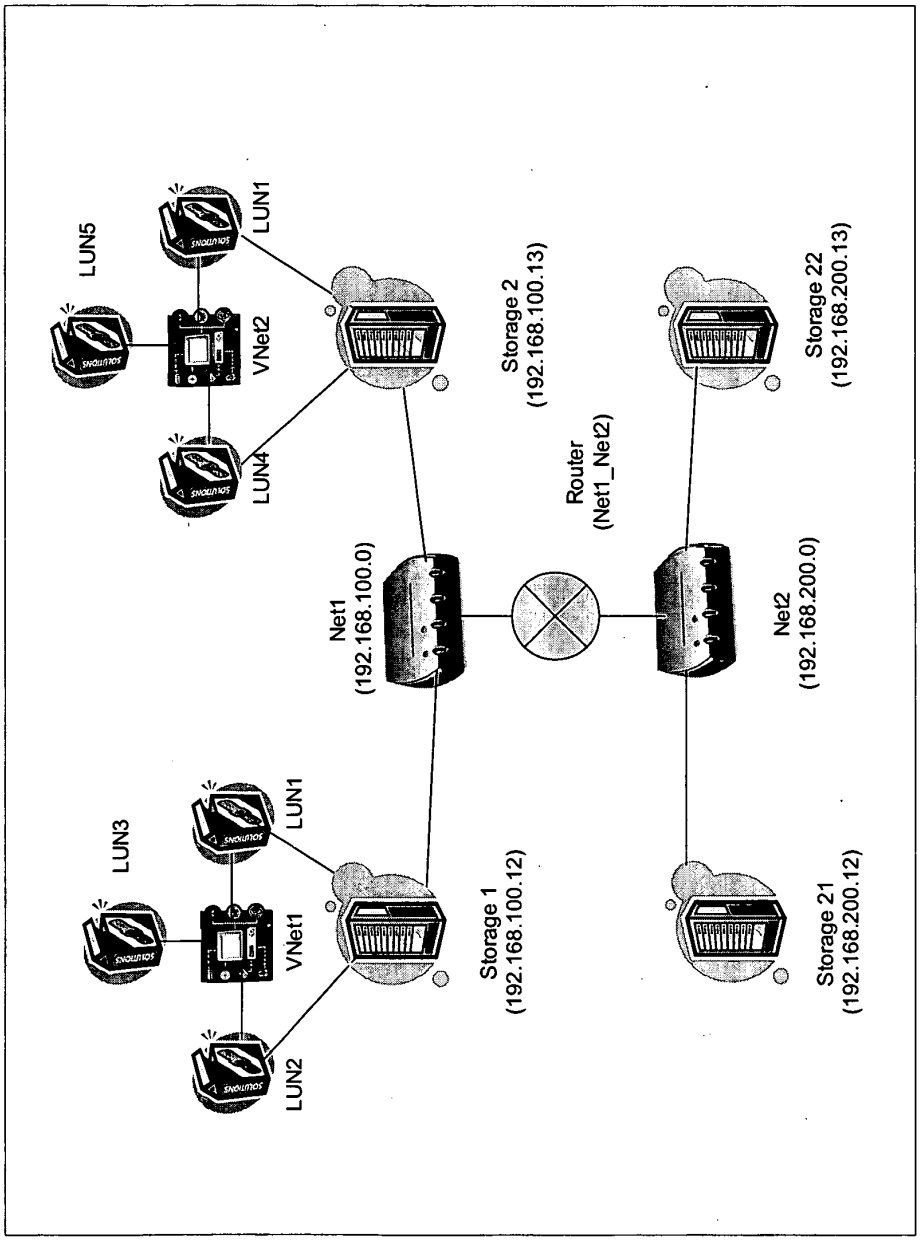


FIG. 15

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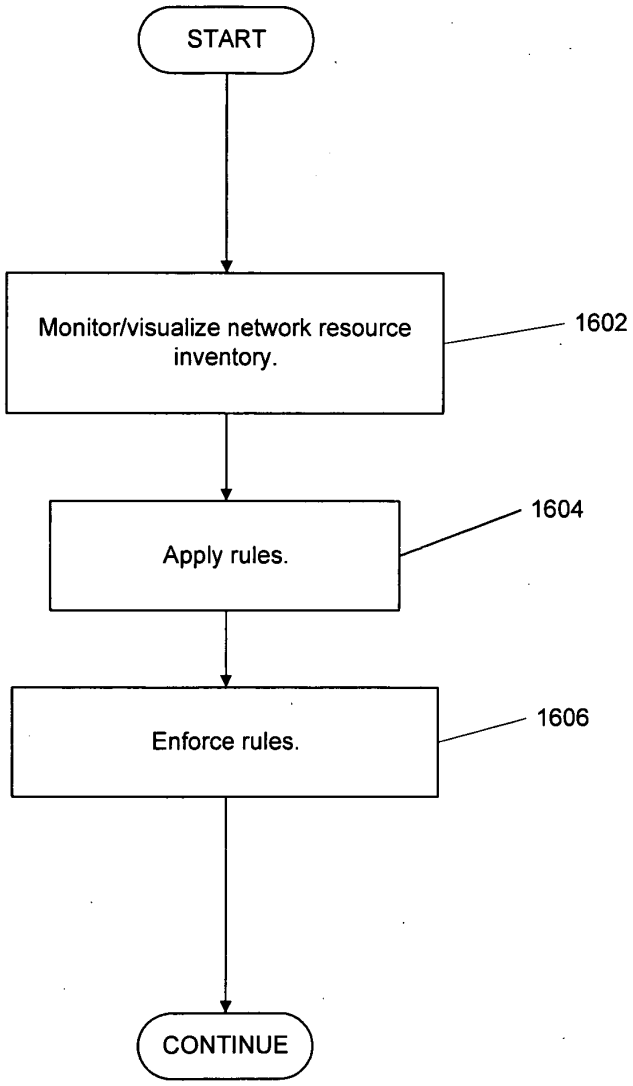

START
Monitor/visualize network resource inventory.
1602
Apply rules.
1604
Enforce rules.
1606
CONTINUE

FIG. 16

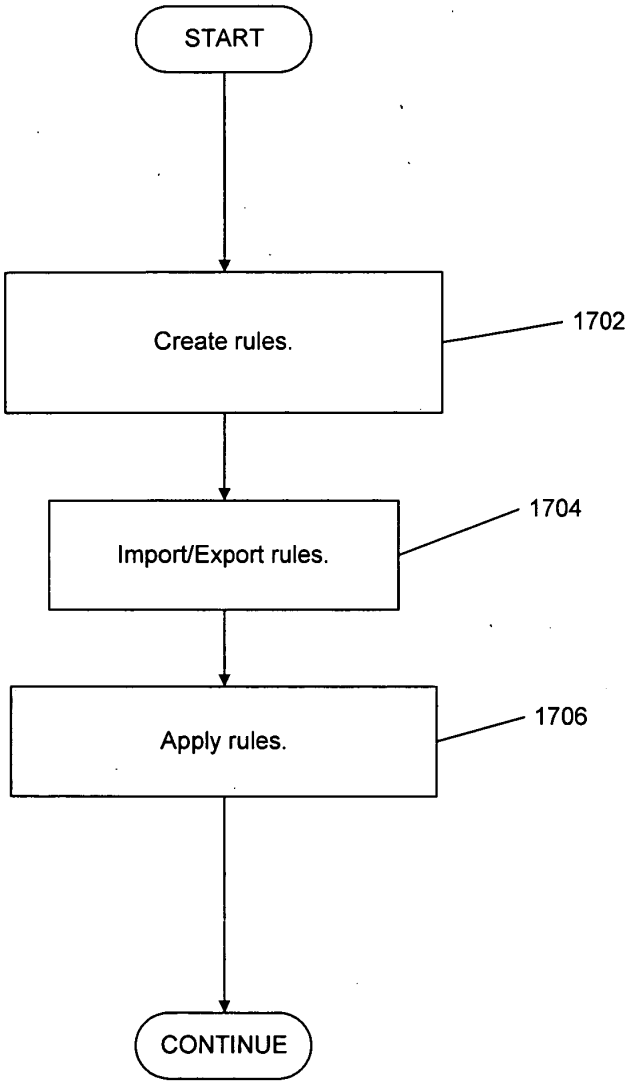

START
Create rules.
1702
Import/Export rules.
1704
Apply rules.
1706
CONTINUE

FIG. 17

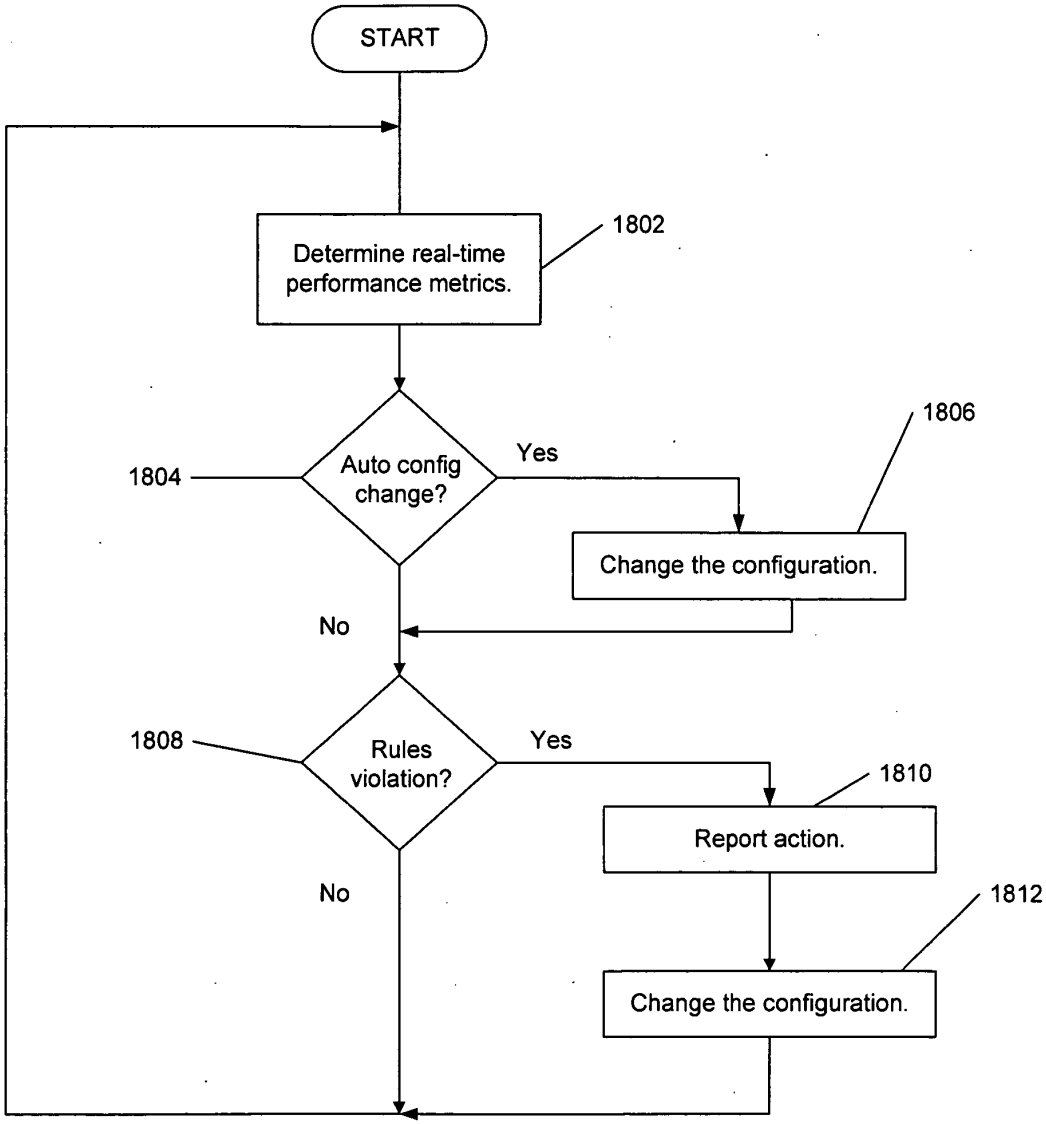

START
Determine real-time performance metrics.
1802
Auto config change?
1804
Yes
1806
Change the configuration.
No
Rules violation?
1808
Yes
1810
Report action.
No
1812
Change the configuration.

FIG. 18

PATENT APPLICATION SERIAL NO. _____

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

08/15/2006 AKELECH1 00000039 11503090

01 FC:2011	150.00	OP
02 FC:2111	250.00	OP
03 FC:2311	100.00	OP
04 FC:2202	225.00	OP
05 FC:2201	100.00	OP

PTO-1556
(5/87)

*U.S. Government Printing Office: 2002 — 469-267/60033

PTO/SB/06 (12-04)
Approved for use through 7/31/2006. 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 Effective December 8, 2004

Application or Docket Number: 11503090

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	150.00		N/A	300.00
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A	$250		N/A	$500
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	$100		N/A	$200
TOTAL CLAIMS (37 CFR 1.16(i))	29 minus 20 =	* 9	X$ 25 =	225.	OR	X$50 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	1 minus 3 =	* 1	X100 =	100		X200 =	
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))			+180=			+360=	
			TOTAL	475.		TOTAL	

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

1 26 27

APPLICATION AS AMENDED – PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	X$ 25 =		OR	X$50 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X100 =		OR	X200 =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					+180=		OR	+360=	
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	X$ 25 =		OR	X$50 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X100 =		OR	X200 =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))					+180=		OR	+360=	
						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.

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.

18351 U.S. PTO
081006

PTO/SB/05 (09-04)
Approved for use through 07/31/2006. 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.

UTILITY PATENT APPLICATION TRANSMITTAL

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

Attorney Docket No.	EV417728607US
First Inventor	Vipul Pabari
Title	Virtual Systems Management
Express Mail Label No.	EV417728607US

113260 U.S.PTO
11/503090
081006

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* 48]
   Both the claims and abstract must start on a new page
   (For information on the preferred arrangement, see MPEP 608.01(a))
4. ☑ **Drawing(s)** (*35 U.S.C. 113*) [*Total Sheets* 18]
5. **Oath or Declaration** [*Total Sheets* _____]
   a. ☐ Newly executed (original or copy)
   b. ☐ A 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) name in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
6. ☐ **Application Data Sheet.** See 37 CFR 1.76
7. ☐ **CD-ROM or CD-R** in duplicate, large table or Computer Program *(Appendix)*
   ☐ Landscape Table on CD
8. **Nucleotide and/or Amino Acid Sequence Submission**
   (if applicable, items a. – c. are required)
   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

ADDRESS TO:
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

ACCOMPANYING APPLICATION PARTS

9. ☐ **Assignment Papers** (cover sheet & document(s))
   Name of Assignee _____
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** (PTO/SB/08 or PTO-1449)
    ☐ Copies of citations attached
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. ☐ **Nonpublication Request** under 35 U.S.C. 122(b)(2)(B)(i).
    Applicant must attach form PTO/SB/35 or equivalent.
17. ☐ Other: _____

18. If a CONTINUING APPLICATION, *check appropriate box, and supply the requisite information below and in the first sentence of the specification following the title, 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* _____ *Art Unit:* _____

19. CORRESPONDENCE ADDRESS

☑ The address associated with Customer Number: 33123 ***OR*** ☐ Correspondence address below

Name					
Address					
City		State		Zip Code	
Country		Telephone		Fax	

Signature	Steven A. Moore	Date	August 10, 2006
Name (Print/Type)	Steven A. Moore	Registration No. (Attorney/Agent)	55,462

This collection of information is required by 37 CFR 1.53(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/17 (12-04)
Approved for use through 07/31/2006. 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

Effective on 12/08/2004.
Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

FEE TRANSMITTAL
For FY 2005

☑ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 825.00

Complete if Known	
Application Number	Not yet assigned
Filing Date	Herewith
First Named Inventor	Vipul Pabari
Examiner Name	Not yet assigned
Art Unit	Not yet assigned
Attorney Docket No.	41965-0003

METHOD OF PAYMENT (check all that apply)

☑ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____

☑ Deposit Account Deposit Account Number: 50-1213 Deposit Account Name: Heller Ehrman LLP

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

	FILING FEES		SEARCH FEES		EXAMINATION FEES		
		Small Entity		Small Entity		Small Entity	
Application Type	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fees Paid ($)
Utility	300	150	500	250	200	100	500.00
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee ($)	Small Entity Fee ($)
Each claim over 20 or, for Reissues, each claim over 20 and more than in the original patent	50	25
Each independent claim over 3 or, for Reissues, each independent claim more than in the original patent	200	100
Multiple dependent claims	360	180

Total Claims	Extra Claims	Fee ($)	Fee Paid ($)
29 - 20 or HP =	9	x 25	= 225.00

HP = highest number of total claims paid for, if greater than 20

Indep. Claims	Extra Claims	Fee ($)	Fee Paid ($)
4 - 3 or HP =	1	x 100	= 100.00

HP = highest number of independent claims paid for, if greater than 3

Multiple Dependent Claims	Fee ($)	Fee Paid ($)

3. APPLICATION SIZE FEE

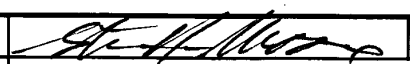
If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee ($)	Fee Paid ($)
67 - 100 =	0	/ 50 = 0 (round **up** to a whole number)	x 125	= 0

4. OTHER FEE(S)

	Fees Paid ($)
Non-English Specification, $130 fee (no small entity discount)	
Other: _____	

SUBMITTED BY

Signature		Registration No. (Attorney/Agent) 55,462	Telephone 858.450.8400
Name (Print/Type)	Steven A. Moore		Date August 10, 2006

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.

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	ATTORNEY DOCKET NUMBER
11/503,090	08/10/2006	Vipul Pabari	EV417728607US

CONFIRMATION NO. 9855

33123
HELLER EHRMAN LLP
4350 LA JOLLA VILLAGE DRIVE #700
7TH FLOOR
SAN DIEGO, CA 92122

FORMALITIES LETTER

Date Mailed: 08/30/2006

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 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.*
  Note: If a petition under 37 CFR 1.47 is being filed, an oath or declaration in compliance with 37 CFR 1.63 signed by all available joint inventors, or if no inventor is available by a party with sufficient proprietary interest, is required.

The applicant needs to satisfy supplemental fees problems indicated below.

The required item(s) identified below must be timely submitted to avoid abandonment:

• To avoid abandonment, a surcharge (for late submission of filing fee, search fee, examination fee or oath or declaration) as set forth in 37 CFR 1.16(f) of $65 for a small entity in compliance with 37 CFR 1.27, must be submitted with the missing items identified in this letter.

SUMMARY OF FEES DUE:

Total additional fee(s) required for this application is **$65** for a small entity

- **$65** Surcharge.

Replies should be mailed to: Mail Stop Missing Parts

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

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

Oh Sar

Office of Initial Patent Examination (571) 272-4000, or 1-800-PTO-9199, or 1-800-972-6382
PART 3 - OFFICE COPY

OIPE IAP88 NOV 03 2006 PATENT & TRADEMARK OFFICE

RECEIVED SEP - 1 2006 TELE

41965-0008

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371 (c) DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NUMBER
11/503,090	08/10/2006	Vipul Pabari	EV417728607US

CONFIRMATION NO. 9855

FORMALITIES LETTER

33123
HELLER EHRMAN LLP
4350 LA JOLLA VILLAGE DRIVE #700
7TH FLOOR
SAN DIEGO, CA 92122

Date Mailed: 08/30/2006

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 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.*
  Note: If a petition under 37 CFR 1.47 is being filed, an oath or declaration in compliance with 37 CFR 1.63 signed by all available joint inventors, or if no inventor is available by a party with sufficient proprietary interest, is required.

The applicant needs to satisfy supplemental fees problems indicated below.

The required item(s) identified below must be timely submitted to avoid abandonment:

- To avoid abandonment, a surcharge (for late submission of filing fee, search fee, examination fee or oath or declaration) as set forth in 37 CFR 1.16(f) of $65 for a small entity in compliance with 37 CFR 1.27, must be submitted with the missing items identified in this letter.

SUMMARY OF FEES DUE:

Total additional fee(s) required for this application is **$65** for a small entity

- **$65** Surcharge.

11/03/2006 NNGUYEN1 00000057 11503090
01 FC:2051 65.00 OP

Replies should be mailed to: Mail Stop Missing Parts

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

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

Ah Sar

Office of Initial Patent Examination (571) 272-4000, or 1-800-PTO-9199, or 1-800-972-6382
PART 1 - ATTORNEY/APPLICANT COPY

OIPE
NOV 03 2006
PATENT & TRADEMARK OFFICE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	V. Pabari
Serial No.:	11/503,090
Filed:	August 10, 2006
Customer No.:	33123
Confirmation No.:	9855
For:	VIRTUAL SYSTEMS MANAGEMENT
Art Unit:	2154
Examiner	Not yet assigned

CERTIFICATE OF MAILING

I hereby certify that this correspondence and the attached papers are being deposited with the United States Postal Service with sufficient postage as first class mail on the date indicated below and addressed to:

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

10-30-06
Date

Jennifer Vail
Signature

RESPONSE TO NOTICE TO FILE MISSING PARTS

Mail Stop Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Notice to File Missing Parts mailed August 30, 2006, the following documents are submitted herewith:

1) A copy of the Notice to File Missing Parts;
2) Executed Declaration for Patent Application;
3) Check in the amount of $65.00 for the surcharge fee;
4) Return postcard.

(x) The Commissioner is hereby authorized to charge any fee, including any submitted herewith if the attached check(s) is in the wrong amount or otherwise improper or missing, that may be due in connection with this and the attached papers, or with this application during its entire pendency to or to credit any overpayment to Deposit Account No. 08-1641. A copy of this sheet is enclosed.

Respectfully submitted,
Heller Ehrman LLP

By: _____
Steven A. Moore
Registration No. 55,462

Attorney Docket: 41965-0003
Address all correspondence to:
Customer No. 33123
Heller Ehrman LLP
4350 La Jolla Village Drive, 7th Floor
San Diego, California 92122-1246
Telephone: (858) 450-8400 / Facsimile: (858) 450-8499

SD 845388 v1 (41965.0003)

NOV 08 2006
PATENT & TRADEMARK OFFICE

Atty Docket No. 41965-0003

DECLARATION AND POWER OF ATTORNEY 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 I am the original, first and joint inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled:

VIRTUAL SYSTEMS MANAGEMENT

the specification of which

( ) is attached hereto.
(X) was filed by an authorized person on my behalf on August 10, 2006 as Application Serial No. 11/503,090.
( ) and as amended [if applicable].

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

Prior Foreign Application(s)

I hereby claim foreign priority benefits under Title 35, United States Code, §119(a)-(d) or §365(b) of any foreign application(s) for patent or inventor's certificate listed below and so identified, or §365(a) of any PCT international application that designated at least one country other than the United States of America, listed below, and I have also identified below any foreign application for patent or inventor's certificate or PCT international application on this invention filed by me or my legal representatives or assigns and having a filing date before that of the application on which priority is claimed.

Number	Country	Day/Month/Year Filed	Priority Claimed (Yes or No)

Prior Provisional Application(s)

I hereby claim benefit under Title 35, United States Code, Section 119(e) of any United States provisional application(s) listed below:

Application Serial No.	Filing Date
60/708,473	August 15, 2005

Prior United States Application(s)

I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States application(s), or Section 365(c) of any PCT international application designating the US, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, Section 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, Section 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

Application Serial No.	Filing Date	Status
N/A		

PCT Application No.	Filing Date
N/A	

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 Section 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 issued thereon.

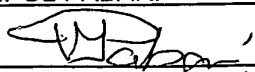
I hereby appoint the following attorneys and agents, with full power of substitution and revocation, to prosecute this application and to transact all business in the United States Patent and Trademark Office connected therewith and request that all correspondence and telephone calls in respect to this application be directed to Attn: Patent Department, Heller Ehrman LLP, 4350 La Jolla Village Drive, 7th Floor, San Diego, California 92122-1246; (858) 450-8400:

Attorney	Reg. No.
Paul Davis	29,294
Jessica Wolff	37,261
John Benassi	27,483
Kurt Kjelland	41,901
Leslie B. Overman	48,541
Steven A. Moore	55,462

and other members of the firm.

Address for correspondence: **PTO Customer No. 33123**
Heller Ehrman LLP
4350 La Jolla Village Drive, 7th Floor
San Diego, California 92122-1246

Full name of joint inventor: VIPUL PABARI

Inventor's signature: 

Date: OCT 27th 2006

Correspondence Address: 7349 Spinnaker Street, Carlsbad, California 92011
Residence (city, state): Carlsbad, California
Citizenship: Tanzania

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	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	DRAWINGS	TOT CLAIMS	IND CLAIMS
11/503,090	08/10/2006	2154	890	41965-0003	18	29	4

CONFIRMATION NO. 9855

33123
HELLER EHRMAN LLP
4350 LA JOLLA VILLAGE DRIVE #700
7TH FLOOR
SAN DIEGO, CA92122

UPDATED FILING RECEIPT

Date Mailed: 11/14/2006

Receipt is acknowledged of this regular Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please mail to the Commissioner for Patents P.O. Box 1450 Alexandria Va 22313-1450. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).**

Applicant(s)

Vipul Pabari, Carlsbad, CA;

Power of Attorney:
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Domestic Priority data as claimed by applicant

This appln claims benefit of 60/708,473 08/15/2005

Foreign Applications

If Required, Foreign Filing License Granted: 08/29/2006

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US11/503,090**

Projected Publication Date: 02/22/2007

Non-Publication Request: No

Early Publication Request: No

** SMALL ENTITY **

Title

Virtual systems management

Preliminary Class

709

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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NOT GRANTED

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APPLICATION NUMBER	FILING OR 371(c) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/503,090	08/10/2006	Vipul Pabari	41965-0003

CONFIRMATION NO. 9855

33123
HELLER EHRMAN LLP
4350 LA JOLLA VILLAGE DRIVE #700
7TH FLOOR
SAN DIEGO, CA92122

Title: Virtual systems management

Publication No. US-2007-0043860-A1
Publication Date: 02/22/2007

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Office of Public Records. The Office of Public Records can be reached by telephone at (703) 308-9726 or (800) 972-6382, by facsimile at (703) 305-8759, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently http://pair.uspto.gov/. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 703-305-3028.

Pre-Grant Publication Division, 703-605-4283

PLUS Search Results for S/N 11503090, Searched Mon Mar 31 15:12:48 EDT 2008

The Patent Linguistics Utility System (PLUS) is a USPTO automated search system for U.S. Patents from 1971 to the present PLUS is a query-by-example search system which produces a list of patents that are most closely related linguistically to the application searched. This search was prepared by the staff of the Scientific and Technical Information Center, SIRA.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/503,090	08/10/2006	Vipul Pabari	41965-0003	9855

33123 7590 05/30/2008

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EXAMINER	
AMPAGOOMIAN, DAVID S	
ART UNIT	**PAPER NUMBER**
2146	

MAIL DATE	DELIVERY MODE
05/30/2008	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.

Office Action Summary	Application No.	Applicant(s)	
	11/503,090	PABARI, VIPUL	
	Examiner	Art Unit	
	DAVID AMPAGOOMIAN	2146	

-- 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 *10 August 2006*.

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) *1-29* 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) *1-29* 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 *08/10/2006* 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: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. **Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.** Regarding claim 11, the phrase "specifies parameter that receive an instruction" renders the claim indefinite because it is unclear how the phrases limits the claim.

Claim Rejections - 35 USC § 102

3. 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 –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims * rejected under 35 U.S.C. 102(b) as being anticipated by Trossman et al (2008/0086731).**

Regarding claim 1, Trossman discloses a method for automatic management of a virtualization environment in a computer network, the method comprising:

determining an inventory of network resources and virtual assets available to a virtualization environment of the computer network (Trossman: "The data storage

20 contains information on the groupings and poolings of resources in the resource system 12 for management purposes." [0042], [0034-0036]);

assigning prioritization to members of the available inventory for the virtualization environment (Trossman: "Each of these group information sets may contains an identification of each resource in the group, the size of the group, the number of active and idle resources in the group and the priority of the group and the pool to which the group belongs." [0042], [0023]);

provisioning virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment (Trossman: abstract, "Given the differing resource requirements for each application environment using and requiring resources in the resource system 12, the resource change mechanism 18 decides where the resources will be allocated." [0031]);

determining real time performance metrics for the provisioned virtualization environment ("These resources are monitored for availability and performance information according to their assigned execution (or application) environments" Trossman: abstract, [0022-0023]);

producing a reallocation of the virtual assets automatically in response to the real time performance metrics ("The resources can then be reconfigured or

reallocated to different environment so that the requirements of each environment can be met." Trossman: abstract, [0034-0036]); and

initiating the reallocation of the virtual assets ("The present invention provides dynamic configuration and allocation of resources in a data center." Trossman: abstract).

Regarding claim 2, Trossman discloses the method of claim 1 further comprising receiving user input that specifies parameters to be considered with the real time performance metrics in producing the reallocation of assets ("The user interface 40 is in communication with the data storage 20 to allow user access to and manipulation of the information contained therein. The user interface 40 is also in communication with the data acquisition mechanism 14, the deployment mechanism 22, the state determination mechanism 16 and the resource change mechanism 18. The user interface 40 provides a view of the state of all physical and logical resources in the resource system 12. In this manner a user can access information about the resources and their allocation as well as allow for user generated configurations and allocations. The user interface 40 may also be used to create application environments." Trossman:[0033]).

Regarding claim 3, Trossman discloses the method of claim 2, wherein the received user input comprises a Knowledge Block that determines one or more of the reallocation parameters (Trossman:[0033]).

Regarding claim 4, Trossman discloses he method of claim 2, wherein the received user input specifies parameters that detect operational degradation of a member of the available inventory (Trossman:[0033],[0056-0057]).

Regarding claim 5, Trossman discloses the method of claim 4, wherein the available inventory member that is detected as degraded is removed from the available inventory (Trossman：[0119]).

Regarding claim 6, Trossman discloses the method of claim 4, wherein the available inventory that is detected as degraded is moved from the available inventory to a debug inventory pool (Trossman：[0119-0120]).

Regarding claim 9, Trossman discloses the method of claim 4, wherein the available inventory that is detected as degraded is halted and is removed from the available inventory to a debug inventory pool (Trossman：[0119-0120])..

Regarding claim 10, Trossman discloses the method of claim 9, wherein the halted available inventory is removed from the debug inventory pool(Trossman：[0119-

0120])..

Regarding claim 11, Trossman discloses the method of claim 3, wherein the Knowledge Block specifies parameters that send an alert message to an administrator of the network in response to an alert condition (Trossman： [0033],[0040],[0119-0120]).

.

Regarding claim 13, Trossman discloses the method of claim 3, wherein the Knowledge Block specifies parameters that identify a last known acceptable virtual machine image that includes one or more applications from the set of available inventory (Trossman:[0033]).

Regarding claim 14, Trossman discloses the method of claim 3, wherein the Knowledge Block specifies parameters that deploy an instance of an application selected from among the available inventory (Trossman:[0033]).

Regarding claim 15, Trossman discloses the method of claim 2, wherein the received user input specifies a priority for one or more of the available inventory (Trossman:[0033]).

Regarding claim 16, Trossman discloses the method of claim 2, wherein the user input specifies a time period during which the reallocation will be applied

(Trossman:[0033])..

Regarding claim 17, Trossman discloses the method of claim 1, further comprising: providing a user interface through which user input can be received and wherein the user input adjusts scheduling of producing the reallocation (Trossman:[0033])..

Regarding claim 18, Trossman discloses the method of claim 1, wherein producing a reallocation comprises adding a new application instance to the available inventory ([0119]).

Regarding claim 19, Trossman discloses the method of claim 1, wherein producing a reallocation comprises updating the available inventory to include any changes made by the reallocation ([0104], [0118-0119]).

Regarding claim 20, Trossman discloses the method of claim 1, wherein the inventory of available inventory includes one or more application programs ([0119]).

Regarding claim 21, Trossman discloses the method of claim 20, wherein one of the application programs comprises a network load balancer ([0024]).

Regarding claim 22, Trossman discloses the method of claim 20, wherein one of the application programs comprises a network server (Trossman: [0022]).

Regarding claim 23, Trossman discloses the. The method of claim 1, wherein: determining, by an Asset Manager Component, an inventory of available network resources and virtual assets; assigning prioritization to the available inventory and provisioning virtual assets from among the available inventory, performed by a Provisioning Manager component (Trossman: "Each of these group information sets may contains an identification of each resource in the group, the size of the group, the number of active and idle resources in the group and the priority of the group and the pool to which the group belongs." [0042], [0023]);; determining, by a Performance Manager component, a real time performance metrics; ("These resources are monitored for availability and performance information according to their assigned execution (or application) environments" Trossman: abstract, [0022-0023]); and automatically producing and initializing, by an Optimizer component, a reallocation of the virtual assets (Trossman: abstract) .

Regarding claim 24, Trossman discloses the method of claim 23, wherein automatically producing a reallocation of the virtual assets comprises forecasting future system needs, which is performed by a Capacity Planning Manager component (see :

abstract).

Regarding claim 25, Trossman discloses a method for automatic management of a virtualization environment in a computer network, the method comprising: performing one or more functions from the group of functions consisting of (1) identification and management of network resources and virtual assets, (2) provisioning of virtual assets in response to network workflow demands, (3) dynamic deployment of virtual assets across the computer network, (4) performance measurement and reporting of resources and virtual assets, and (5) planning and forecasting of resource demands and asset utilization of the virtualization environment (Trossman: abstract, [0022-0023],[0031-0036],[0042]); wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment (Trossman: [0031-36]).

Regarding claim 26, Trossman discloses a method of managing a virtualization environment in a computer network, the method comprising: providing a virtualization environment at a computer in communication with the computer network (Trossman: abstract,[0035-0038]); determining an inventory of network resources and virtual assets available to the virtualization environment (Trossman: “The data storage 20 contains information on the groupings and poolings of resources in the resource system 12 for management purposes.” [0042], [0034-0036]); performing at least one function from among the group of functions consisting of (1) identification and management of

network resources and virtual assets, (2) provisioning of virtual assets in response to network workflow demands, (3) dynamic deployment of virtual assets across the computer network, (4) performance measurement and reporting of resources and virtual assets, and (5) planning and forecasting of resource demands and asset utilization of the virtualization environment (Trossman: abstract, [0022-0023],[0031-0036],[0042]),

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment (Trossman: [0031-0036]).

Regarding claim 27, Trossman discloses an apparatus that performs automatic management of a virtualization environment in a computer network, the method comprising: a network communications unit that enables communications between the apparatus and the computer network (Trossman:[0023-0024]); an operating system of the apparatus that supports a virtualization environment in communication with the apparatus (Trossman:[0026]); and a Virtual Mapping layer that determines an inventory of network resources and virtual assets available to the virtualization environment , wherein the Virtual Mapping layer determines the inventory without regard to processors, operating systems (Trossman: “The data storage 20 contains information on the groupings and poolings of resources in the resource system 12 for management purposes.” [0042], [0034-0036]), virtualization platforms, and application software of the virtualization environment (Trossman: abstract, [0034-0038]).

Regarding claim 28, Trossman discloses the apparatus of claim 27, further comprising one or more components that receive the inventory of available resources and assets from the Virtual Mapping layer and perform one or more functions from the group of functions consisting of: (1) identification and management of network resources and virtual assets, (2) provisioning of virtual assets in response to network workflow demands, (3) dynamic deployment of virtual assets across the computer network, (4) performance measurement and reporting of resources and virtual assets, and (5) planning and forecasting of resource demands and asset utilization of the virtualization environment (Trossman: abstract, [0022-0023],[0031-0036],[0042]); wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment (Trossman: [0031-0036]).

Regarding claim 29, Trossman discloses the apparatus of claim 27, further comprising a component selected from a group consisting of: an Asset Manager component that determines an inventory of available network resources and virtual assets (Trossman: "The data storage 20 contains information on the groupings and poolings of resources in the resource system 12 for management purposes." [0042], [0034-0036]); a Provisioning Manager component that assigns a prioritization to the available inventory and provisions virtual assets from among the available inventory ([0031]); a Performance Manager component that determines real time performance metrics("These resources are

monitored for availability and performance information according to their assigned execution (or application) environments" Trossman: abstract, [0022-0023]and see figure 6); and an Optimizer component that automatically produces a reallocation of the virtual assets and initiates the reallocation ("The present invention provides dynamic configuration and allocation of resources in a data center." Trossman: abstract [0034-0036]).

Claim Rejections - 35 USC § 103

1. 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.

2. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Trossman in view of what is well know in the art.

Regarding claim 7, Trossman discloses the method of claim 4 as described above. Trossman does not explicitly disclose wherein log files are retrieved from the available inventory that is detected as degraded. Official Notice is taken (see MPEP 2144.03) that is well know in the art at the time of the invention to log computer system performance, faults and errors. It would have been obvious to one of ordinary skill in the art to include the use of logging data with the resource management method of

Trossman.

Regarding claim 8, Trossman together with what is well know in the art discloses the method of claim 7 as described above. Trossman further discloses the use of " inform[ing] fault management of an invalid action" [0119]. Trossman does not explicitly disclose wherein the log files are stored in an archive and an alert message is sent to a network administrator with an identification of the log file archive location. Official Notice is taken (see MPEP 2144.03) that is well know in the art at the time of the invention to log computer system performance, faults and errors and alert administrators of the logged events. It would have been obvious to one of ordinary skill in the art to include the use of logging data and alerting an administrator with the resource management method of Trossman.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See form PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID AMPAGOOMIAN whose telephone number is (571)270-1896. The examiner can normally be reached on Monday through Friday 9:30 AM to 7:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Pwu can be reached on 571-272-6798. 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.

/D. A./
Examiner, Art Unit 2146

/Jeffrey Pwu/
Supervisory Patent Examiner, Art Unit 2146

Notice of References Cited	Application/Control No. 11/503,090	Applicant(s)/Patent Under Reexamination PABARI, VIPUL	
	Examiner DAVID AMPAGOOMIAN	Art Unit 2146	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2005/0138165 A1	06-2005	Tang et al.	709/224
*	B	US-2008/0086731 A1	04-2008	Trossman et al.	718/100
	C	US-			
	D	US-			
	E	US-			
	F	US-			
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	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

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	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
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	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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BIB DATA SHEET

CONFIRMATION NO. 9855

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
11/503,090	08/10/2006 RULE	709	2146	41965-0003

APPLICANTS
Vipul Pabari, Carlsbad, CA;

**** CONTINUING DATA ***************************
This appln claims benefit of 60/708,473 08/15/2005

**** FOREIGN APPLICATIONS ***************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED **** ** SMALL ENTITY **
08/29/2006

Foreign Priority claimed ☐ Yes ☑ No 35 USC 119(a-d) conditions met ☐ Yes ☑ No Verified and Acknowledged /DAVID S AMPAGOOMIAN/ Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		CA	18	29	4

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UNITED STATES

TITLE
Virtual systems management

FILING FEE RECEIVED		
890	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).

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11503090	PABARI, VIPUL
	Examiner	Art Unit
	DAVID AMPAGOOMIAN	2146

✓	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	05/27/2008								
	1	✓								
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	28	✓								
	29	✓								

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11503090	PABARI, VIPUL
	Examiner	Art Unit
	DAVID AMPAGOOMIAN	2146

SEARCHED			
Class	Subclass	Date	Examiner
709	223, 226	5/27/2008	DA

SEARCH NOTES		
Search Notes	Date	Examiner
Text searched EAST databases	5/27/2008	DA

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L3	590	(virtual or virtualization) and network and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/27 08:20
L4	196	L3 and load near3 (sharing or balancing)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/27 08:20
L5	147	4 and (@rlad<="20050814" or @ad<="20050814" or @pd<="20050814")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/27 08:21
S1	50	(("20030217250") or ("20030236945") or ("20040111485") or ("20050154845") or ("20050267986") or ("20060095640") or ("20060095904") or ("20070050573") or ("20070050763") or ("20070136524") or ("20070169120") or ("20070179955") or ("20070180493") or ("20070283348") or ("20080016303") or ("5404478") or ("5463629") or ("5477242") or ("5596755") or ("5694599") or ("5694606") or ("5764999") or ("5790837") or ("5812820") or ("5826041") or ("5838908") or ("5864705") or ("5937185") or ("6067607") or ("6075938") or ("6081900") or ("6195650") or ("6195730") or ("6204847") or ("6209023") or ("6243809") or ("6253224") or ("6253318") or ("6381615") or ("6397242") or ("6496847") or ("6519678") or ("6532527") or ("6546434") or ("6681238") or ("6898670") or ("7020734") or ("7127548") or ("7206860") or ("7260664")).PN.	US-PGPUB; USPAT	OR	OFF	2008/05/26 20:30

S2	7381	709/223.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 20:44
S3	3193	709/226.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 20:44
S4	1	10/740276.app.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 20:50
S5	1841	(virtual or virtualization) and network and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 20:54
S6	590	(virtual or virtualization) and network and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 20:57
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S12	16	S11 and (@rlad<="20050815" or @ad<="20050815" or @pd<="20050815")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:03

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S25	3193	709/226.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:23
S28	10033	S25 or S24	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:23
S29	7	S23 and S28	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:24
S30	48	S28 and S8	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:24

S31	41	S30 and (@rlad<="20050815" or @ad<="20050815" or @pd<="20050815")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:24
S32	136	S22 and (@rlad<="20050814" or @ad<="20050814" or @pd<="20050814")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:30
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S34	58	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near30 (computer or server or network or virtual) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz $5) and network	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:33
S35	51	S34 and (@rlad<="20050814" or @ad<="20050814" or @pd<="20050814")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:34

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REQUEST FOR WITHDRAWAL AS ATTORNEY OR AGENT AND CHANGE OF CORRESPONDENCE ADDRESS

Application Number	11/503,090
Filing Date	08/10/06
First Named Inventor	Pabari
Art Unit	2154
Examiner Name	Unknown
Attorney Docket Number	41965-0003

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

Please withdraw me as attorney or agent for the above identified patent application, and

☒ all the attorneys/agents of record.

☐ the attorneys/agents (with registration numbers) listed on the attached paper(s), or

☒ the attorneys/agents associated with Customer Number 33123

NOTE: This box can only be checked when the power of attorney of record in the application is to all the practitioners associated with a customer number.

The reasons for this request are: The Assignee of this application has discharged Heller Ehrman LLP and requests transfer this application to new counsel.

CORRESPONDENCE ADDRESS

1. ☐ The correspondence address is NOT affected by this withdrawal.

2. ☐ Change the correspondence address and direct all future correspondence to:

☐ The address associated with Customer Number:

OR

☐ Firm or Individual Name	Lisa A. Haile, J.D., Ph.D. DLA Piper US LLP				
Address	4365 Executive Drive, Suite 1100				
City	San Diego	State	CA	Zip	92121
Country	USA				
Telephone	858.677.1456	Email	lisa.haile@dlapiper.com		
Signature					
Name	Steven A. Moore	Registration No.	55462		
Date		Telephone No.	858-450-8400		

NOTE: Withdrawal is effective when approved rather than when received. Unless there are at least 30 days between approval of withdrawal and the expiration date of a time period for response or possible extension period, the request to withdraw is normally disapproved.

This collection of information is required by 37 CFR 1.36. 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.

American LegalNet, Inc.
www.FormsWorkFlow.com

PAGE 1/1 * RCVD AT 7/23/2008 7:13:18 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-6/36 * DNIS:2738300 * CSID:18584508499 * DURATION (mm-ss):01-12

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4350 LA JOLLA VILLAGE DRIVE #700
7TH FLOOR
SAN DIEGO CA 92122

COPY MAILED

AUG 1 8 2008

OFFICE OF PETITIONS

In re Application of :
PABARI, Vipul :
Application No. 11/503,090 : DECISION ON PETITION
Filed: August 10, 2006 : TO WITHDRAW
Attorney Docket No. **41965-0003** : FROM RECORD
:

This is a decision on the Request to Withdraw as attorney or agent of record under 37 C.F.R. § 1.36(b), filed July 23, 2008.

The request is **NOT APPROVED**.

A grantable request to withdraw as attorney/agent of record must be signed by every attorney/agent seeking to withdraw or contain a clear indication that one attorney is signing on behalf of another/others. The Office requires the practitioner(s) requesting withdrawal to certify that he, she, or they have: (1) given reasonable notice to the client, prior to the expiration of the response period, that the practitioner(s) intends to withdraw from employment; (2) delivered to the client or a duly authorized representative of the client all papers and property (including funds) to which the client is entitled; and (3) notified the client of any responses that may be due and the time frame within which the client must respond, pursuant 37 CFR 10.40(c).

The request cannot be approved because there is no indication that the acts noted in the above-identified certifications have been performed.

The Office cannot approve the request at this time since the reasons provided do not meet any of the conditions under the mandatory or permissive categories enumerated in 37 CFR 10.40. Section 10.40 of Title 37 of the Code of Federal Regulation states, "[a] practitioner shall not withdraw from employment in a proceeding before the Office without permission from the Office[.]" More specifically, 37 CFR 10.40 states, "[i]f paragraph (b) of this section is not applicable, a practitioner may not request permission to withdraw in matter pending before the Office unless such request or such withdrawal is" for one the permissive reasons listed in 37 CFR 10.40(c). The reasons set forth in the request, **(assignee of this application has discharged Heller Ehrman LLP and requests transfer this application to new counsel)**, does not meet any the conditions set forth in 37 CFR 10.40, because the assignee has not properly intervened in accordance with CFR 3.73(b).

In order to request or take action in a patent matter, the assignee must establish its ownership of the patent to the satisfaction of the Director. In this regard, a Statement under 37 CFR 3.73(b) must have either: (i) documentary evidence of a chain of title from the original owner to the assignee (*e.g.*, copy of an executed assignment), and a statement affirming that 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 § 3.11; or (ii) a statement specifying where documentary evidence of a chain of title from the original owner to the assignee is recorded in the assignment records of the Office (*e.g.*, reel and frame number).

All future communications from the Office will continue to be directed to the above-listed address until otherwise notified by applicant.

Telephone inquiries concerning this decision should be directed to Michelle R. Eason at 571-272- 4231.

Michelle R. Eason
Paralegal Specialist
Office of Petitions

cc: **LISA A. HAILE, J.D., PH.D.**
DLA PIPER US LLP
4365 EXECUTIVE DRIVE, SUITE 1100
SAN DIEGO, CA 92121

Certificate of Transmission Under 37 CFR 1.8
I hereby certify that this correspondence is being transmitted via electronic submission, attention Mail Stop: Amendment, Commissioner for Patents, Alexandria, VA 22313-1450 on:
October 30, 2008

/Timothy W. Lohse/
Timothy W. Lohse

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No.	:	11/503,090	Confirmation No.	9855
Applicant	:	Vipul Pabari		
Filed	:	August 10, 2006		
TC/A.U.	:	2146		
Examiner	:	AMPAGOOMIAN, DAVID S		
Docket No.	:	367894-000003		
Customer No.	:	26379		

Title: VIRTUAL SYSTEMS MANAGEMENT

RESPONSE A

M/S: Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

Sir:

In response to the Office action of May 30, 2008, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 8 of this paper.

1. Listing of the claims:

1. (Currently Amended) A method for automatic management of a virtualization environment in a computer network, the method comprising:

determining an inventory of network resources and virtual assets available to ~~a~~ the virtualization environment of the computer network, wherein the virtualization environment comprises at least two operating systems;

assigning prioritization to members of the available inventory for the virtualization environment;

provisioning virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment;

determining real time performance metrics for the provisioned virtualization environment;

producing a reallocation of the virtual assets automatically in response to the real time performance metrics; and

initiating the reallocation of the virtual assets.

2. (Original) The method of claim 1, further comprising receiving user input that specifies parameters to be considered with the real time performance metrics in producing the reallocation of assets.

3. (Original) The method of claim 2, wherein the received user input comprises a Knowledge Block that determines one or more of the reallocation parameters.

4. (Original) The method of claim 2, wherein the received user input specifies parameters that detect operational degradation of a member of the available inventory.

5. (Original) The method of claim 4, wherein the available inventory member that is detected as degraded is removed from the available inventory.

6. (Original) The method of claim 4, wherein the available inventory that is detected as degraded is moved from the available inventory to a debug inventory pool.

7. (Original) The method of claim 4, wherein log files are retrieved from the available inventory that is detected as degraded.

8. (Original) The method of claim 7, wherein the log files are stored in an archive and an alert message is sent to a network administrator with an identification of the log file archive location.

9. (Original) The method of claim 4, wherein the available inventory that is detected as degraded is halted and is removed from the available inventory to a debug inventory pool.

10. (Original) The method of claim 9, wherein the halted available inventory is removed from the debug inventory pool.

11. (Currently Amended) The method of claim 3, wherein the Knowledge Block specifies parameters that send an alert message to an administrator of the network in response to an alert condition.

12. (Original) The method of claim 3, wherein the Knowledge Block specifies parameters that receive an instruction from an administrator of the network in response to an alert condition.

13. (Original) The method of claim 3, wherein the Knowledge Block specifies parameters that identify a last known acceptable virtual machine image that includes one or more applications from the set of available inventory.

14. (Original) The method of claim 3, wherein the Knowledge Block specifies parameters that deploy an instance of an application selected from among the available inventory.

15. (Original) The method of claim 2, wherein the received user input specifies a priority for one or more of the available inventory.

16. (Original) The method of claim 2, wherein the user input specifies a time period during which the reallocation will be applied.

17. (Original) The method of claim 1, further comprising: providing a user interface through which user input can be received and wherein the user input adjusts scheduling of producing the reallocation.

18. (Original) The method of claim 1, wherein producing a reallocation comprises adding a new application instance to the available inventory.

19. (Original) The method of claim 1, wherein producing a reallocation comprises updating the available inventory to include any changes made by the reallocation.

20. (Original) The method of claim 1, wherein the inventory of available inventory includes one or more application programs.

21. (Original) The method of claim 20, wherein one of the application programs comprises a network load balancer.

22. (Original) The method of claim 20, wherein one of the application programs comprises a network server.

23. (Original) The method of claim 1, wherein: determining, by an Asset Manager Component, an inventory of available network resources and virtual assets; assigning prioritization to the available inventory and provisioning virtual assets from among the available inventory, performed by a Provisioning Manager component; determining, by a Performance Manager component, a real time performance metrics; and automatically producing and initializing, by an Optimizer component, a reallocation of the virtual assets.

24. (Original) The method of claim 23, wherein automatically producing a reallocation of the virtual assets comprises forecasting future system needs, which is performed by a Capacity Planning Manager component.

25. (Currently Amended) A method for automatic management of a virtualization environment in a computer network, the method comprising:

performing one or more functions from the group of functions consisting of

(1) identification and management of network resources and virtual assets,

(2) provisioning of virtual assets in response to network workflow demands,

(3) dynamic deployment of virtual assets across the computer network,

(4) performance measurement and reporting of resources and virtual assets, and

(5) planning and forecasting of resource demands and asset utilization of the virtualization environment;

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment and, wherein the virtualization environment comprises at least two operating systems.

26. (Currently Amended) A method of managing a virtualization environment in a computer network, the method comprising:

providing a virtualization environment at a computer in communication with the computer network;

determining an inventory of network resources and virtual assets available to the virtualization environment, wherein the virtualization environment comprises at least two operating systems;

performing at least one function from among the group of functions consisting of

(1) identification and management of network resources and virtual assets,

(2) provisioning of virtual assets in response to network workflow demands,

(3) dynamic deployment of virtual assets across the computer network,

(4) performance measurement and reporting of resources and virtual assets, and

(5) planning and forecasting of resource demands and asset utilization of the virtualization environment,

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment

27. (Currently Amended) An apparatus that performs automatic management of a virtualization environment in a computer network~~, the method~~ comprising:

a network communications unit that enables communications between the apparatus and the computer network;

an operating system of the apparatus that supports a virtualization environment in communication with the apparatus; and

a Virtual Mapping layer that determines an inventory of network resources and virtual assets available to the virtualization environment, wherein the Virtual Mapping layer determines the inventory without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment, wherein the virtualization environment comprises at least two operating systems.

28. (Original) The apparatus of claim 27, further comprising one or more components that receive the inventory of available resources and assets from the Virtual Mapping layer and perform one or more functions from the group of functions consisting of:

(1) identification and management of network resources and virtual assets,

(2) provisioning of virtual assets in response to network workflow demands,

(3) dynamic deployment of virtual assets across the computer network,

(4) performance measurement and reporting of resources and virtual assets, and

(5) planning and forecasting of resource demands and asset utilization of the virtualization environment;

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment.

29. (Original) The apparatus of claim 27, further comprising a component selected from a group consisting of: an Asset Manager component that determines an inventory of available network resources and virtual assets;

a Provisioning Manager component that assigns a prioritization to the available inventory and provisions virtual assets from among the available inventory;

a Performance Manager component that determines real time performance metrics; and

an Optimizer component that automatically produces a reallocation of the virtual assets and initiates the reallocation.

30. (New) The method of claim 1 wherein two of the at least two operating systems are the same operating system.

31. (New) The method of claim 1 wherein the at least two operating systems are communicatively coupled by an extended network.

32. (New) The method of claim 31 wherein the extended network is the Internet.

33. (New) The apparatus of claim 27 wherein two of the at least two operating systems are the same operating system.

34. (New) The apparatus of claim 27 wherein the at least two operating systems are communicatively coupled by an extended network.

35. (New) The apparatus of claim 34 wherein the extended network is the Internet.

REMARKS

In the office action of May 30, 2008, the Examiner rejects claim 12 under 35 U.S.C. 112 as being indefinite, rejects claims 1-6 and 9-29 under 35 U.S.C. 102(b) as being anticipated by US Patent Application 2008/0086731 to Trossman et al. ("Trossman"), and the rejects claims 7-8 under 35 U.S.C. 103 as being unpatentable over Trossman. By the present response, Applicant amends claims 1, 12 and 25-27 and adds new claims 30-35. No new matter has been added. All pending claims are definite and allowable over Trossman for the reasons set forth below.

Rejections under 35 U.S.C. 112

Claim 12 stands rejected under 35 U.S.C. 112 second paragraph as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, "the phrase 'specifies parameter(s) that receive an instruction' renders the claim indefinite". Applicant respectfully submits that this is not indefinite. Discussion of parameter setting exists throughout the current specification, in at least paragraphs 43, 147, and 152-153. For example, paragraph 43 states that "Operating parameters of the virtualization system management can be specified and changed at the Control Center computers 110, 112 through a user interface that is provided by the application software." The claims at issue discuss using a Knowledge block to specify, select, or assign certain parameters. The specified parameter receive an instruction from an administrator in response to an alert condition. Applicant respectfully submits that no indefiniteness or uncertainty exists, and as such, claim 12 is allowable and the rejection should be withdrawn.

Rejections under 35 U.S.C. 102(b)

The examiner has rejected claims 1-6 and 9-29 under 35 U.S.C. 102(b) as being anticipated by Trossman. Without traverse, and in the interests of more clearly describing the innovations herein, Applicant amends claim 1 to recite, "wherein the virtualization environment comprises at least two operating systems". Claims 25-27 have been similarly amended. Support for these amendments is found throughout the specification. For example, Fig. 3 and paragraph 64 show and discuss multiple virtual machines 328 and 330, each with a separate operating system, thereby showing a virtualization environment with at least two operating systems.

Trossman, in paragraphs 24-28, discusses a single operating system, but no disclosure of the use of multiple operating systems. As such, there is also not disclosure of an inventory, priority assignment, provisioning, or reallocation of assets existing in more than one operating system.

Applicant therefore respectfully submits that because Trossman does not disclose all the recitations of amended claims 1 and 25-27, the rejection should be withdrawn and the claims deemed allowable.

Additionally, since claims 2-6, 9-24 and 28-35 depend from claims 1 and 27, they are allowable for at least the same reasons.

Rejections under 35 U.S.C. 102(b)

The Examiner has rejected claims 7-8 as being obvious in view of Trossman. The Examiner bears the initial burden of factually supporting any prima facie conclusion of obviousness. (MPEP 2142.) To find a claim unpatentable due to obviousness under § 103, an examiner must engage in a factual inquiry involving:

> (A) Ascertaining the scope and content of the prior art; and
> (B) Ascertaining the differences between the claimed invention and the prior art; and
> (C) Resolving the level of ordinary skill in the pertinent art.
> (MPEP 2141 and *Graham v. John Deere Co.*, 383 U.S. 1)

Additionally, "when evaluating claims for obviousness under 35 U.S.C. 103, all the limitations of the claims must be considered" (MPEP 2143.03) and rejections under 35 U.S.C. 103 "cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." (MPEP 2143, citing the Federal Circuit in *In re Kahn*, 441 F.3d 977, 988, 78 USPTQ2d 1329, 1336 (Fed. Cir. 2006).)

Claims 7-8 depend from, among other claims, claim 1. As described above, Trossman does not disclose all the recitations of claim 1. Applicant therefore submits that claims 7-8 are

different from Trossman for at least the same reasons. As such, Applicant further submits that there has not been an adequate factual inquiry, and that there has not been sufficient articulated reasoning to sustain a finding of obviousness of current claims 7-8. Applicant therefore requests that the rejection be withdrawn and the claims deemed allowable.

CONCLUSION

In view of the above, it is respectfully submitted that Claims 1-35 are allowable over the prior art cited by the Examiner and early allowance of these claims and the application is respectfully requested. .

The Examiner is invited to call Applicant's attorney at the number below in order to speed the prosecution of this application.

The Commissioner is authorized to charge any deficiencies in fees and credit any overpayment of fees to Deposit Account No. 07-1896.

Respectfully submitted,

DLA PIPER US LLP

Dated: October 30, 2008

By /Timothy W. Lohse/
Timothy W. Lohse
Reg. No. 35,255
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Electronic Patent Application Fee Transmittal	
Application Number:	11503090
Filing Date:	10-Aug-2006
Title of Invention:	Virtual systems management
First Named Inventor/Applicant Name:	Vipul Pabari
Filer:	Timothy W. Lohse/Jane Dobkins
Attorney Docket Number:	41965-0003
Filed as Small Entity	

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Claims in excess of 20	2202	6	26	156
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension - 2 months with $0 paid	2252	1	245	245
Miscellaneous:				
		Total in USD ($)		**401**

Electronic Acknowledgement Receipt	
EFS ID:	4206967
Application Number:	11503090
International Application Number:	
Confirmation Number:	9855
Title of Invention:	Virtual systems management
First Named Inventor/Applicant Name:	Vipul Pabari
Customer Number:	33123
Filer:	Timothy W. Lohse
Filer Authorized By:	
Attorney Docket Number:	41965-0003
Receipt Date:	30-OCT-2008
Filing Date:	10-AUG-2006
Time Stamp:	16:46:26
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$401
RAM confirmation Number	11040
Deposit Account	071896
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		Toutvirtual367894_ResponseA.pdf	140888 ee6f862396a907934739ec4359e38f02f6326572	yes	10

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
	Claims	2	7
	Applicant Arguments/Remarks Made in an Amendment	8	10

Warnings:

Information:

2	Fee Worksheet (PTO-06)	fee-info.pdf	31775 46a0655e074fa184e03dbde523c056800f2bf9aa	no	2

Warnings:

Information:

Total Files Size (in bytes):	172663

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.

<u>New Applications Under 35 U.S.C. 111</u>
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.

<u>National Stage of an International Application under 35 U.S.C. 371</u>
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.

<u>New International Application Filed with the USPTO as a Receiving Office</u>
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	Filing Date	☐ To be Mailed
11/503,090	08/10/2006	

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	10/30/2008	(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))	* 35	Minus	** 29	= 6	X $26 =	156	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 4	Minus	***4	= 0	X $110 =	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	156	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:
/ANTHONY 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.**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/503,090	08/10/2006	Vipul Pabari	41965-0003	9855

33123 7590 01/07/2009

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EXAMINER	
AMPAGOOMIAN, DAVID S	
ART UNIT	**PAPER NUMBER**
2446	

MAIL DATE	DELIVERY MODE
01/07/2009	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.

Office Action Summary	Application No.	Applicant(s)	
	11/503,090	PABARI, VIPUL	
	Examiner	Art Unit	
	DAVID AMPAGOOMIAN	2446	

-- 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 *30 October 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) *1-35* 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) *1-35* 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 *08/10/2006* 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: _____.

DETAILED ACTION

This action is in response to the amendment dated 10/30/2008.

Claims 1-35 are pending.

Claims 1, 25-27 are amended.

Claims 30-35 are new.

Remarks

Applicant has failed to seasonably challenge the Examiner's assertions of well known subject matter in the previous Office action(s) pursuant to the requirements set forth under MPEP §2144.03. A "seasonable challenge" is an explicit demand for evidence set forth by Applicant in the next response. Accordingly, the claim limitations the Examiner considered as "well known" in the first Office action, i.e. logging computer system performance, faults and errors and alerting an administrators of the logged events, are now established as admitted prior art of record for the course of the prosecution. See In re Chevenard, 139 F.2d 71, 60 USPQ 239 (CCPA 1943).

Response to Arguments

1. Applicant's arguments with respect to claim 1-29 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

2. Claims 1-6, 9-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Trossman et al (2008/0086731) hereafter Trossman in view of Luoffo et al (US 2005/0155033) hereafter Luoffo.

Regarding claim 1, Trossman discloses a method for automatic management of a virtualization environment in a computer network, the method comprising:

determining an inventory of network resources and virtual assets available to a the virtualization environment of the computer network (Trossman: "The data storage 20 contains information on the groupings and poolings of resources in the resource system 12 for management purposes." [0042], [0034-0036]);

assigning prioritization to members of the available inventory for the virtualization environment (Trossman: "Each of these group information sets may contains an identification of each resource in the group, the size of the group, the number of active and idle resources in the group and the priority of the group and the pool to which the group belongs." [0042], [0023]);

provisioning virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment (Trossman: "Given the differing resource requirements for each application environment using and requiring resources

in the resource system 12, the resource change mechanism 18 decides where the resources will be allocated." [0031]);

determining real time performance metrics for the provisioned virtualization environment Trossman: [0021-0024]);

producing a reallocation of the virtual assets automatically in response to the real time performance metrics (Trossman: : [0021-0024], [0034-0036]); and

initiating the reallocation of the virtual assets.

Trossman does not explicitly disclose wherein the virtualization environment comprises at least two operating systems.

However, Luoffo teaches the use of a virtual computing system grid that is made up of multiple computing systems that are "operating under a number of different operating systems" (Luoffo: [0031], [0035-0036], [0046], [0055-0057]) in order to "maintain application" with suboptimal conditions (Luoffo: [0015]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to create the resource management system of Trossman to include of multiple operating systems in a virtual computing environment as taught by Luoffo in order to "maintain application" with suboptimal conditions (Luoffo: [0015]).

Regarding claim 2, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further discloses receiving user input that specifies parameters to be considered with the real time performance metrics in producing the reallocation of assets (Trossman: [0033]).

Regarding claim 3, the modified Trossman reference teaches the method of claim 2 as described above. Trossman further discloses wherein the received user input comprises a Knowledge Block that determines one or more of the reallocation parameters (Trossman: [0033]).

Regarding claim 4, the modified Trossman reference teaches the method of claim 2 as described above. Trossman further discloses wherein the received user input specifies parameters that detect operational degradation of a member of the available inventory (Trossman:[0033],[0056-0057]).

Regarding claim 5, the modified Trossman reference teaches the method of claim 4 as described above. Trossman further discloses wherein the available inventory member that is detected as degraded is removed from the available inventory (Trossman: [0119]).

Regarding claim 6, the modified Trossman reference teaches the method of claim 4 as described above. Trossman further discloses wherein the available inventory that is detected as degraded is moved from the available inventory to a debug inventory pool (Trossman: [0119-0120]).

Regarding claim 9, the modified Trossman reference teaches the method of claim 4 as described above. Trossman further discloses wherein the available inventory that is detected as degraded is halted and is removed from the available inventory to a debug inventory pool (Trossman: [0119-0120]).

Regarding claim 10, the modified Trossman reference teaches the method of claim 9 as described above. Trossman further discloses wherein the halted available inventory is removed from the debug inventory pool (Trossman: [0119-0120]).

Regarding claim 11, the modified Trossman reference teaches the method of claim 3 as described above. Trossman further discloses wherein the Knowledge Block specifies parameters that send an alert message to an administrator of the network in response to an alert condition (Trossman: [0033], [0040], [0119-0120]).

Regarding claim 12, the modified Trossman reference teaches the method of claim 3 as described above. Trossman further discloses wherein the Knowledge Block specifies parameters that receive an instruction from an administrator of the network in response to an alert condition (Trossman: [0033], [0040], [0119-0120]).

Regarding claim 13, the modified Trossman reference teaches the method of claim 3 as described above. Trossman further discloses wherein the Knowledge Block specifies parameters that identify a last known acceptable virtual machine image that

includes one or more applications from the set of available inventory (Trossman: [0033]).

Regarding claim 14, the modified Trossman reference teaches the method of claim 3 as described above. Trossman further discloses wherein the Knowledge Block specifies parameters that deploy an instance of an application selected from among the available inventory (Trossman: [0033]).

Regarding claim 15, the modified Trossman reference teaches the method of claim 2 as described above. Trossman further discloses wherein the received user input specifies a priority for one or more of the available inventory (Trossman: [0033]).

Regarding claim 16, the modified Trossman reference teaches the method of claim 2 as described above. Trossman further discloses wherein the user input specifies a time period during which the reallocation will be applied (Trossman: [0033]).

Regarding claim 17, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further teaches providing a user interface through which user input can be received and wherein the user input adjusts scheduling of producing the reallocation (Trossman: [0033]).

Regarding claim 18, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further teaches wherein producing a reallocation comprises adding a new application instance to the available inventory (Trossman: [0119]).

Regarding claim 19, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further teaches wherein producing a reallocation comprises updating the available inventory to include any changes made by the reallocation (Trossman: [0104], [0118-0119])

Regarding claim 20, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further discloses wherein the inventory of available inventory includes one or more application programs (Trossman: [0119]).

Regarding claim 21, the modified Trossman reference teaches the method of claim 20 as described above. Trossman further discloses wherein one of the application programs comprises a network load balancer (Trossman: [0024]).

Regarding claim 22, the modified Trossman reference teaches method of claim 20 as described above. Trossman further discloses wherein one of the application programs comprises a network server (Trossman: [0022]).

Regarding claim 23, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further discloses wherein: determining, by an Asset Manager Component, an inventory of available network resources and virtual assets (Trossman: [0022-0023]);

assigning prioritization to the available inventory and provisioning virtual assets from among the available inventory, performed by a Provisioning Manager component (Trossman: [0042], [0023]);

determining, by a Performance Manager component, a real time performance metrics (Trossman: [0022-0023]); and

automatically producing and initializing, by an Optimizer component, a reallocation of the virtual assets (Trossman: [0022-0023]).

Regarding claim 24, the modified Trossman reference teaches the method of claim 23 as described above. Trossman further discloses wherein automatically producing a reallocation of the virtual assets comprises forecasting future system needs, which is performed by a Capacity Planning Manager component (Trossman: [0022-0023]).

Regarding claim 25, Trossman discloses a method for automatic management of a virtualization environment in a computer network, the method comprising:

performing one or more functions from the group of functions consisting of (1) identification and management of network resources and virtual assets, (2) provisioning

of virtual assets in response to network workflow demands, (3) dynamic deployment of virtual assets across the computer network, (4) performance measurement and reporting of resources and virtual assets, and (5) planning and forecasting of resource demands and asset utilization of the virtualization environment (Trossman: [0022-0023],[0031-0036],[0042]);

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment (Trossman: [0031-0036]).

Trossman does not explicitly disclose wherein the virtualization environment comprises at least two operating systems.

However, Luoffo teaches the use of a virtual computing system grid that is made up of multiple computing systems that are “operating under a number of different operating systems” (Luoffo: [0031],[0035-0036], [0046], [0055-0057]) in order to “maintain application” with suboptimal conditions (Luoffo: [0015]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to create the resource management system of Trossman to include of multiple operating systems in a virtual computing environment as taught by Luoffo in order to “maintain application” with suboptimal conditions (Luoffo: [0015]).

Regarding claim 26, a method of managing a virtualization environment in a computer network, the method comprising:

providing a virtualization environment at a computer in communication with the computer network (Trossman: [0035-0038]);

determining an inventory of network resources and virtual assets available to the virtualization environment (Trossman: "The data storage 20 contains information on the groupings and poolings of resources in the resource system 12 for management purposes." [0042], [0034-0036]):

performing at least one function from among the group of functions consisting of (1) identification and management of network resources and virtual assets, (2) provisioning of virtual assets in response to network workflow demands, (3) dynamic deployment of virtual assets across the computer network, (4) performance measurement and reporting of resources and virtual assets, and (5) planning and forecasting of resource demands and asset utilization of the virtualization environment (Trossman: [0022-0023],[0031-0036],[0042]),

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment (Trossman: [0031-0036]).

Trossman does not explicitly disclose wherein the virtualization environment comprises at least two operating systems.

However, Luoffo teaches the use of a virtual computing system grid that is made up of multiple computing systems that are "operating under a number of different operating systems" (Luoffo: [0031],[0035-0036], [0046], [0055-0057]) in order to "maintain application" with suboptimal conditions (Luoffo: [0015]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to create the resource management system of Trossman to include of multiple operating systems in a virtual computing environment as taught by Luoffo in order to "maintain application" with suboptimal conditions (Luoffo: [0015]).

Regarding claim 27, an apparatus that performs automatic management of a virtualization environment in a computer network, the method comprising:

a network communications unit that enables communications between the apparatus and the computer network (Trossman:[0023-0024]);

an operating system of the apparatus that supports a virtualization environment in communication with the apparatus (Trossman:[0026]); and

a Virtual Mapping layer that determines an inventory of network resources and virtual assets available to the virtualization environment, wherein the Virtual Mapping layer determines the inventory without regard to processors, operating systems (Trossman: "The data storage 20 contains information on the groupings and poolings of resources in the resource system 12 for management purposes." [0042], [0034-0036]), virtualization platforms, and application software of the virtualization environment (Trossman: [0034-0038]).

Trossman does not explicitly disclose wherein the virtualization environment comprises at least two operating systems.

However, Luoffo teaches the use of a virtual computing system grid that is made up of multiple computing systems that are "operating under a number of different

operating systems" (Luoffo: [0031], [0035-0036], [0046], [0055-0057]) in order to "maintain application" with suboptimal conditions (Luoffo: [0015]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to create the resource management system of Trossman to include of multiple operating systems in a virtual computing environment as taught by Luoffo in order to "maintain application" with suboptimal conditions (Luoffo: [0015]).

Regarding claim 28, the modified Trossman reference teaches the apparatus of claim 27 as described above. Trossman further discloses comprising one or more components that receive the inventory of available resources and assets from the Virtual Mapping layer and perform one or more functions from the group of functions consisting of:

(1) identification and management of network resources and virtual assets, (2) provisioning of virtual assets in response to network workflow demands, (3) dynamic deployment of virtual assets across the computer network, (4) performance measurement and reporting of resources and virtual assets, and (5) planning and forecasting of resource demands and asset utilization of the virtualization environment (Trossman: [0022-0023],[0031-0036],[0042]);

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment (Trossman: [0031-0036]).

Regarding claim 29, the modified Trossman reference teaches the apparatus of claim 27 as described above. Trossman further discloses comprising a component selected from a group consisting of: an Asset Manager component that determines an inventory of available network resources and virtual assets;

a Provisioning Manager component that assigns a prioritization to the available inventory and provisions virtual assets from among the available inventory (Trossman: "The data storage 20 contains information on the groupings and poolings of resources in the resource system 12 for management purposes." [0042], [0034-0036]);

a Performance Manager component that determines real time performance metrics Trossman: [0022-0024]; and

an Optimizer component that automatically produces a reallocation of the virtual assets and initiates the reallocation (Trossman: [0021-0024], [0034-0036]).

Regarding claim 30, the modified Trossman reference teaches the method of claim 1 as described above. Trossman does not explicitly disclose wherein two of the at least two operating systems are the same operating system.

However, Luoffo teaches the use of a virtual computing system grid that is made up of multiple computing systems that are "operating under a number of different operating systems" (Luoffo: [0031], [0035-0036], [0046], [0055-0057]) in order to "maintain application" with suboptimal conditions (Luoffo: [0015]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to create the resource management system of Trossman to include of multiple

operating systems in a virtual computing environment as taught by Luoffo in order to "maintain application" with suboptimal conditions (Luoffo: [0015]).

Regarding claim 31, the modified Trossman reference teaches the method of claim 1 as described above. Trossman does not explicitly disclose wherein the at least two operating systems are communicatively coupled by an extended network.

However, Luoffo teaches the use of a virtual computing system grid that is made up of multiple computing systems that are communicatively coupled by an extended network. (Luoffo: [0035-0036]in order to "maintain application" with suboptimal conditions (Luoffo: [0015]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to create the resource management system of Trossman to include of multiple operating systems in a virtual computing environment as taught by Luoffo in order to "maintain application" with suboptimal conditions (Luoffo: [0015]).

Regarding claim 32, the modified Trossman reference teaches the method of claim 31 as described above. Trossman does not explicitly disclose wherein the extended network is the Internet.

However, Luoffo teaches the use of a virtual computing system grid that is made up of multiple computing systems that are communicatively coupled by the Internet. (Luoffo: [0035-0036] in order to "maintain application" with suboptimal conditions (Luoffo: [0015]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to create the resource management system of Trossman to include of multiple operating systems in a virtual computing environment as taught by Luoffo in order to "maintain application" with suboptimal conditions (Luoffo: [0015]).

Regarding claim 33, the modified Trossman reference teaches the apparatus of claim 27 as described above. Trossman does not explicitly disclose wherein two of the at least two operating systems are the same operating system.

However, Luoffo teaches the use of a virtual computing system grid that is made up of multiple computing systems that are "operating under a number of different operating systems" (Luoffo: [0031], [0035-0036], [0046], [0055-0057]) in order to "maintain application" with suboptimal conditions (Luoffo: [0015]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to create the resource management system of Trossman to include of multiple operating systems in a virtual computing environment as taught by Luoffo in order to "maintain application" with suboptimal conditions (Luoffo: [0015]).

Regarding claim 34, the modified Trossman reference teaches the apparatus of claim 27 as described above. Trossman does not explicitly disclose wherein the at least two operating systems are communicatively coupled by an extended network.

However, Luoffo teaches the use of a virtual computing system grid that is made up of multiple computing systems that are communicatively coupled by an extended

network. (Luoffo: [0035-0036]in order to "maintain application" with suboptimal conditions (Luoffo: [0015]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to create the resource management system of Trossman to include of multiple operating systems in a virtual computing environment as taught by Luoffo in order to "maintain application" with suboptimal conditions (Luoffo: [0015]).

Regarding claim 35, the modified Trossman reference teaches the apparatus of claim 34 as described above. Trossman does not explicitly disclose wherein the extended network is the Internet.

However, Luoffo teaches the use of a virtual computing system grid that is made up of multiple computing systems that are communicatively coupled by the Internet. (Luoffo: [0035-0036] in order to "maintain application" with suboptimal conditions (Luoffo: [0015]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to create the resource management system of Trossman to include of multiple operating systems in a virtual computing environment as taught by Luoffo in order to "maintain application" with suboptimal conditions (Luoffo: [0015]).

3. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Trossman in view of Luoffo as applied to claims 1-2 and 4 above, and further in view of applicants admitted prior art.

Regarding claim 7, the modified Trossman reference teaches the method of claim 4 as described above. Trossman does not explicitly disclose wherein log files are retrieved from the available inventory that is detected as degraded.

Applicant admitted prior art teaches logging computer system performance, faults and errors and alerting an administrator of the logged events is well known in the art.

It would have been obvious to one of ordinary skill in the art at the time of the invention to create the resource management system with multiple operating systems in a virtual computing environment of the modified Trossman reference to include of the use of logging data and alerting an administrator as taught by applicant admitted prior art in order to provide diagnostic data and alerts to properly manage the system.

Regarding claim 8, the modified Trossman reference teaches the method of claim 7 as described above. Trossman does not explicitly disclose wherein the log files are stored in an archive and an alert message is sent to a network administrator with an identification of the log file archive location.

Applicant admitted prior art teaches logging computer system performance, faults and errors and alerting an administrator of the logged events is well known in the art.

It would have been obvious to one of ordinary skill in the art at the time of the invention to create the resource management system with multiple operating systems in a virtual computing environment of the modified Trossman reference to include of the

use of logging data and alerting an administrator as taught by applicant admitted prior art in order to provide diagnostic data and alerts to properly manage the system.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

5. Landis et al (US 20070067435 A1) discloses a method of allocating and managing resources across a virtual data center.

6. Naik et al (US 20060294238 A1) discloses a method of managing shred resources in a virtual machine grid.

7. Eppstein et al (US 7463648 B1) discloses a method of allocating resources in a virtual server farm.

8. 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 DAVID AMPAGOOMIAN whose telephone number is (571)270-1896. The examiner can normally be reached on Monday through Friday 9:30 AM to 7:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Pwu can be reached on 571-272-6798. 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.

/D. A./

Examiner, Art Unit 2446

/Jeffrey Pwu/
Supervisory Patent Examiner, Art Unit 2446

Notice of References Cited	Application/Control No. 11/503,090	Applicant(s)/Patent Under Reexamination PABARI, VIPUL	
	Examiner DAVID AMPAGOOMIAN	Art Unit 2446	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2005/0155033 A1	07-2005	Luoffo et al.	718/104
*	B	US-2006/0294238 A1	12-2006	Naik et al.	709/226
*	C	US-2007/0067435 A1	03-2007	Landis et al.	709/224
*	D	US-7,463,648 B1	12-2008	Eppstein et al.	370/468
	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.

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L10	66	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near30 (computer or server or network or virtual) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz $5) and network	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 13:48
L13	8213	718/100-108.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 14:01
L14	915	718/1.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 14:01
L15	174	13 and 14	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 14:02
L16	1893	718/104.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 14:02
L17	2	((VIPUL) near2 (PABARI)). INV.	EPO; JPO; DERWENT	ADJ	ON	2008/12/31 17:20
L18	21	(PABARI).INV.	EPO; JPO; DERWENT	ADJ	ON	2008/12/31 17:20
S1	50	(("20030217250") or ("20030236945") or ("20040111485") or ("20050154845") or ("20050267986") or ("20060095640") or ("20060095904") or ("20070050573") or ("20070050763") or ("20070136524") or ("20070169120") or ("20070179955") or ("20070180493") or ("20070283348") or ("20080016303") or ("5404478") or ("5463629") or	US-PGPUB; USPAT	OR	OFF	2008/05/26 20:30

		("5477242") or ("5596755") or ("5694599") or ("5694606") or ("5764999") or ("5790837") or ("5812820") or ("5826041") or ("5838908") or ("5864705") or ("5937185") or ("6067607") or ("6075938") or ("6081900") or ("6195650") or ("6195730") or ("6204847") or ("6209023") or ("6243809") or ("6253224") or ("6253318") or ("6381615") or ("6397242") or ("6496847") or ("6519678") or ("6532527") or ("6546434") or ("6681238") or ("6898670") or ("7020734") or ("7127548") or ("7206860") or ("7260664")).PN.				
S2	7381	709/223.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 20:44
S3	3193	709/226.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 20:44
S4	1	10/740276.app.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 20:50
S5	1841	(virtual or virtualization) and network and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 20:54
S6	590	(virtual or virtualization) and network and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 20:57
S7	20	(virtual or virtualization) near50 (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5) and network	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 20:57
S8	590	(virtual or virtualization) and network and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:00

S10	508	S8 and (@rlad<="20050815" or @ad<="20050815" or @pd<="20050815")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:00
S11	20	(virtual or virtualization) near50 (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5) and network	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:03
S12	16	S11 and (@rlad<="20050815" or @ad<="20050815" or @pd<="20050815")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:03
S13	238	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5) and network	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:03
S14	38	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5) and network and reallocat$4	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:15
S15	170	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5) and network and input near5 user	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:16
S16	143	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5) and input near5 user and log	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:17
S17	163	S15 and (@rlad<="20050815" or @ad<="20050815" or @pd<="20050815")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:17

S18	142	S16 and (@rlad<="20050815" or @ad<="20050815" or @pd<="20050815")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:17
S19	164	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5) and network and input near5 user and (resource or asset) near50 (management)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:22
S20	165	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5) and network and input near5 user and (resource or asset or virtual or virtualization) near50 (management)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:22
S22	137	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5) and network and input near5 user and (resource or asset or virtual or virtualization) near50 (management) and log and inventory	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:23
S23	137	S22 and (@rlad<="20050815" or @ad<="20050815" or @pd<="20050815")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:23
S24	7381	709/223.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:23
S25	3193	709/226.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:23

S28	10033	S25 or S24	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:23
S29	7	S23 and S28	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:24
S30	48	S28 and S8	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:24
S31	41	S30 and (@rlad<="20050815" or @ad<="20050815" or @pd<="20050815")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:24
S32	136	S22 and (@rlad<="20050814" or @ad<="20050814" or @pd<="20050814")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:30
S33	32	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near30 (computer or server or network or virtual) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz $5) and network and input near5 user	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:32
S34	58	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near30 (computer or server or network or virtual) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz $5) and network	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:33
S35	51	S34 and (@rlad<="20050814" or @ad<="20050814" or @pd<="20050814")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:34

S36	590	(virtual or virtualization) and network and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/27 08:20
S37	196	S36 and load near3 (sharing or balancing)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/27 08:20
S38	147	S37 and (@rlad<="20050814" or @ad<="20050814" or @pd<="20050814")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/27 08:21
S39	2	10/357352.app.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/27 09:11
S40	1	11/503090.app.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 10:35
S41	650	(virtual or virtualization) and network and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:21
S42	535	S41 and (@rlad<="20050814" or @ad<="20050814" or @pd<="20050814")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:22
S43	8164	709/223.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:23
S44	8391	709/224.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:24
S45	3589	709/226.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:24

S46	3093	709/201.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:24
S47	1881	709/202.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:25
S48	21255	S43 S44 S45 S46 S47	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/31 11:25
S49	68	S48 and S42	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/31 11:25
S50	87	network and (virtual or virtualization) same (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz $5)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:26
S51	33	S50 and (@rlad<="20050814" or @ad<="20050814" or @pd<="20050814")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:27
S52	187	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5) and network and pool	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:30
S53	176	S52 and (@rlad<="20050814" or @ad<="20050814" or @pd<="20050814")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:30
S54	10	S51 and S48	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/31 11:31

S55	18	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5) and network and pool near5 resource and (cluster or (data center))	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:37
S56	13	S55 and (@rlad<="20050814" or @ad<="20050814" or @pd<="20050814")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:37

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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11503090	PABARI, VIPUL
	Examiner	Art Unit
	DAVID AMPAGOOMIAN	2146

SEARCHED			
Class	Subclass	Date	Examiner
709	223, 226	5/27/2008	DA
709	223,224,226		

SEARCH NOTES		
Search Notes	Date	Examiner
Text searched EAST databases	5/27/2008	DA
Updated EAST text search	12/31/2008	DA
limted class/sublcass search (709/201-202,223-224,226; 718/100-108)	12/31/2008	DA
Inventor name searched	12/31/2008	DA

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11503090	PABARI, VIPUL
	Examiner	Art Unit
	DAVID AMPAGOOMIAN	2146

✓	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	05/27/2008	12/31/2008							
	1	✓	✓							
	2	✓	✓							
	3	✓	✓							
	4	✓	✓							
	5	✓	✓							
	6	✓	✓							
	7	✓	✓							
	8	✓	✓							
	9	✓	✓							
	10	✓	✓							
	11	✓	✓							
	12	✓	✓							
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	14	✓	✓							
	15	✓	✓							
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	29	✓	✓							
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	31		✓							
	32		✓							
	33		✓							
	34		✓							
	35		✓							

Doc code: RCEX
Doc description: Request for Continued Examination (RCE)

PTO/SB/30EFS (03-09)
Approved for use through 03/31/2009. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	11/503,090	Filing Date	2006-08-10	Docket Number (if applicable)	367894-000003	Art Unit	9855
First Named Inventor	Vipul PABARI			Examiner Name	Ampagoomian, David S.		

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 _____

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

☐ Applicant Signature

PTO/SB/30EFS (03-09)
Approved for use through 03/31/2009. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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Signature of Registered U.S. Patent Practitioner			
Signature	/Philip Jensen/	Date (YYYY-MM-DD)	2009-03-12
Name	Philip Jensen	Registration Number	63563

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.

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No.	:	11/503,090	Confirmation No. 9855
Applicant	:	Vipul Pabari	
Filed	:	August 10, 2006	
TC/A.U.	:	2146	
Examiner	:	AMPAGOOMIAN, DAVID S	
Docket No.	:	367894-000003	
Customer No.	:	26379	

Title: VIRTUAL SYSTEMS MANAGEMENT

M/S Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Certificate of Transmission Under 37 CFR 1.8
I hereby certify that this correspondence is being transmitted via electronic submission, attention Mail Stop: Amendment, Commissioner for Patents, Alexandria, VA 22313-1450 on: March 12, 2009

/Philip Jensen/
Philip Jensen

RESPONSE B

Sir:

In response to the Office action of January 7, 2009, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 8 of this paper.

1. Listing of the claims:

1. (Currently Amended) A method for automatic management of a virtualization environment in a computer network, the method comprising:

determining an inventory of network resources and virtual assets available to the virtualization environment of the computer network~~, wherein the virtualization environment comprises at least two operating systems~~;

assigning prioritization to members of the available inventory for the virtualization environment;

provisioning virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment, wherein the virtual assets comprise at least two virtual machines operating on a single physical server;

determining real time performance metrics for the provisioned virtualization environment;

producing a reallocation of the virtual assets automatically in response to the real time performance metrics; and

initiating the reallocation of the virtual assets.

2. (Original) The method of claim 1, further comprising receiving user input that specifies parameters to be considered with the real time performance metrics in producing the reallocation of assets.

3. (Original) The method of claim 2, wherein the received user input comprises a Knowledge Block that determines one or more of the reallocation parameters.

4. (Original) The method of claim 2, wherein the received user input specifies parameters that detect operational degradation of a member of the available inventory.

5. (Original) The method of claim 4, wherein the available inventory member that is detected as degraded is removed from the available inventory.

6. (Original) The method of claim 4, wherein the available inventory that is detected as degraded is moved from the available inventory to a debug inventory pool.

7. (Original) The method of claim 4, wherein log files are retrieved from the available inventory that is detected as degraded.

8. (Original) The method of claim 7, wherein the log files are stored in an archive and an alert message is sent to a network administrator with an identification of the log file archive location.

9. (Original) The method of claim 4, wherein the available inventory that is detected as degraded is halted and is removed from the available inventory to a debug inventory pool.

10. (Original) The method of claim 9, wherein the halted available inventory is removed from the debug inventory pool.

11. (Previously Presented) The method of claim 3, wherein the Knowledge Block specifies parameters that send an alert message to an administrator of the network in response to an alert condition.

12. (Original) The method of claim 3, wherein the Knowledge Block specifies parameters that receive an instruction from an administrator of the network in response to an alert condition.

13. (Original) The method of claim 3, wherein the Knowledge Block specifies parameters that identify a last known acceptable virtual machine image that includes one or more applications from the set of available inventory.

14. (Original) The method of claim 3, wherein the Knowledge Block specifies parameters that deploy an instance of an application selected from among the available inventory.

15. (Original) The method of claim 2, wherein the received user input specifies a priority for one or more of the available inventory.

16. (Original) The method of claim 2, wherein the user input specifies a time period during which the reallocation will be applied.

17. (Original) The method of claim 1, further comprising: providing a user interface through which user input can be received and wherein the user input adjusts scheduling of producing the reallocation.

18. (Original) The method of claim 1, wherein producing a reallocation comprises adding a new application instance to the available inventory.

19. (Original) The method of claim 1, wherein producing a reallocation comprises updating the available inventory to include any changes made by the reallocation.

20. (Original) The method of claim 1, wherein the inventory of available inventory includes one or more application programs.

21. (Original) The method of claim 20, wherein one of the application programs comprises a network load balancer.

22. (Original) The method of claim 20, wherein one of the application programs comprises a network server.

23. (Original) The method of claim 1, wherein: determining, by an Asset Manager Component, an inventory of available network resources and virtual assets; assigning prioritization to the available inventory and provisioning virtual assets from among the available inventory, performed by a Provisioning Manager component; determining, by a Performance Manager component, a real time performance metrics; and automatically producing and initializing, by an Optimizer component, a reallocation of the virtual assets.

24. (Original) The method of claim 23, wherein automatically producing a reallocation of the virtual assets comprises forecasting future system needs, which is performed by a Capacity Planning Manager component.

25. (Currently Amended) A method for automatic management of a virtualization environment in a computer network, the method comprising:

performing one or more functions from the group of functions consisting of

(1) identification and management of network resources and virtual assets,

(2) provisioning of virtual assets in response to network workflow demands,

(3) dynamic deployment of virtual assets across the computer network,

(4) performance measurement and reporting of resources and virtual assets, and

(5) planning and forecasting of resource demands and virtual asset utilization of the virtualization environment;

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment and, wherein ~~the virtualization environment comprises at least two operating systems~~ the virtual assets comprise at least two virtual machines operating on a single physical server.

26. (Currently Amended) A method of managing a virtualization environment in a computer network, the method comprising:

providing a virtualization environment at a computer in communication with the computer network;

determining an inventory of network resources and virtual assets available to the virtualization environment~~, wherein the virtualization environment comprises at least two operating systems~~;

performing at least one function from among the group of functions consisting of

(1) identification and management of network resources and virtual assets,

(2) provisioning of virtual assets in response to network workflow demands,

(3) dynamic deployment of virtual assets across the computer network,

(4) performance measurement and reporting of resources and virtual assets, and

(5) planning and forecasting of resource demands and virtual asset utilization of the virtualization environment,

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment, and wherein the virtual assets comprise at least two virtual machines operating on a single physical server.

27. (Currently Amended) An apparatus that performs automatic management of a virtualization environment in a computer network comprising:

a network communications unit that enables communications between the apparatus and the computer network;

an operating system of the apparatus that supports a virtualization environment in communication with the apparatus; and

a Virtual Mapping layer that determines an inventory of network resources and virtual assets available to the virtualization environment, wherein the Virtual Mapping layer determines the inventory without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment, wherein the ~~virtualization environment comprises at least two operating systems~~ virtual assets comprise at least two virtual machines operating on a first single physical server.

28. (Original) The apparatus of claim 27, further comprising one or more components that receive the inventory of available resources and assets from the Virtual Mapping layer and perform one or more functions from the group of functions consisting of:

(1) identification and management of network resources and virtual assets,

(2) provisioning of virtual assets in response to network workflow demands,

(3) dynamic deployment of virtual assets across the computer network,

(4) performance measurement and reporting of resources and virtual assets, and

(5) planning and forecasting of resource demands and asset utilization of the virtualization environment;

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment.

29. (Original) The apparatus of claim 27, further comprising a component selected from a group consisting of: an Asset Manager component that determines an inventory of available network resources and virtual assets;

a Provisioning Manager component that assigns a prioritization to the available inventory and provisions virtual assets from among the available inventory;

a Performance Manager component that determines real time performance metrics; and

an Optimizer component that automatically produces a reallocation of the virtual assets and initiates the reallocation.

30. (Currently Amended) The method of claim 1 wherein two of the at least two ~~operating systems~~ virtual machines each run their own respective operating systems which are the same type of operating system.

31. -32. Canceled

33. (Currently Amended) The apparatus of claim 27 wherein the virtual assets further comprise two additional virtual machines operating on a second single physical server ~~of the at least two operating systems are the same operating system~~.

34. (Currently Amended) The apparatus of claim ~~27~~ 31wherein the ~~at least two operating systems~~ first single physical server and the second single physical server are communicatively coupled by an extended network.

35. (Previously Presented) The apparatus of claim 34 wherein the extended network is the Internet.

REMARKS

In the Office action of January 7, 2009, the Examiner rejects claims 1-6 and 9-35 under 35 U.S.C. 103 as being obvious under US Patent Application 2008/0086731 to Trossman et al. ("Trossman") in view of U.S. Patent Application 2005/0155033 ("Luoffo") and rejects claims 7-8 under 35 U.S.C. 103 as being obvious under Trossman in view of Luoffo in further view of the alleged admitted prior art. By the present response, Applicant amends claims 1, 25-27, 29, and 33-34, and cancels claims 31-32. No new matter has been added. Applicant respectfully submits that the claims as amended are allowable over the cited art for at least the reasons set forth below.

Rejections under 35 U.S.C. 103

The Examiner has rejected claims 1-6 and 9-35 under 35 U.S.C. 103 as being obvious given the combination of Trossman and Luoffo. Claims 31 and 32 have been canceled, and as such the rejection of these claims is moot.

Without traverse, and in the interests of more clearly describing the innovations herein, Applicant amends claim 1 to recite, "wherein the virtual assets comprise at least two virtual machines operating on a single physical server". Claims 25-27 have been similarly amended. Support for these amendments is found throughout the specification. Specifically, Fig. 3 shows network computer 300 which is a single physical server as described on p. 15 line 21 through p. 16 line 7 of the specification. Fig. 3 also shows two virtual machines operating on the single physical server (See Fig. 3 elements 328 and 330, and p. 16 lines 8-24).

The Examiner bears the initial burden of factually supporting any prima facie conclusion of obviousness, including a non-conclusory articulated reasoning with some rationale to support the conclusion (MPEP 2142 and 2143). Applicants respectfully submit that there is no acceptable rationale for finding that the amended claims are obvious given the combination of Trossman and Luoffo.

Trossman, in paragraphs 24-28, discusses a single system, but has no disclosure of two virtual machines operating on a single physical server.

Luoffo describes a system for managing and maintaining application operations within a grid environment (See Luoffo: Abstract). The grid environment of Luoffo is made up of clients and multiple computer systems managed to provide resources(See Luoffo: Fig. 2 and paragraphs 40-46). Luoffo does teach that resources are extracted and viewed as virtual resources made available to a client system (See Luoffo Paragraph 41). Luoffo does not, however, teach two or more virtual machines operating on a single physical server.

Therefore, since all the elements of each of the independent claims 1 and 25-27 are not taught or suggested by the combination of Trossman and Luoffo, Applicant respectfully suggests that there is no acceptable rationale for finding that the amended claims are obvious, the rejection should be withdrawn, and the claims deemed allowable over the cited art. Additionally, since claims 2-6, 9-24, 28-30, and 33-35 depend from claims 1 and 25-27, Applicant submits that they are allowable over the cited art for at least the same reasons.

The Examiner has further rejected claims 7-8 under Trossman in view of Luoffo in further view of the Applicant's alleged admitted prior art. As described above, claim 1 is not obvious given the combination of Trossman and Luoffo. The alleged admitted prior art cited by the Examiner does not cure the deficiencies of Trossman and Luoffo. Since claims 7-8 depend from claim 1, they are therefore allowable for at least the same reasons discussed above with respect to claim 1.

CONCLUSION

In view of the above, it is respectfully submitted that Claims 1-30 and 33-35 are allowable over the prior art cited by the Examiner and early allowance of these claims and the application is respectfully requested.

The Examiner is invited to call Applicant's attorney at the number below in order to speed the prosecution of this application.

The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account No. 07-1896 referencing Attorney Docket No. **367894-000003**.

Respectfully submitted,

DLA PIPER LLP (US)

Date: __March 12, 2009_

By: _____/Philip Jensen/_____
Philip Jensen
Reg. No. 63,563

Attorneys for Applicant(s)

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Electronic Patent Application Fee Transmittal	
Application Number:	11503090
Filing Date:	10-Aug-2006
Title of Invention:	Virtual systems management
First Named Inventor/Applicant Name:	Vipul Pabari
Filer:	Philip Jensen/Rosa Caviedes
Attorney Docket Number:	41965-0003
Filed as Small 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($)
Miscellaneous:				
Request for continued examination	2801	1	405	405
		Total in USD ($)		**405**

Electronic Acknowledgement Receipt	
EFS ID:	4959589
Application Number:	11503090
International Application Number:	
Confirmation Number:	9855
Title of Invention:	Virtual systems management
First Named Inventor/Applicant Name:	Vipul Pabari
Customer Number:	33123
Filer:	Philip Jensen
Filer Authorized By:	
Attorney Docket Number:	41965-0003
Receipt Date:	13-MAR-2009
Filing Date:	10-AUG-2006
Time Stamp:	18:46:00
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$405
RAM confirmation Number	3868
Deposit Account	071896
Authorized User	
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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)	Request_for_Continued_Examination.pdf	76724 31b70b7f50bbe98d912b6ee45f1bb89502dcae60	no	2
Warnings:					
This is not a USPTO supplied RCE SB30 form.					
Information:					
2	Amendment Submitted/Entered with Filing of CPA/RCE	Response_B.pdf	113061 ba316a4d6460cfd86a70946bd9abcc88a243e7c2	no	10
Warnings:					
Information:					
3	Fee Worksheet (PTO-06)	fee-info.pdf	29920 328ba5e91dad484634a00956d6e82b0229f91c40	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	219705		

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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
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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
11/503,090	08/10/2006	

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	03/13/2009	(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))	* 33	Minus	** 35	= 0	X $26 =	0	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 4	Minus	***4	= 0	X $110 =	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.

** 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:
/FRANCES Y. FIELDS/

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/503,090	08/10/2006	Vipul Pabari	41965-0003	9855

33123 7590 05/20/2009

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SAN DIEGO, CA 92122

EXAMINER	
AMPAGOOMIAN, DAVID S	
ART UNIT	**PAPER NUMBER**
2446	

MAIL DATE	DELIVERY MODE
05/20/2009	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.

Office Action Summary	Application No.	Applicant(s)	
	11/503,090	PABARI, VIPUL	
	Examiner	Art Unit	
	DAVID AMPAGOOMIAN	2446	

-- 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 *12 March 2009*.

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) *1-30 and 33-35* 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) *1-30 and 33-35* 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 *08/10/2006* 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: _____.

DETAILED ACTION

Claims 1-30, 33-35 are pending.

Claims 1, 25-27, 30, 33-34 are amended.

Claims 31-32 are cancelled.

Continued Examination Under 37 CFR 1.114

1. 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 03/12/2009 has been entered.

Claim Objections

2. Claim 34 objected to because of the following informalities: Amended claim 34 depends from canceled claim 31. For the reset of this action claim 34 will be treated as depending from claim 33. Appropriate correction is required.

Response to Arguments

3. Applicant's arguments with respect to claims 1 and 25-27 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1-6, 9-30, 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Trossman et al. (US 2008/0086731) hereafter Trossman in view of Naik et al. (US 2006/0294238).

Regarding claim 1, Trossman discloses a method for automatic management of a virtualization environment in a computer network, the method comprising:

determining an inventory of network resources and virtual assets available to the virtualization environment of the computer network (Trossman: "The data storage 20 contains information on the groupings and poolings of resources in the resource system 12 for management purposes." [0042], [0034-0036]);

assigning prioritization to members of the available inventory for the virtualization environment (Trossman: "Each of these group information sets may contains an identification of each resource in the group, the size of the group, the number of active and idle resources in the group and the priority of the group and the pool to which the group belongs." [0042], [0023]);

provisioning virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment (Trossman: "Given the differing resource requirements for each application environment using and requiring resources

in the resource system 12, the resource change mechanism 18 decides where the resources will be allocated." [0031]);

determining real time performance metrics for the provisioned virtualization environment (Trossman: [0021-0024]);

producing a reallocation of the virtual assets automatically in response to the real time performance metrics (Trossman: [0021-0024], [0034-0036]); and initiating the reallocation of the virtual assets (Trossman: [0021-0024], [0034-0036]).

Trossman does not explicitly disclose wherein the virtual assets comprise at least two virtual machines operating on a single physical server.

However, Naik discloses the use of multiple virtual machines operating on a single physical server (Naik: [0082-0083]; Fig. 3 "Virtual Machine A" and "Virtual Machine B") in order to share and utilize excess computer resources efficiently (Naik: [0002-0019]; [0025]).

It would have been obvious to one of ordinary skill in the at the time of the invention to create the resource management system of Trossman to include the use of running two virtual machines on a single server as taught by Naik in order to make efficient use of excess computer resources (Naik: [0002-0019]; [0025])

Regarding claim 2, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further discloses receiving user input that specifies parameters to be considered with the real time performance metrics in producing the reallocation of assets (Trossman: [0033]).

Regarding claim 3, the modified Trossman reference teaches the method of claim 2 as described above. Trossman further discloses wherein the received user input comprises a Knowledge Block that determines one or more of the reallocation parameters (Trossman: [0033]).

Regarding claim 4, the modified Trossman reference teaches the method of claim 2 as described above. Trossman further discloses wherein the received user input specifies parameters that detect operational degradation of a member of the available inventory (Trossman:[0033],[0056-0057]).

Regarding claim 5, the modified Trossman reference teaches the method of claim 4 as described above. Trossman further discloses wherein the available inventory member that is detected as degraded is removed from the available inventory (Trossman: [0119]).

Regarding claim 6, the modified Trossman reference teaches the method of claim 4 as described above. Trossman further discloses wherein the available inventory that is detected as degraded is moved from the available inventory to a debug inventory pool (Trossman: [0119-0120]).

Regarding claim 9, the modified Trossman reference teaches the method of claim 4 as described above. Trossman further discloses wherein the available inventory that is detected as degraded is halted and is removed from the available inventory to a debug inventory pool (Trossman: [0119-0120]).

Regarding claim 10, the modified Trossman reference teaches the method of claim 9 as described above. Trossman further discloses wherein the halted available inventory is removed from the debug inventory pool (Trossman: [0119-0120]).

Regarding claim 11, the modified Trossman reference teaches the method of claim 3 as described above. Trossman further discloses wherein the Knowledge Block specifies parameters that send an alert message to an administrator of the network in response to an alert condition (Trossman: [0033], [0040], [0119-0120]).

Regarding claim 12, the modified Trossman reference teaches the method of claim 3 as described above. Trossman further discloses wherein the Knowledge Block specifies parameters that receive an instruction from an administrator of the network in response to an alert condition (Trossman: [0033], [0040], [0119-0120]).

Regarding claim 13, the modified Trossman reference teaches the method of claim 3 as described above. Trossman further discloses wherein the Knowledge Block specifies parameters that identify a last known acceptable virtual machine image that

includes one or more applications from the set of available inventory (Trossman: [0033]).

Regarding claim 14, the modified Trossman reference teaches the method of claim 3 as described above. Trossman further discloses wherein the Knowledge Block specifies parameters that deploy an instance of an application selected from among the available inventory (Trossman: [0033]).

Regarding claim 15, the modified Trossman reference teaches the method of claim 2 as described above. Trossman further discloses wherein the received user input specifies a priority for one or more of the available inventory (Trossman: [0033]).

Regarding claim 16, the modified Trossman reference teaches the method of claim 2 as described above. Trossman further discloses wherein the user input specifies a time period during which the reallocation will be applied (Trossman: [0033]).

Regarding claim 17, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further teaches providing a user interface through which user input can be received and wherein the user input adjusts scheduling of producing the reallocation (Trossman: [0033]).

Regarding claim 18, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further teaches wherein producing a reallocation comprises adding a new application instance to the available inventory (Trossman: [0119]).

Regarding claim 19, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further teaches wherein producing a reallocation comprises updating the available inventory to include any changes made by the reallocation (Trossman: [0104], [0118-0119])

Regarding claim 20, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further discloses wherein the inventory of available inventory includes one or more application programs (Trossman: [0119]).

Regarding claim 21, the modified Trossman reference teaches the method of claim 20 as described above. Trossman further discloses wherein one of the application programs comprises a network load balancer (Trossman: [0024]).

Regarding claim 22, the modified Trossman reference teaches method of claim 20 as described above. Trossman further discloses wherein one of the application programs comprises a network server (Trossman: [0022]).

Regarding claim 23, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further discloses wherein: determining, by an Asset Manager Component, an inventory of available network resources and virtual assets (Trossman: [0022-0023]);

assigning prioritization to the available inventory and provisioning virtual assets from among the available inventory, performed by a Provisioning Manager component (Trossman: [0042], [0023]);

determining, by a Performance Manager component, a real time performance metrics (Trossman: [0022-0023]); and

automatically producing and initializing, by an Optimizer component, a reallocation of the virtual assets (Trossman: [0022-0023]).

Regarding claim 24, the modified Trossman reference teaches the method of claim 23 as described above. Trossman further discloses wherein automatically producing a reallocation of the virtual assets comprises forecasting future system needs, which is performed by a Capacity Planning Manager component (Trossman: [0022-0023]).

Regarding claim 25, Trossman discloses a method for automatic management of a virtualization environment in a computer network, the method comprising:

performing one or more functions from the group of functions consisting of (1) identification and management of network resources and virtual assets, (2) provisioning

of virtual assets in response to network workflow demands, (3) dynamic deployment of virtual assets across the computer network, (4) performance measurement and reporting of resources and virtual assets, and (5) planning and forecasting of resource demands and virtual asset utilization of the virtualization environment (Trossman: [0022-0023],[0031-0036],[0042]);

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment (Trossman: [0031-0036]).

Trossman does not explicitly disclose wherein the virtual assets comprise at least two virtual machines operating on a single physical server.

However, Naik discloses the use of multiple virtual machines operating on a single physical server (Naik: [0082-0083]; Fig. 3 “Virtual Machine A” and “Virtual Machine B") in order to share and utilize excess computer resources efficiently (Naik: [0002-0019]; [0025]).

It would have been obvious to one of ordinary skill in the at the time of the invention to create the resource management system of Trossman to include the use of running two virtual machines on a single server as taught by Naik in order to make efficient use of excess computer resources (Naik: [0002-0019]; [0025])

Regarding claim 26, Trossman discloses a method of managing a virtualization environment in a computer network, the method comprising:

providing a virtualization environment at a computer in communication with the computer network (Trossman: [0035-0038]);

determining an inventory of network resources and virtual assets available to the virtualization environment (Trossman: “The data storage 20 contains information on the groupings and poolings of resources in the resource system 12 for management purposes.” [0042], [0034-0036]);

performing at least one function from among the group of functions consisting of (1) identification and management of network resources and virtual assets, (2) provisioning of virtual assets in response to network workflow demands, (3) dynamic deployment of virtual assets across the computer network, (4) performance measurement and reporting of resources and virtual assets, and (5) planning and forecasting of resource demands and virtual asset utilization of the virtualization environment (Trossman: [0022-0023],[0031-0036],[0042]),

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment (Trossman: [0031-0036]).

Trossman does not explicitly disclose wherein the virtual assets comprise at least two virtual machines operating on a single physical server.

However, Naik discloses the use of multiple virtual machines operating on a single physical server (Naik: [0082-0083]; Fig. 3 “Virtual Machine A” and “Virtual Machine B") in order to share and utilize excess computer resources efficiently (Naik: [0002-0019]; [0025]).

It would have been obvious to one of ordinary skill in the at the time of the invention to create the resource management system of Trossman to include the use of running two virtual machines on a single server as taught by Naik in order to make efficient use of excess computer resources (Naik: [0002-0019]; [0025])

Regarding claim 27, Trossman discloses an apparatus that performs automatic management of a virtualization environment in a computer network comprising:

a network communications unit that enables communications between the apparatus and the computer network (Trossman:[0023-0024]);

an operating system of the apparatus that supports a virtualization environment in communication with the apparatus (Trossman:[0026]); and

a Virtual Mapping layer that determines an inventory of network resources and virtual assets available to the virtualization environment, wherein the Virtual Mapping layer determines the inventory without regard to processors, operating systems (Trossman: “The data storage 20 contains information on the groupings and poolings of resources in the resource system 12 for management purposes.” [0042], [0034-0036]), virtualization platforms, and application software of the virtualization environment (Trossman: [0034-0038]).

Trossman does not explicitly disclose wherein the virtual assets comprise at least two virtual machines operating on a first single physical server.

However, Naik discloses the use of multiple virtual machines operating on a single physical server (Naik: [0082-0083]; Fig. 3 “Virtual Machine A” and “Virtual

Machine B") in order to share and utilize excess computer resources efficiently (Naik: [0002-0019]; [0025]).

It would have been obvious to one of ordinary skill in the at the time of the invention to create the resource management system of Trossman to include the use of running two virtual machines on a single server as taught by Naik in order to make efficient use of excess computer resources (Naik: [0002-0019]; [0025])

Regarding claim 28, the modified Trossman reference teaches the apparatus of claim 27 as described above. Trossman further discloses comprising one or more components that receive the inventory of available resources and assets from the Virtual Mapping layer and perform one or more functions from the group of functions consisting of:

(1) identification and management of network resources and virtual assets, (2) provisioning of virtual assets in response to network workflow demands, (3) dynamic deployment of virtual assets across the computer network, (4) performance measurement and reporting of resources and virtual assets, and (5) planning and forecasting of resource demands and asset utilization of the virtualization environment (Trossman: [0022-0023],[0031-0036],[0042]);

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment (Trossman: [0031-0036]).

Regarding claim 29, the modified Trossman reference teaches the apparatus of claim 27 as described above. Trossman further discloses comprising a component selected from a group consisting of: an Asset Manager component that determines an inventory of available network resources and virtual assets;

a Provisioning Manager component that assigns a prioritization to the available inventory and provisions virtual assets from among the available inventory (Trossman: "The data storage 20 contains information on the groupings and poolings of resources in the resource system 12 for management purposes." [0042], [0034-0036]);

a Performance Manager component that determines real time performance metrics Trossman: [0022-0024]; and

an Optimizer component that automatically produces a reallocation of the virtual assets and initiates the reallocation (Trossman: [0021-0024], [0034-0036]).

Regarding claim 30, the modified Trossman reference teaches the method of claim 1 as described above. Trossman does not explicitly disclose wherein two of the at least two virtual machines each run their own respective operating systems which are the same type of operating system. However, Naik discloses the use of two virtual machines running their own operating systems (Naik: "Each VM contains a Virtual Machine Operating System (VM OS) (140)." [0082-0083]; Fig. 3 "Virtual Machine OS") in order to share and utilize excess computer resources efficiently (Naik: [0002-0019]; [0025]).

It would have been obvious to one of ordinary skill in the at the time of the invention to create the resource management system of Trossman to include the use of running virtual machines with their own virtual OS as taught by Naik in order to make efficient use of excess computer resources (Naik: [0002-0019]; [0025])

Regarding claim 33, the modified Trossman reference teaches the apparatus of claim 27 as described above. Trossman does not explicitly disclose wherein the virtual assets further comprise two additional virtual machines operating on a second single physical server.

However, Naik discloses the use of multiple virtual machines operating on a second single physical server (Naik: [0074]; [0082-0086]; [0049]); Fig. 3 “Virtual Machine A” and “Virtual Machine B") in order to share and utilize excess computer resources efficiently (Naik: [0002-0019]; [0025]).

It would have been obvious to one of ordinary skill in the at the time of the invention to create the resource management system of Trossman to include the use of running two virtual machines on a second single server as taught by Naik in order to make efficient use of excess computer resources (Naik: [0002-0019]; [0025])

Regarding claim 34, the modified Trossman reference teaches the apparatus of claim 33 as described above. Trossman further disclose wherein the first single physical server and the second single physical server are communicatively coupled by an extended network (Trossman: [0024]). Naik, also discloses wherein the first single

physical server and the second single physical server are communicatively coupled by an extended network (Naik: [0049])

6. Claims 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Trossman in view of Naik as applied to claims 27 and 33-34 above, and further in view of Luoffo et al (US 2005/0155033) hereafter Luoffo.

Regarding claim 35, the modified Trossman reference teaches the apparatus of claim 34 as described above. Trossman does not explicitly disclose wherein the extended network is the Internet.

However, Luoffo teaches the use of a virtual computing system grid that is made up of multiple computing systems that are communicatively coupled by the Internet (Luoffo: [0035-0036] in order to “maintain application” with suboptimal conditions (Luoffo: [0015]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to create the resource management system with multiple virtual machines operating on a single physical server in a virtual computing environment of the modified Trossman reference to include of the use of server communicatively coupled by the Internet in a virtual computing environment as taught by Luoffo in order to “maintain application” operating in an environment with suboptimal conditions (Luoffo: [0015]).

7. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Trossman in view of Naik as applied to claims 1-2 and 4 above, and further in view of applicants admitted prior art.

Regarding claim 7, the modified Trossman reference teaches the method of claim 4 as described above. Trossman does not explicitly disclose wherein log files are retrieved from the available inventory that is detected as degraded.

Applicant admitted prior art teaches logging computer system performance, faults and errors and alerting an administrator of the logged events is well known in the art.

It would have been obvious to one of ordinary skill in the art at the time of the invention to create the resource management system with multiple virtual machines operating on a single physical server in a virtual computing environment of the modified Trossman reference to include of the use of logging data and alerting an administrator as taught by applicant admitted prior art in order to provide diagnostic data and alerts to properly manage the system.

Regarding claim 8, the modified Trossman reference teaches the method of claim 7 as described above. Trossman does not explicitly disclose wherein the log files are stored in an archive and an alert message is sent to a network administrator with an identification of the log file archive location.

Applicant admitted prior art teaches logging computer system performance, faults and errors and alerting an administrator of the logged events is well known in the art.

It would have been obvious to one of ordinary skill in the art at the time of the invention to create the resource management system with multiple virtual machines operating on a single physical server in a virtual computing environment of the modified Trossman reference to include of the use of logging data and alerting an administrator as taught by applicant admitted prior art in order to provide diagnostic data and alerts to properly manage the system.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID AMPAGOOMIAN whose telephone number is (571)270-1896. The examiner can normally be reached on Monday through Friday 9:30 AM to 7:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Pwu can be reached on 571-272-6798. 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.

/D. A./
Examiner, Art Unit 2446

/Jeffrey Pwu/
Supervisory Patent Examiner, Art Unit 2446

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11503090	PABARI, VIPUL
	Examiner	Art Unit
	DAVID AMPAGOOMIAN	2446

SEARCHED			
Class	Subclass	Date	Examiner
709	223, 226	5/27/2008	DA
709	223,224,226		

SEARCH NOTES		
Search Notes	Date	Examiner
Text searched EAST databases	5/27/2008	DA
Updated EAST text search	12/31/2008	DA
limted class/sublcass search (709/201-202,223-224,226; 718/100-108)	12/31/2008	DA
Inventor name searched	12/31/2008	DA
Updated EAST text search	5/14/2009	DA

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11503090	PABARI, VIPUL
	Examiner	Art Unit
	DAVID AMPAGOOMIAN	2446

✓	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	05/27/2008	12/31/2008	05/14/2009						
	1	✓	✓	✓						
	2	✓	✓	✓						
	3	✓	✓	✓						
	4	✓	✓	✓						
	5	✓	✓	✓						
	6	✓	✓	✓						
	7	✓	✓	✓						
	8	✓	✓	✓						
	9	✓	✓	✓						
	10	✓	✓	✓						
	11	✓	✓	✓						
	12	✓	✓	✓						
	13	✓	✓	✓						
	14	✓	✓	✓						
	15	✓	✓	✓						
	16	✓	✓	✓						
	17	✓	✓	✓						
	18	✓	✓	✓						
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	25	✓	✓	✓						
	26	✓	✓	✓						
	27	✓	✓	✓						
	28	✓	✓	✓						
	29	✓	✓	✓						
	30		✓	✓						
	31		✓	-						
	32		✓	-						
	33		✓	✓						
	34		✓	✓						
	35		✓	✓						

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	6	(virtual or virtualization) near50 (machine) and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz $5) and network and pool near5 resource and (cluster or (data center))	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/05/14 11:30
L2	22	(virtual or virtualization) near50 (machine) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz $5) and network	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/05/14 11:30
L3	35089	(virtual) near50 (machine)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/05/14 11:45
L4	9	(((virtual or virtualization) near50 (machine)) or VM) and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz $5) and network and pool near5 resource and (cluster or (data center))	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/05/14 11:45
L5	60640	(virtual near50 machine) or VM	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/05/14 11:46
L6	23	(((virtual or virtualization) near50 (machine)) or VM) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5) and network	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/05/14 11:55
L7	473	(((virtual or virtualization) near50 (machine)) or VM) and (management or provision$3 or allocat$4) near50 (performance) and (prioritiz $5) and network	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/05/14 11:55

L9	7589	((virtual near50 (machine or machines)) or VM) near35 (OS or (operating near3 (system or systems)))	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	OFF	2009/05/14 11:58
L10	8	(US-20070106769-$ or US-20050138165-$ or US-20080086731-$ or US-20030149685-$ or US-20070067435-$ or US-20060294238-$ or US-20050155033-$).did. or (US-7463648-$).did.	US-PGPUB; USPAT	ADJ	ON	2009/05/14 11:58
L11	2	9 and 10	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/05/14 11:58
L12	675	(virtual or virtualization) and network and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/05/14 14:35
L13	216	L12 and load near3 (sharing or balancing)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/05/14 14:35
L14	160	L13 and (@rlad<="20050814" or @ad<="20050814" or @pd<="20050814")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/05/14 14:35
S1	50	(("20030217250") or ("20030236945") or ("20040111485") or ("20050154845") or ("20050267986") or ("20060095640") or ("20060095904") or ("20070050573") or ("20070050763") or ("20070136524") or ("20070169120") or ("20070179955") or ("20070180493") or ("20070283348") or ("20080016303") or ("5404478") or ("5463629") or ("5477242") or ("5596755") or ("5694599") or ("5694606") or ("5764999") or ("5790837") or ("5812820") or ("5826041") or ("5838908") or ("5864705") or ("5937185") or ("6067607") or	US-PGPUB; USPAT	OR	OFF	2008/05/26 20:30

		("6075938") or ("6081900") or ("6195650") or ("6195730") or ("6204847") or ("6209023") or ("6243809") or ("6253224") or ("6253318") or ("6381615") or ("6397242") or ("6496847") or ("6519678") or ("6532527") or ("6546434") or ("6681238") or ("6898670") or ("7020734") or ("7127548") or ("7206860") or ("7260664")).PN.				
S2	7381	709/223.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 20:44
S3	3193	709/226.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 20:44
S4	1	10/740276.app.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 20:50
S5	1841	(virtual or virtualization) and network and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 20:54
S6	590	(virtual or virtualization) and network and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 20:57
S7	20	(virtual or virtualization) near50 (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5) and network	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 20:57
S8	590	(virtual or virtualization) and network and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:00
S10	508	S8 and (@rlad<="20050815" or @ad<="20050815" or @pd<="20050815")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:00

S11	20	(virtual or virtualization) near50 (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5) and network	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:03
S12	16	S11 and (@rlad<="20050815" or @ad<="20050815" or @pd<="20050815")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:03
S13	238	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5) and network	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:03
S14	38	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5) and network and reallocat$4	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:15
S15	170	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5) and network and input near5 user	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:16
S16	143	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5) and input near5 user and log	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:17
S17	163	S15 and (@rlad<="20050815" or @ad<="20050815" or @pd<="20050815")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:17
S18	142	S16 and (@rlad<="20050815" or @ad<="20050815" or @pd<="20050815")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:17

S19	164	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5) and network and input near5 user and (resource or asset) near50 (management)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:22
S20	165	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5) and network and input near5 user and (resource or asset or virtual or virtualization) near50 (management)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:22
S22	137	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5) and network and input near5 user and (resource or asset or virtual or virtualization) near50 (management) and log and inventory	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:23
S23	137	S22 and (@rlad<="20050815" or @ad<="20050815" or @pd<="20050815")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:23
S24	7381	709/223.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:23
S25	3193	709/226.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:23
S28	10033	S25 or S24	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:23

S29	7	S23 and S28	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:24
S30	48	S28 and S8	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:24
S31	41	S30 and (@rlad<="20050815" or @ad<="20050815" or @pd<="20050815")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:24
S32	136	S22 and (@rlad<="20050814" or @ad<="20050814" or @pd<="20050814")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:30
S33	32	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near30 (computer or server or network or virtual) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz $5) and network and input near5 user	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:32
S34	58	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near30 (computer or server or network or virtual) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz $5) and network	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:33
S35	51	S34 and (@rlad<="20050814" or @ad<="20050814" or @pd<="20050814")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:34
S36	590	(virtual or virtualization) and network and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/27 08:20

S37	196	S36 and load near3 (sharing or balancing)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/27 08:20
S38	147	S37 and (@rlad<="20050814" or @ad<="20050814" or @pd<="20050814")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/27 08:21
S39	2	10/357352.app.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/27 09:11
S40	1	11/503090.app.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 10:35
S41	650	(virtual or virtualization) and network and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:21
S42	535	S41 and (@rlad<="20050814" or @ad<="20050814" or @pd<="20050814")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:22
S43	8164	709/223.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:23
S44	8391	709/224.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:24
S45	3589	709/226.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:24
S46	3093	709/201.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:24

S47	1881	709/202.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:25
S48	21255	S43 S44 S45 S46 S47	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/31 11:25
S49	68	S48 and S42	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/31 11:25
S50	87	network and (virtual or virtualization) same (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz $5)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:26
S51	33	S50 and (@rlad<="20050814" or @ad<="20050814" or @pd<="20050814")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:27
S52	187	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5) and network and pool	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:30
S53	176	S52 and (@rlad<="20050814" or @ad<="20050814" or @pd<="20050814")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:30
S54	10	S51 and S48	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/31 11:31
S55	18	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5) and network and pool near5 resource and (cluster or (data center))	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:37

S56	13	S55 and (@rlad<="20050814" or @ad<="20050814" or @pd<="20050814")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:37
S57	66	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near30 (computer or server or network or virtual) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz $5) and network	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 13:48
S58	8213	718/100-108.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 14:01
S59	915	718/1.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 14:01
S60	174	S58 and S59	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 14:02
S61	1893	718/104.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 14:02
S62	2	((VIPUL) near2 (PABARI)).INV.	EPO; JPO; DERWENT	ADJ	ON	2008/12/31 17:20
S63	21	(PABARI).INV.	EPO; JPO; DERWENT	ADJ	ON	2008/12/31 17:20

5/14/2009 2:36:03 PM
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No.	:	11/503,090	Confirmation No. 9855
Applicant	:	Vipul Pabari	
Filed	:	August 10, 2006	
TC/A.U.	:	2146	
Examiner	:	AMPAGOOMIAN, DAVID S	
Docket No.	:	367894-000003	
Customer No.	:	26379	

Title: VIRTUAL SYSTEMS MANAGEMENT

M/S Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Certificate of Transmission Under 37 CFR 1.8
I hereby certify that this correspondence is being transmitted via electronic submission, attention Mail Stop: Amendment, Commissioner for Patents, Alexandria, VA 22313-1450 on: August 20, 2009

/Philip Jensen/
Philip Jensen

RESPONSE B

Sir:

In response to the Office action of May 20, 2009, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 8 of this paper.

1. Listing of the claims:

1. (Currently Amended) A method for automatic management of a virtualization environment in a computer network, the method comprising:

determining an inventory of network resources and virtual assets available to the virtualization environment of the computer network;

assigning prioritization to members of the available inventory for the virtualization environment;

provisioning virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment, wherein the virtual assets comprise at least ~~two~~ one virtual machine~~s~~ operating on a single physical ~~server~~ host, and wherein the at least one virtual machine comprises virtual hardware assets;

determining real time performance metrics for the provisioned virtualization environment;

producing a reallocation of the virtual assets automatically in response to the real time performance metrics; and

initiating the reallocation of the virtual assets.

2. (Original) The method of claim 1, further comprising receiving user input that specifies parameters to be considered with the real time performance metrics in producing the reallocation of assets.

3. (Original) The method of claim 2, wherein the received user input comprises a Knowledge Block that determines one or more of the reallocation parameters.

4. (Original) The method of claim 2, wherein the received user input specifies parameters that detect operational degradation of a member of the available inventory.

5. (Original) The method of claim 4, wherein the available inventory member that is detected as degraded is removed from the available inventory.

6. (Original) The method of claim 4, wherein the available inventory that is detected as degraded is moved from the available inventory to a debug inventory pool.

7. (Original) The method of claim 4, wherein log files are retrieved from the available inventory that is detected as degraded.

8. (Original) The method of claim 7, wherein the log files are stored in an archive and an alert message is sent to a network administrator with an identification of the log file archive location.

9. (Original) The method of claim 4, wherein the available inventory that is detected as degraded is halted and is removed from the available inventory to a debug inventory pool.

10. (Original) The method of claim 9, wherein the halted available inventory is removed from the debug inventory pool.

11. (Previously Presented) The method of claim 3, wherein the Knowledge Block specifies parameters that send an alert message to an administrator of the network in response to an alert condition.

12. (Original) The method of claim 3, wherein the Knowledge Block specifies parameters that receive an instruction from an administrator of the network in response to an alert condition.

13. (Original) The method of claim 3, wherein the Knowledge Block specifies parameters that identify a last known acceptable virtual machine image that includes one or more applications from the set of available inventory.

14. (Original) The method of claim 3, wherein the Knowledge Block specifies parameters that deploy an instance of an application selected from among the available inventory.

15. (Original) The method of claim 2, wherein the received user input specifies a priority for one or more of the available inventory.

16. (Original) The method of claim 2, wherein the user input specifies a time period during which the reallocation will be applied.

17. (Original) The method of claim 1, further comprising: providing a user interface through which user input can be received and wherein the user input adjusts scheduling of producing the reallocation.

18. (Original) The method of claim 1, wherein producing a reallocation comprises adding a new application instance to the available inventory.

19. (Original) The method of claim 1, wherein producing a reallocation comprises updating the available inventory to include any changes made by the reallocation.

20. (Original) The method of claim 1, wherein the inventory of available inventory includes one or more application programs.

21. (Original) The method of claim 20, wherein one of the application programs comprises a network load balancer.

22. (Original) The method of claim 20, wherein one of the application programs comprises a network server.

23. (Original) The method of claim 1, wherein: determining, by an Asset Manager Component, an inventory of available network resources and virtual assets; assigning prioritization to the available inventory and provisioning virtual assets from among the available inventory, performed by a Provisioning Manager component; determining, by a Performance Manager component, a real time performance metrics; and automatically producing and initializing, by an Optimizer component, a reallocation of the virtual assets.

24. (Original) The method of claim 23, wherein automatically producing a reallocation of the virtual assets comprises forecasting future system needs, which is performed by a Capacity Planning Manager component.

25. (Currently Amended) A method for automatic management of a virtualization environment in a computer network, the method comprising:

performing one or more functions from the group of functions consisting of

(1) identification and management of network resources and virtual assets,

(2) provisioning of virtual assets in response to network workflow demands,

(3) dynamic deployment of virtual assets across the computer network,

(4) performance measurement and reporting of resources and virtual assets, and

(5) planning and forecasting of resource demands and virtual asset utilization of the virtualization environment;

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment and, wherein the virtual assets comprise at least ~~two~~ one virtual machine~~s~~ operating on a single physical ~~server~~ host, and wherein the at least one virtual machine comprises virtual hardware assets.

26. (Currently Amended) A method of managing a virtualization environment in a computer network, the method comprising:

providing a virtualization environment at a computer in communication with the computer network;

determining an inventory of network resources and virtual assets available to the virtualization environment;

performing at least one function from among the group of functions consisting of

(1) identification and management of network resources and virtual assets,

(2) provisioning of virtual assets in response to network workflow demands,

(3) dynamic deployment of virtual assets across the computer network,

(4) performance measurement and reporting of resources and virtual assets, and

(5) planning and forecasting of resource demands and virtual asset utilization of the virtualization environment,

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment, and wherein the virtual assets comprise at least ~~two~~ one virtual machine~~s~~ operating on a single physical ~~server~~ host, and wherein the at least one virtual machine comprises virtual hardware assets.

27. (Currently Amended) An apparatus that performs automatic management of a virtualization environment in a computer network comprising:

a network communications unit that enables communications between the apparatus and the computer network;

an operating system of the apparatus that supports a virtualization environment in communication with the apparatus; and

a Virtual Mapping layer that determines an inventory of network resources and virtual assets available to the virtualization environment, wherein the Virtual Mapping layer determines the inventory without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment, wherein the virtual assets comprise at least ~~two~~ one virtual machine~~s~~ operating on a single physical ~~server~~ host, and wherein the at least one virtual machine comprises virtual hardware assets.

28. (Original) The apparatus of claim 27, further comprising one or more components that receive the inventory of available resources and assets from the Virtual Mapping layer and perform one or more functions from the group of functions consisting of:

(1) identification and management of network resources and virtual assets,

(2) provisioning of virtual assets in response to network workflow demands,

(3) dynamic deployment of virtual assets across the computer network,

(4) performance measurement and reporting of resources and virtual assets, and

(5) planning and forecasting of resource demands and asset utilization of the virtualization environment;

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment.

29. (Original) The apparatus of claim 27, further comprising a component selected from a group consisting of: an Asset Manager component that determines an inventory of available network resources and virtual assets;

a Provisioning Manager component that assigns a prioritization to the available inventory and provisions virtual assets from among the available inventory;

a Performance Manager component that determines real time performance metrics; and

an Optimizer component that automatically produces a reallocation of the virtual assets and initiates the reallocation.

30. (Currently Amended) The method of claim 1 wherein the virtual assets further comprise a second virtual machine which comprises virtual assets, and the at least one virtual machine and the second virtual machine ~~two of the at least two virtual machines~~ each run their own respective operating systems which are ~~the same~~ a different type of operating system from each other.

31. -35. Canceled

36. (New) The method of claim 1 wherein provisioning virtual assets from among the available inventory further comprises routing an application running on a first virtual machine to run on a second virtual machine.

37. (New) The method of claim 1 wherein provisioning virtual assets from among the available inventory further comprises creating a duplicate of the first virtual machine.

38. (New) The method of claim 37 wherein creating a duplicate of the first virtual machine further comprises creating a duplicate of the application running on the first virtual machine as part of the duplicate of the first virtual machine.

39. (New) The method of claim 1 wherein provisioning virtual assets from among the available inventory further comprises creating a new virtual machine on the single physical host.

40. (New) The method of claim 1 wherein provisioning virtual assets from among the available inventory further comprises communicating provisioning instructions from a control agent comprising at least one virtualization platform adapter to a virtualization layer in the single physical host.

REMARKS

In response to the Office action of May 20, 2009, Applicant amends claims 1, 25-27, and 30, cancels claims 33-35, and adds new claims 36-39. No new matter has been added. In the Office action, the Examiner (i) objected to claim 34 due to informalities, (ii) rejected claims 1-6 and 9-30 and 33-34 under 35 U.S.C. 103 as being obvious under US Patent Application 2008/0086731 to Trossman et al. ("Trossman") in view of U.S. Patent Application 2006/0294238 to Naik et al. ("Naik"), (iii) rejected claim 35 as obvious under Trossmann in view of Naik in further view of US Patent Application 2005/0155033 ("Luoffo") and (iv) rejected claims 7-8 under 35 U.S.C. 103 as being obvious under Trossman in view of Luoffo in further view of the alleged admitted prior art. Applicant respectfully traverses, and submits that the claims as amended are allowable over the cited art for at least the reasons set forth below.

Claim Objections

The Examiner has objected to claim 34 due to informalities. Claim 34 has been canceled, and as such the objection is moot.

Rejections under 35 U.S.C. 103

Claims 1-6, 9-30 and 33-34

The Examiner has rejected claims 1-6 and 9-30 and 33-34 under 35 U.S.C. 103 as being obvious given the combination of Trossman and Naik. Claims 33 and 34 have been canceled, and as such the rejection of these claims is moot.

The Examiner bears the initial burden of factually supporting any prima facie conclusion of obviousness (MPEP 2142). To find a claim unpatentable due to obviousness under § 103(a), an examiner must engage in a factual inquiry involving:

> (A) Ascertaining the scope and content of the prior art;
> (B) Ascertaining the differences between the claimed invention and the prior art; and

(C) Resolving the level of ordinary skill in the pertinent art.
(MPEP 2141 and *Graham v. John Deere Co.*, 383 U.S. 1)

Additionally, rejections under 35 U.S.C. 103 "cannot be sustained with mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness" (MPEP 2143, citing the Federal Circuit in *In re Kahn*, 441 F.3d 977, 988, 78 USPTQ2d 1329, 1336 (Fed. Cir. 2006)).

The invention of Naik relates to controlling the participation and managing the performance of a distributed set of resources *in a grid environment* . As described by Niak, the resources in the grid are primarily deployed for non-grid related computation (See Niak paragraph 23). These resources must conform to local usage policies, which means the resource may become unavailable to the grid unexpectedly (See Niak paragraphs 26 and 33). For example, a desktop computer may be unavailable when a user is using the desktop. Niak attempts to create a level of service quality standard given these resources by using virtual machines and by predicting the availability of these resources (See Niak paragraphs 27-31).

By contrast, Trossmann describes allocation of resources in a data center. The resources of Trossmann are known, unlike the behavior of the resources in Naik. Trossmann relates to allocating these known resources to meet an unknown but predicted demand (See e.g. Trossmann Fig. 4 and paragraphs 64-67). It would not have been obvious to combine Trossmann and Naik because the differences in the reliability of the resources used by these two references create incompatibility which would not have allowed a person of ordinary skill to combine the two inventions. The motivation present in Naik for using virtual machines to deal with a grid is wholly absent from Trossmann, and no other motivation for using the virtual machines of Naik is present in Trossmann.

Further, in Naik, a physical machine must have a different virtual machine for each grid that uses the physical machine (See Niak paragraph 83). This is not an efficient use of resources, but rather a conforming to the grid archetype wherein a single grid is designed to use processing power of idle hosts, and where a large problem is broken into many discrete problems, with each host computing discrete problems which are then returned to the grid manager. The separate virtual machines create extra overhead to separate the components of different grid problems sent to the single physical machine, providing isolation at the grid application level.

By contrast, Trossmann is attempting to achieve an efficient use of known data center resources to meet unexpected demand, with an emphasis on efficiency (See Trossmann Abstract and Figs. 6 and 9-10). There is no teaching, suggestion or motivation to improve Trossmann by using the virtual machines of Naik. Instead, the virtual machines of Naik would add extra overhead to the invention of Trossmann, and render the Trossmann invention less efficient in the given data center environment.

Therefore, it would not have been obvious to combine Trossmann and Naik to achieve the recitations of claims 1-6 and 9-30.

In the interest of efficiently furthering prosecution, applicants have amended claim 1 to recite "the virtual assets comprise at least one virtual machines operating on a single physical host, and wherein the at least one virtual machine comprises virtual hardware assets". Support for this amendment is found in at least paragraph 64 of the present published application. Claims 25-27 have been similarly amended. Neither Trossmann nor Naik teaches or suggests this recitation. Trossmann discloses groups and pools of resources (See Trossmann paragraph 24-28 and 36), but does not teach the use of virtual machines, or virtual machines comprising virtual hardware assets. Naik discloses the use of virtual machines, but does not disclose the use of virtual machines comprising virtual hardware assets. Instead, the virtual machines of Naik use the direct physical resources the physical host which are scheduled to each virtual machine (See Naik Fig. 3 and paragraph 83), without any teaching or suggestion of virtual hardware assets.

Therefore, Applicant respectfully submits that amended claims 1 and 25-27 are not obvious given the combination of Naik and Trossmann.

Claim 35

Claim 35 stands rejected under 35 U.S.C. 103 as being obvious under Trossmann in view of Naik in further view of Luoffo. Claim 35 has been canceled, and as such this rejection is moot.

Claims 7-8

Claims 7-8 stand rejected under 35 U.S.C. 103 as being obvious under Trossmann in view of Naik in view of Luoffo in further view of the alleged admitted prior art. Claims 7-8 depend from claim 1. As such, the combination of Trossmann and Naik does not render claims 7-8 obvious for the reasons described above. Luoffo does not cure the deficiencies of Trossmann and Naik.

Luoffo describes a system for managing and maintaining application operations within a grid environment (See Luoffo: Abstract). The grid environment of Luoffo is made up of clients and multiple computer systems managed to provide resources (See Luoffo: Fig. 2 and paragraphs 40-46). Luoffo does teach that resources are extracted and viewed as virtual resources made available to a client system (See Luoffo Paragraph 41). The virtual resources of Luoffo, however, are identified as comprised of clusters, servers, desktops, and other physical resources (See Luoffo Fig. 2). Luoffo does not teach or suggest virtual machines comprising virtual hardware assets.

Therefore, claim 1, and claims 7-8 dependent thereon, are not obvious given the combination of Trossmann, Naik, Luoffo and the alleged admitted prior art.

New Claims

Applicant submits new claims 36-40 for consideration. Claims 36-38 are supported by at least paragraph 56 of the published application, claim 39 is supported by at least paragraph 70 of the application, and claim 40 is supported by at least Fig. 4 and related paragraphs. Since claims 36-40 depend from claim 1, Applicant respectfully submits that they are allowable over the cited are for the reasons discussed above.

CONCLUSION

In view of the above, it is respectfully submitted that Claims 1-30 and 36-40 are allowable over the prior art cited by the Examiner and early allowance of these claims and the application is respectfully requested.

The Examiner is invited to call Applicant's attorney at the number below in order to speed the prosecution of this application. The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account No. 07-1896 referencing Attorney Docket No. **367894-000003**.

Respectfully submitted,

DLA PIPER LLP (US)

Date: August 20, 2009

By: /Philip Jensen/
Philip Jensen
Reg. No. 63,563

Attorneys for Applicant(s)

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Electronic Acknowledgement Receipt

EFS ID:	5928365
Application Number:	11503090
International Application Number:	
Confirmation Number:	9855
Title of Invention:	Virtual systems management
First Named Inventor/Applicant Name:	Vipul Pabari
Customer Number:	33123
Filer:	Philip Jensen
Filer Authorized By:	
Attorney Docket Number:	41965-0003
Receipt Date:	20-AUG-2009
Filing Date:	10-AUG-2006
Time Stamp:	19:42:00
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	Amendment/Req. Reconsideration-After Non-Final Reject	Response_B.pdf	138937 e4bdadfac4306dc8edfae8cc658237d9324a2ff6	no	12

Warnings:	
Information:	

Total Files Size (in bytes):	138937

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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 11/503,090	Filing Date 08/10/2006	☐ 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	
AMENDMENT	**08/20/2009**	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 35	Minus	** 35	= 0	X $26 =	0	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 4	Minus	***4	= 0	X $110 =	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)					
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	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:
/Katischa R. Wanzer/

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/81 (01-09)
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 OR REVOCATION OF POWER OF ATTORNEY WITH A NEW POWER OF ATTORNEY AND CHANGE OF CORRESPONDENCE ADDRESS

Application Number	11/503,090
Filing Date	August 10, 2006
First Named Inventor	Vipul PABARI
Title	Virtual Systems Management
Art Unit	2146
Examiner Name	David S. Ampagoomian
Attorney Docket Number	367894-000003

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

☐ A Power of Attorney is submitted herewith.

OR

☒ I hereby appoint Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s) to prosecute the application identified above, and to transact all business in the United States Patent and Trademark Office connected therewith: **26379**

OR

☐ I hereby appoint Practitioner(s) named below as my/our attorney(s) or agent(s) to prosecute the application identified above, and to transact all business in the United States Patent and Trademark Office connected therewith:

Practitioner(s) Name	Registration Number

Please recognize or change the correspondence address for the above-identified application to:

☒ The address associated with the above-mentioned Customer Number.

OR

☐ The address associated with Customer Number:

OR

☐ Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

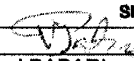
I am the:

☒ Applicant/Inventor.

OR

☐ Assignee of record of the entire interest. See 37 CFR 3.71.
Statement under 37 CFR 3.73(b) (Form PTO/SB/96) submitted herewith or filed on _____.

SIGNATURE of Applicant or Assignee of Record

Signature		Date	September 28, 2009
Name	Vipul PABARI	Telephone	732 857 9731
Title and Company	ToutVirtual, Inc.		

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☒ *Total of 1 forms are submitted.

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.**

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Electronic Acknowledgement Receipt

EFS ID:	6175781
Application Number:	11503090
International Application Number:	
Confirmation Number:	9855
Title of Invention:	Virtual systems management
First Named Inventor/Applicant Name:	Vipul Pabari
Customer Number:	33123
Filer:	Philip Jensen
Filer Authorized By:	
Attorney Docket Number:	41965-0003
Receipt Date:	05-OCT-2009
Filing Date:	10-AUG-2006
Time Stamp:	20:11:07
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	POA_and_Change_of_Correspondence_Address.pdf	100251 b6f1c29b876ed51e6db973b33da9af698a3075f1	no	1
Warnings:					
Information:					

Total Files Size (in bytes):	100251

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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.

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
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/503,090	08/10/2006	Vipul Pabari	367894-000003

CONFIRMATION NO. 9855

26379
DLA PIPER LLP (US)
2000 UNIVERSITY AVENUE
EAST PALO ALTO, CA 94303-2248

POA ACCEPTANCE LETTER

OC000000038218657

Date Mailed: 10/14/2009

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 10/05/2009.

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.

/snguyen/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

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
11/503,090	08/10/2006	Vipul Pabari	41965-0003

CONFIRMATION NO. 9855

33123
HELLER EHRMAN LLP
4350 LA JOLLA VILLAGE DRIVE #700
7TH FLOOR
SAN DIEGO, CA 92122

POWER OF ATTORNEY NOTICE

OC000000038218629

Date Mailed: 10/14/2009

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 10/05/2009.

- 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).

/snguyen/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/503,090	08/10/2006	Vipul Pabari	367894-000003	9855

26379 7590 12/16/2009

DLA PIPER LLP (US)
2000 UNIVERSITY AVENUE
EAST PALO ALTO, CA 94303-2248

EXAMINER	
AMPAGOOMIAN, DAVID S	
ART UNIT	PAPER NUMBER
2446	

NOTIFICATION DATE	DELIVERY MODE
12/16/2009	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):

PatentDocketingUS-PaloAlto@dlapiper.com

Office Action Summary	Application No.	Applicant(s)	
	11/503,090	PABARI, VIPUL	
	Examiner	Art Unit	
	DAVID AMPAGOOMIAN	2446	

-- 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 *20 August 2009*.

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) *1-30 and 36-40* 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) *1-30 and 36-40* 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 *08/10/2006* 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: _____.

DETAILED ACTION

Claims 1-30 and 36-40 are pending.

Claims 1, 25-27 and 30 are amended.

Claims 36-40 are new.

Claims 31-35 are canceled.

Claims 1, 25-27 are independent.

Response to Arguments

1. Applicant's arguments with respect to claims 1-30 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. **Claims 1-6, 9-30 and 36-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Trossman et al. (US 2008/0086731) hereafter Trossman in view of Lowell et al. (US 7,512,769) hereafter Lowell.**

Regarding claim 1, a method for automatic management of a virtualization environment in a computer network, the method comprising:

determining an inventory of network resources and virtual assets available to the virtualization environment of the computer network (Trossman: “The data storage 20

contains information on the groupings and poolings of resources in the resource system 12 for management purposes." [0042], [0034-0036]);

assigning prioritization to members of the available inventory for the virtualization environment (Trossman: "Each of these group information sets may contains an identification of each resource in the group, the size of the group, the number of active and idle resources in the group and the priority of the group and the pool to which the group belongs." [0042], [0023]);

provisioning virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment (Trossman: "Given the differing resource requirements for each application environment using and requiring resources in the resource system 12, the resource change mechanism 18 decides where the resources will be allocated." [0031]);

determining real time performance metrics for the provisioned virtualization environment (Trossman: [0021-0024]);

producing a reallocation of the virtual assets automatically in response to the real time performance metrics (Trossman: [0021-0024], [0034-0036]); and

initiating the reallocation of the virtual assets (Trossman: [0021-0024], [0034-0036]).

Trossman dose not explicitly disclose, wherein the virtual assets comprise at least one virtual machines operating on a single physical host, and wherein the at least one virtual machine comprises virtual hardware assets.

However Lowell discloses at least one virtual machines operating on a single physical host (Lowell: Col. 2, lines 37-58), and wherein the at least one virtual machine comprises virtual hardware assets (Lowell: Col. 2, line 59- Col. 3, lines 5) in order to efficiently make use of computer resources by encapsulating and isolating a guest operating systems from the underlying system hardware resources of host in order to allow the use of multiple guest OS (Lowell: Col. 1, line 5- Col. 2, lines 66).

It would have been obvious to one of ordinary skill in the at the time of the invention to create the resource management system of Trossman to include the use of virtual machines and virtual hardware assets as taught by Lowell in order to allow multiple guest computer operating systems to function like normal and unaware of the other operating systems executing on the single physical host computer system (Lowell: Col. 1, line 5- Col. 2, lines 66).

Regarding claim 2, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further discloses receiving user input that specifies parameters to be considered with the real time performance metrics in producing the reallocation of assets (Trossman: [0033]).

Regarding claim 3, the modified Trossman reference teaches the method of claim 2 as described above. Trossman further discloses wherein the received user input comprises a Knowledge Block that determines one or more of the reallocation parameters (Trossman: [0033]).

Regarding claim 4, the modified Trossman reference teaches the method of claim 2 as described above. Trossman further discloses wherein the received user input specifies parameters that detect operational degradation of a member of the available inventory (Trossman:[0033],[0056-0057]).

Regarding claim 5, the modified Trossman reference teaches the method of claim 4 as described above. Trossman further discloses wherein the available inventory member that is detected as degraded is removed from the available inventory (Trossman: [0119]).

Regarding claim 6, the modified Trossman reference teaches the method of claim 4 as described above. Trossman further discloses wherein the available inventory that is detected as degraded is moved from the available inventory to a debug inventory pool (Trossman: [0119-0120]).

Regarding claim 9, the modified Trossman reference teaches the method of claim 4 as described above. Trossman further discloses wherein the available inventory that is detected as degraded is halted and is removed from the available inventory to a debug inventory pool (Trossman: [0119-0120]).

Regarding claim 10, the modified Trossman reference teaches the method of claim 9 as described above. Trossman further discloses wherein the halted available inventory is removed from the debug inventory pool (Trossman: [0119-0120]).

Regarding claim 11, the modified Trossman reference teaches the method of claim 3 as described above. Trossman further discloses wherein the Knowledge Block specifies parameters that send an alert message to an administrator of the network in response to an alert condition (Trossman: [0033], [0040], [0119-0120]).

Regarding claim 12, the modified Trossman reference teaches the method of claim 3 as described above. Trossman further discloses wherein the Knowledge Block specifies parameters that receive an instruction from an administrator of the network in response to an alert condition (Trossman: [0033], [0040], [0119-0120]).

Regarding claim 13, the modified Trossman reference teaches the method of claim 3 as described above. Trossman further discloses wherein the Knowledge Block specifies parameters that identify a last known acceptable virtual machine image that includes one or more applications from the set of available inventory (Trossman: [0033]).

Regarding claim 14, the modified Trossman reference teaches the method of claim 3 as described above. Trossman further discloses wherein the Knowledge Block

specifies parameters that deploy an instance of an application selected from among the available inventory (Trossman: [0033]).

Regarding claim 15, the modified Trossman reference teaches the method of claim 2 as described above. Trossman further discloses wherein the received user input specifies a priority for one or more of the available inventory (Trossman: [0033]).

Regarding claim 16, the modified Trossman reference teaches the method of claim 2 as described above. Trossman further discloses wherein the user input specifies a time period during which the reallocation will be applied (Trossman: [0030]-0033).

Regarding claim 17, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further teaches providing a user interface through which user input can be received and wherein the user input adjusts scheduling of producing the reallocation (Trossman: [0033]).

Regarding claim 18, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further teaches wherein producing a reallocation comprises adding a new application instance to the available inventory (Trossman: [0119]).

Regarding claim 19, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further teaches wherein producing a reallocation comprises updating the available inventory to include any changes made by the reallocation (Trossman: [0104], [0118-0119])

Regarding claim 20, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further discloses wherein the inventory of available inventory includes one or more application programs (Trossman: [0119]).

Regarding claim 21, the modified Trossman reference teaches the method of claim 20 as described above. Trossman further discloses wherein one of the application programs comprises a network load balancer (Trossman: [0024]).

Regarding claim 22, the modified Trossman reference teaches method of claim 20 as described above. Trossman further discloses wherein one of the application programs comprises a network server (Trossman: [0022]).

Regarding claim 23, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further discloses wherein: determining, by an Asset Manager Component, an inventory of available network resources and virtual assets (Trossman: [0022-0023]);

assigning prioritization to the available inventory and provisioning virtual assets from among the available inventory, performed by a Provisioning Manager component (Trossman: [0042], [0023]);

determining, by a Performance Manager component, a real time performance metrics (Trossman: [0022-0023]); and

automatically producing and initializing, by an Optimizer component, a reallocation of the virtual assets (Trossman: [0022-0023]).

Regarding claim 24, the modified Trossman reference teaches the method of claim 23 as described above. Trossman further discloses wherein automatically producing a reallocation of the virtual assets comprises forecasting future system needs, which is performed by a Capacity Planning Manager component (Trossman: [0022-0023]).

Regarding claim 25, Trossman discloses a method for automatic management of a virtualization environment in a computer network, the method comprising:

performing one or more functions from the group of functions consisting of (1) identification and management of network resources and virtual assets, (2) provisioning of virtual assets in response to network workflow demands, (3) dynamic deployment of virtual assets across the computer network, (4) performance measurement and reporting of resources and virtual assets, and (5) planning and forecasting of resource

demands and virtual asset utilization of the virtualization environment (Trossman: [0022-0023],[0031-0036],[0042]);

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment (Trossman: [0031-0036]).

Trossman does not explicitly disclose wherein the virtual assets comprise at least one virtual machines operating on a single physical host, and wherein the at least one virtual machine comprises virtual hardware assets.

However Lowell discloses at least one virtual machines operating on a single physical host (Lowell: Col. 2, lines 37-58), and wherein the at least one virtual machine comprises virtual hardware assets (Lowell: Col. 2, line 59- Col. 3, lines 5) in order to efficiently make use of computer resources by encapsulating and isolating a guest operating systems from the underlying system hardware resources of host in order to allow the use of multiple guest OS (Lowell: Col. 1, line 5- Col. 2, lines 66).

It would have been obvious to one of ordinary skill in the at the time of the invention to create the resource management system of Trossman to include the use of virtual machines and virtual hardware assets as taught by Lowell in order to allow multiple guest computer operating systems to function like normal and unaware of the other operating systems executing on the single physical host computer system (Lowell: Col. 1, line 5- Col. 2, lines 66).

Regarding claim 26, Trossman discloses a method of managing a virtualization environment in a computer network, the method comprising:

providing a virtualization environment at a computer in communication with the computer network (Trossman: [0035-0038]);

determining an inventory of network resources and virtual assets available to the virtualization environment (Trossman: “The data storage 20 contains information on the groupings and poolings of resources in the resource system 12 for management purposes.” [0042], [0034-0036]);

performing at least one function from among the group of functions consisting of

(1) identification and management of network resources and virtual assets, (2) provisioning of virtual assets in response to network workflow demands, (3) dynamic deployment of virtual assets across the computer network, (4) performance measurement and reporting of resources and virtual assets, and (5) planning and forecasting of resource demands and virtual asset utilization of the virtualization environment (Trossman: [0022-0023],[0031-0036],[0042]),

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment (Trossman: [0031-0036]).

Trossman does not explicitly disclose , wherein the virtual assets comprise at least one virtual machines operating on a single physical host, and wherein the at least one virtual machine comprises virtual hardware assets.

However Lowell discloses at least one virtual machines operating on a single physical host (Lowell: Col. 2, lines 37-58), and wherein the at least one virtual machine comprises virtual hardware assets (Lowell: Col. 2, line 59- Col. 3, lines 5) in order to efficiently make use of computer resources by encapsulating and isolating a guest operating systems from the underlying system hardware resources of host in order to allow the use of multiple guest OS (Lowell: Col. 1, line 5- Col. 2, lines 66).

It would have been obvious to one of ordinary skill in the at the time of the invention to create the resource management system of Trossman to include the use of virtual machines and virtual hardware assets as taught by Lowell in order to allow multiple guest computer operating systems to function like normal and unaware of the other operating systems executing on the single physical host computer system (Lowell: Col. 1, line 5- Col. 2, lines 66).

Regarding claim 27, Trossman discloses an apparatus that performs automatic management of a virtualization environment in a computer network comprising:

a network communications unit that enables communications between the apparatus and the computer network (Trossman:[0023-0024]);

an operating system of the apparatus that supports a virtualization environment in communication with the apparatus (Trossman:[0026]); and

a Virtual Mapping layer that determines an inventory of network resources and virtual assets available to the virtualization environment, wherein the Virtual Mapping layer determines the inventory without regard to processors, operating systems

(Trossman: "The data storage 20 contains information on the groupings and poolings of resources in the resource system 12 for management purposes." [0042], [0034-0036]), virtualization platforms, and application software of the virtualization environment (Trossman: [0034-0038]).

Trossman does not explicitly disclose, wherein the virtual assets comprise at least one virtual machines operating on a single physical host, and wherein the at least one virtual machine comprises virtual hardware assets.

However Lowell discloses at least one virtual machines operating on a single physical host (Lowell: Col. 2, lines 37-58), and wherein the at least one virtual machine comprises virtual hardware assets (Lowell: Col. 2, line 59- Col. 3, lines 5) in order to efficiently make use of computer resources by encapsulating and isolating a guest operating systems from the underlying system hardware resources of host in order to allow the use of multiple guest OS (Lowell: Col. 1, line 5- Col. 2, lines 66).

It would have been obvious to one of ordinary skill in the at the time of the invention to create the resource management system of Trossman to include the use of virtual machines and virtual hardware assets as taught by Lowell in order to allow multiple guest computer operating systems to function like normal and unaware of the other operating systems executing on the single physical host computer system (Lowell: Col. 1, line 5- Col. 2, lines 66).

Regarding claim 28, the modified Trossman reference teaches the apparatus of claim 27 as described above. Trossman further discloses comprising one or more

components that receive the inventory of available resources and assets from the Virtual Mapping layer and perform one or more functions from the group of functions consisting of:

(1) identification and management of network resources and virtual assets, (2) provisioning of virtual assets in response to network workflow demands, (3) dynamic deployment of virtual assets across the computer network, (4) performance measurement and reporting of resources and virtual assets, and (5) planning and forecasting of resource demands and asset utilization of the virtualization environment (Trossman: [0022-0023],[0031-0036],[0042]);

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment (Trossman: [0031-0036]).

Regarding claim 29, the modified Trossman reference teaches the apparatus of claim 27 as described above. Trossman further discloses comprising a component selected from a group consisting of: an Asset Manager component that determines an inventory of available network resources and virtual assets;

a Provisioning Manager component that assigns a prioritization to the available inventory and provisions virtual assets from among the available inventory (Trossman: “The data storage 20 contains information on the groupings and poolings of resources in the resource system 12 for management purposes.” [0042], [0034-0036]);

a Performance Manager component that determines real time performance metrics Trossman: [0022-0024]; and

an Optimizer component that automatically produces a reallocation of the virtual assets and initiates the reallocation (Trossman: [0021-0024], [0034-0036]).

Regarding claim 30, the modified Trossman reference teaches the method of claim 1 as described above. Trossman does not explicitly disclose wherein the virtual assets further comprise a second virtual machine which comprises virtual assets, and the at least one virtual machine and the second virtual machine each run their own respective operating systems which are the a different type of operating system from each other.

However Lowell discloses a second virtual machine which comprises virtual assets (Lowell: Col. 2, line 25-Col. 3, line 5), and the at least one virtual machine and the second virtual machine each run their own respective operating systems which are the a different type of operating system from each other (Lowell: Col. 2, line 25-Col. 3, line 5; Col. 1, lines 31-37) in order to efficiently make use of computer resources by encapsulating and isolating a guest operating systems from the underlying system hardware resources of host in order to allow the use of multiple guest OS (Lowell: Col. 1, line 5- Col. 2, lines 66).

It would have been obvious to one of ordinary skill in the at the time of the invention to create the virtual machines and virtual hardware resource management system of the modified Trossman reference to include the use of a second virtual

machines and second virtual hardware asset as taught by Lowell in order to allow multiple guest computer operating systems to function like normal and unaware of the other operating systems executing on the single physical host computer system (Lowell: Col. 1, line 5- Col. 2, lines 66).

Regarding claim 36, the modified Trossman reference teaches the method of claim 1 as described above. Trossman discloses routing/allocating resources to an application (Trossman: [0025]; [0031-0033])

Trossman does not explicitly disclose discloses wherein provisioning virtual assets from among the available inventory further comprises routing an application running on a first virtual machine to run on a second virtual machine.

However Lowell discloses provisioning virtual assets from among the available inventory further comprises routing an application running on a first virtual machine to run on a second virtual machine (Lowell: Col. 3, lines 6-65) in order migrate a processes to a different operating system or virtual machine (Lowell: Col. 3, lines 6-8 and lines 51-53).

It would have been obvious to one of ordinary skill in the at the time of the invention to create the virtual machines and virtual hardware resource management system of the modified Trossman reference to include the use of creating a duplicate of a virtual machine as taught by Lowell in order migrate a processes to a different operating system or virtual machine (Lowell: Col. 3, lines 6-8 and lines 51-53).

Regarding claim 37, the modified Trossman reference teaches the method of claim 1 as described above. Trossman does not explicitly disclose wherein provisioning virtual assets from among the available inventory further comprises creating a duplicate of the first virtual machine. However Lowell disclose duplicating a virtual machine (Lowell: Col. 3, lines 6-65) in order migrate a processes to a different operating system or virtual machine (Lowell: Col. 3, lines 6-8 and lines 51-53).

It would have been obvious to one of ordinary skill in the at the time of the invention to create the virtual machines and virtual hardware resource management system of the modified Trossman reference to include the use of creating a duplicate of a virtual machine as taught by Lowell in order migrate a processes to a different operating system or virtual machine (Lowell: Col. 3, lines 6-8 and lines 51-53).

Regarding claim 38, the modified Trossman reference teaches the method of claim 37 as described above. Trossman does not explicitly disclose wherein creating a duplicate of the first virtual machine further comprises creating a duplicate of the application running on the first virtual machine as part of the duplicate of the first virtual machine.

However Lowell disclose duplicating duplicate of the application running on a virtual machine (Lowell: Col. 3, lines 6-65) in order migrate a processes to a different operating system or virtual machine (Lowell: Col. 3, lines 6-8 and lines 51-53).

It would have been obvious to one of ordinary skill in the at the time of the invention to create the virtual machines and virtual hardware resource management

system of the modified Trossman reference to include the use of creating a duplicate application running on a virtual machine as taught by Lowell in order migrate a processes to a different operating system or virtual machine (Lowell: Col. 3, lines 6-8 and lines 51-53).

Regarding claim 39, the modified Trossman reference teaches the method of claim 1 as described above. Trossman does not explicitly disclose wherein provisioning virtual assets from among the available inventory further comprises creating a new virtual machine on the single physical host. However Lowell disclose creating a new virtual machine on the single physical host (Lowell: Col. 3, lines 6-65).

It would have been obvious to one of ordinary skill in the at the time of the invention to create the virtual machines and virtual hardware resource management system of the modified Trossman reference to include the use of creating a new virtual machine as taught by Lowell in order to allow multiple guest computer operating systems to function like normal and unaware of the other operating systems executing on the single physical host computer system (Lowell: Col. 1, line 5- Col. 2, lines 66).

Regarding claim 40, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further discloses wherein provisioning virtual assets from among the available inventory further comprises communicating provisioning instructions from a control agent comprising at least one virtualization

platform adapter to a virtualization layer in the single physical host (Trossman: [0023], [0033]).

4. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Trossman in view of Lowell as applied to claims 1-2 and 4 above, and further in view of applicants admitted prior art.

Regarding claim 7, the modified Trossman reference teaches the method of claim 4 as described above. Trossman does not explicitly disclose wherein log files are retrieved from the available inventory that is detected as degraded.

Applicant admitted prior art teaches logging computer system performance, faults and errors and alerting an administrator of the logged events is well known in the art.

It would have been obvious to one of ordinary skill in the art at the time of the invention to create the resource management system with multiple virtual machines operating on a single physical server in a virtual computing environment of the modified Trossman reference to include of the use of logging data and alerting an administrator as taught by applicant admitted prior art in order to provide diagnostic data and alerts to properly manage the system.

Regarding claim 8, the modified Trossman reference teaches the method of claim 7 as described above. Trossman does not explicitly disclose wherein the log files are stored in an archive and an alert message is sent to a network administrator with an identification of the log file archive location.

Applicant admitted prior art teaches logging computer system performance, faults and errors and alerting an administrator of the logged events is well known in the art.

It would have been obvious to one of ordinary skill in the art at the time of the invention to create the resource management system with multiple virtual machines operating on a single physical server in a virtual computing environment of the modified Trossman reference to include of the use of logging data and alerting an administrator as taught by applicant admitted prior art in order to provide diagnostic data and alerts to properly manage the system.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

6. 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 DAVID AMPAGOOMIAN whose telephone number is (571)270-1896. The examiner can normally be reached on Monday through Friday 9:30 AM to 7:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Pwu can be reached on 571-272-6798. 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.

/D. A./
Examiner, Art Unit 2446

/Benjamin R Bruckart/
Primary Examiner, Art Unit 2446

Notice of References Cited	Application/Control No. 11/503,090	Applicant(s)/Patent Under Reexamination PABARI, VIPUL	
	Examiner DAVID AMPAGOOMIAN	Art Unit 2446	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-7,512,769 B1	03-2009	Lowell et al.	711/203
	B	US-			
	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.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11503090	PABARI, VIPUL
	Examiner	Art Unit
	DAVID AMPAGOOMIAN	2446

SEARCHED			
Class	Subclass	Date	Examiner
709	223, 226	5/27/2008	DA
709	223,224,226	12/31/2008	DA
709	223	12/8/2009	DA

SEARCH NOTES		
Search Notes	Date	Examiner
Text searched EAST databases	5/27/2008	DA
Updated EAST text search	12/31/2008	DA
limted class/sublcass search (709/201-202,223-224,226; 718/100-108)	12/31/2008	DA
Inventor name searched	12/31/2008	DA
Updated EAST text search	5/14/2009	DA
Updated Text search of East (USPat, USPG_Pub, JPO, EPO, Derwent, IBM_TDB) and Inventor search	12/8/2009	DA
Limited classification search 709/201,202,223,224,226 and 718/1,100-108	12/8/2009	DA

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

	/B. R. B./ Primary Examiner, Art Unit 2446

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11503090	PABARI, VIPUL
	Examiner	Art Unit
	DAVID AMPAGOOMIAN	2446

✓	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	05/27/2008	12/31/2008	05/14/2009	12/08/2009					
	1	✓	✓	✓	✓					
	2	✓	✓	✓	✓					
	3	✓	✓	✓	✓					
	4	✓	✓	✓	✓					
	5	✓	✓	✓	✓					
	6	✓	✓	✓	✓					
	7	✓	✓	✓	✓					
	8	✓	✓	✓	✓					
	9	✓	✓	✓	✓					
	10	✓	✓	✓	✓					
	11	✓	✓	✓	✓					
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	33		✓	✓	-					
	34		✓	✓	-					
	35		✓	✓	-					
	36				✓					

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	11503090	PABARI, VIPUL
	Examiner	Art Unit
	DAVID AMPAGOOMIAN	2446

✓	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	05/27/2008	12/31/2008	05/14/2009	12/08/2009					
	37				✓					
	38				✓					
	39				✓					
	40				✓					

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	2	((VIPUL) near2 (PABARI)).INV.	EPO; JPO; DERWENT	ADJ	ON	2009/12/08 12:22
L2	22	(PABARI).INV.	EPO; JPO; DERWENT	ADJ	ON	2009/12/08 12:23
L3	13	(PABARI).INV.	US-PGPUB; USPAT	ADJ	ON	2009/12/08 12:24
L4	4285	709/226.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 12:29
L5	9581	709/223.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 12:29
L6	10089	709/224.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 12:29
L7	3598	709/201.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 12:29
L8	2214	709/202.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 12:29
L9	25028	4 5 6 7 8	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/12/08 12:30
L10	731	(virtual or virtualization) and network and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 12:30

L11	9645	718/100-108.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 12:31
L12	1273	718/1.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 12:31
L13	142	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5) and network and input near5 user and (resource or asset or virtual or virtualization) near50 (management) and log and inventory	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 12:31
L14	142	L13 and (@rlad<="20050815" or @ad<="20050815" or @pd<="20050815")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 12:31
L15	9581	709/223.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 12:31
L16	4285	709/226.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 12:31
L17	13062	L16 or L15	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 12:31
L18	8	L14 and L17	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 12:31
L22	66013	(((virtual or virtualization) near50 (machine)) or VM)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 13:58

L23	15738	((virtual or virtualization or virtualized) near15 hardware)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 14:00
L24	20	((virtual or virtualization or virtualized) near15 hardware) near15 assets	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 14:02
L25	11445	L23 and (@rlad<="20050814" or @ad<="20050814" or @pd<="20050814")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 14:03
L26	8	L24 and (@rlad<="20050814" or @ad<="20050814" or @pd<="20050814")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 14:03
L27	1901	((virtual or virtualization or virtualized) near15 hardware) near15 (assets or resource)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 14:06
L28	1244	22 and 27	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 14:07
L29	1126	L27 and (@rlad<="20050814" or @ad<="20050814" or @pd<="20050814")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 14:07
L32	731	(virtual or virtualization) and network and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 14:12
L33	572	L32 and (@rlad<="20050815" or @ad<="20050815" or @pd<="20050815")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 14:12
L34	22	L33 and l29	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 14:12

L35	1173	(((virtual or virtualization) near50 (machine)) or VM) near15 (duplicate or Duplicating or copy)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 14:20
L37	394	(((virtual or virtualization) near50 (machine)) or VM) near15 (routing or allocating or allocate or Migrating or migration) near15 (application or program)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 14:29
L38	177	27 and 35	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 14:30
L40	59	27 and 37	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 14:30
L41	66	L38 and (@rlad<="20050815" or @ad<="20050815" or @pd<="20050815")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 14:30
L43	30	L40 and (@rlad<="20050815" or @ad<="20050815" or @pd<="20050815")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 14:31
L45	6	41 and 43	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 14:31
L47	65	L38 and (@rlad<="20050814" or @ad<="20050814" or @pd<="20050814")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 14:34
L48	1	47 and 32	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 14:35
L51	1337	(((virtual or virtualization) near50 (machine)) or VM) near15 (duplicate or Duplicating or copy or copying)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 14:40

L52	870	51 and (@rlad<="20050814" or @ad<="20050814" or @pd<="20050814")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 14:40
L53	265	(((virtual or virtualization) near50 (machine)) or VM) near15 (routing or allocating or allocate) near15 (application or program)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 14:41
L54	14	52 and 53	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 14:41
L55	74	52 and 27	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 14:53
L56	23	53 and 27 and (@rlad<="20050814" or @ad<="20050814" or @pd<="20050814")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 14:54
L57	1	11/503090.app.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 15:23
L58	2	52 and 53 and 27	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 16:40
L59	87	10 and 9	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 19:06
L60	0	12 and (resource or asset) and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5) and network and input near5 user and (resource or asset or virtual or virtualization) near50 (management) and log and inventory	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 19:07

L61	58	10 and 11	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/12/08 19:07
S1	50	(("20030217250") or ("20030236945") or ("20040111485") or ("20050154845") or ("20050267986") or ("20060095640") or ("20060095904") or ("20070050573") or ("20070050763") or ("20070136524") or ("20070169120") or ("20070179955") or ("20070180493") or ("20070283348") or ("20080016303") or ("5404478") or ("5463629") or ("5477242") or ("5596755") or ("5694599") or ("5694606") or ("5764999") or ("5790837") or ("5812820") or ("5826041") or ("5838908") or ("5864705") or ("5937185") or ("6067607") or ("6075938") or ("6081900") or ("6195650") or ("6195730") or ("6204847") or ("6209023") or ("6243809") or ("6253224") or ("6253318") or ("6381615") or ("6397242") or ("6496847") or ("6519678") or ("6532527") or ("6546434") or ("6681238") or ("6898670") or ("7020734") or ("7127548") or ("7206860") or ("7260664")).PN.	US-PGPUB; USPAT	OR	OFF	2008/05/26 20:30
S2	7381	709/223.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 20:44
S3	3193	709/226.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 20:44
S4	1	10/740276.app.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 20:50

S5	1841	(virtual or virtualization) and network and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 20:54
S6	590	(virtual or virtualization) and network and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 20:57
S7	20	(virtual or virtualization) near50 (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5) and network	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 20:57
S8	590	(virtual or virtualization) and network and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:00
S10	508	S8 and (@rlad<="20050815" or @ad<="20050815" or @pd<="20050815")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:00
S11	20	(virtual or virtualization) near50 (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5) and network	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:03
S12	16	S11 and (@rlad<="20050815" or @ad<="20050815" or @pd<="20050815")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:03
S13	238	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5) and network	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:03
S14	38	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5) and network and reallocat$4	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:15

S15	170	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5) and network and input near5 user	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:16
S16	143	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5) and input near5 user and log	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:17
S17	163	S15 and (@rlad<="20050815" or @ad<="20050815" or @pd<="20050815")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:17
S18	142	S16 and (@rlad<="20050815" or @ad<="20050815" or @pd<="20050815")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:17
S19	164	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5) and network and input near5 user and (resource or asset) near50 (management)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:22
S20	165	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5) and network and input near5 user and (resource or asset or virtual or virtualization) near50 (management)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:22

S22	137	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5) and network and input near5 user and (resource or asset or virtual or virtualization) near50 (management) and log and inventory	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:23
S23	137	S22 and (@rlad<="20050815" or @ad<="20050815" or @pd<="20050815")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:23
S24	7381	709/223.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:23
S25	3193	709/226.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:23
S28	10033	S25 or S24	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:23
S29	7	S23 and S28	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:24
S30	48	S28 and S8	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:24
S31	41	S30 and (@rlad<="20050815" or @ad<="20050815" or @pd<="20050815")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:24
S32	136	S22 and (@rlad<="20050814" or @ad<="20050814" or @pd<="20050814")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:30

S33	32	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near30 (computer or server or network or virtual) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz $5) and network and input near5 user	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:32
S34	58	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near30 (computer or server or network or virtual) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz $5) and network	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:33
S35	51	S34 and (@rlad<="20050814" or @ad<="20050814" or @pd<="20050814")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/26 21:34
S36	590	(virtual or virtualization) and network and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/27 08:20
S37	196	S36 and load near3 (sharing or balancing)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/27 08:20
S38	147	S37 and (@rlad<="20050814" or @ad<="20050814" or @pd<="20050814")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/27 08:21
S39	2	10/357352.app.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/05/27 09:11
S40	1	11/503090.app.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 10:35

S41	650	(virtual or virtualization) and network and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:21
S42	535	S41 and (@rlad<="20050814" or @ad<="20050814" or @pd<="20050814")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:22
S43	8164	709/223.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:23
S44	8391	709/224.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:24
S45	3589	709/226.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:24
S46	3093	709/201.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:24
S47	1881	709/202.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:25
S48	21255	S43 S44 S45 S46 S47	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/31 11:25
S49	68	S48 and S42	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/31 11:25
S50	87	network and (virtual or virtualization) same (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz $5)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:26

S51	33	S50 and (@rlad<="20050814" or @ad<="20050814" or @pd<="20050814")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:27
S52	187	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5) and network and pool	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:30
S53	176	S52 and (@rlad<="20050814" or @ad<="20050814" or @pd<="20050814")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:30
S54	10	S51 and S48	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/12/31 11:31
S55	18	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5) and network and pool near5 resource and (cluster or (data center))	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:37
S56	13	S55 and (@rlad<="20050814" or @ad<="20050814" or @pd<="20050814")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 11:37
S57	66	(virtual or virtualization) near50 (resource or asset) and (resource or asset) near30 (computer or server or network or virtual) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz $5) and network	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 13:48
S58	8213	718/100-108.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 14:01

S59	915	718/1.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 14:01
S60	174	S58 and S59	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 14:02
S61	1893	718/104.ccls.	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2008/12/31 14:02
S62	2	((VIPUL) near2 (PABARI)).INV.	EPO; JPO; DERWENT	ADJ	ON	2008/12/31 17:20
S63	21	(PABARI).INV.	EPO; JPO; DERWENT	ADJ	ON	2008/12/31 17:20
S64	6	(virtual or virtualization) near50 (machine) and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz $5) and network and pool near5 resource and (cluster or (data center))	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/05/14 11:30
S65	22	(virtual or virtualization) near50 (machine) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz $5) and network	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/05/14 11:30
S66	35089	(virtual) near50 (machine)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/05/14 11:45
S67	9	(((virtual or virtualization) near50 (machine)) or VM) and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz $5) and network and pool near5 resource and (cluster or (data center))	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/05/14 11:45
S68	60640	(virtual near50 machine) or VM	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/05/14 11:46

S69	23	(((virtual or virtualization) near50 (machine)) or VM) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5) and network	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/05/14 11:55
S70	473	(((virtual or virtualization) near50 (machine)) or VM) and (management or provision$3 or allocat$4) near50 (performance) and (prioritiz $5) and network	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/05/14 11:55
S72	7589	((virtual near50 (machine or machines)) or VM) near35 (OS or (operating near3 (system or systems)))	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	OFF	2009/05/14 11:58
S73	8	(US-20070106769-$ or US-20050138165-$ or US-20080086731-$ or US-20030149685-$ or US-20070067435-$ or US-20060294238-$ or US-20050155033-$).did. or (US-7463648-$).did.	US-PGPUB; USPAT	ADJ	ON	2009/05/14 11:58
S74	2	S72 and S73	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/05/14 11:58
S75	675	(virtual or virtualization) and network and (resource or asset) near50 (management or provision$3 or allocat$4) near50 (performance) and (prioritiz$5)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/05/14 14:35
S76	216	S75 and load near3 (sharing or balancing)	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/05/14 14:35
S77	160	S76 and (@rlad<="20050814" or @ad<="20050814" or @pd<="20050814")	US-PGPUB; USPAT; FPRS; EPO; JPO; DERWENT; IBM_TDB	ADJ	ON	2009/05/14 14:35

EAST Search History (Interference)

<This search history is empty>

12/8/2009 7:16:26 PM
C:\Documents and Settings\dampagoomian\My Documents\EAST\Workspaces\11-503090.wsp

UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/503,090	08/10/2006	Vipul Pabari	367894-000003	9855

26379 7590 04/13/2010

DLA PIPER LLP (US)
2000 UNIVERSITY AVENUE
EAST PALO ALTO, CA 94303-2248

EXAMINER	
BEHARRY, NOEL R	
ART UNIT	PAPER NUMBER
2446	

NOTIFICATION DATE	DELIVERY MODE
04/13/2010	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):

PatentDocketingUS-PaloAlto@dlapiper.com

Interview Summary	Application No.	Applicant(s)	
	11/503,090	PABARI, VIPUL	
	Examiner	Art Unit	
	NOEL BEHARRY	2446	

All participants (applicant, applicant's representative, PTO personnel):

(1) *NOEL BEHARRY*. (3)*VIPUL PABARI*.

(2) *PHILIP JENSEN (63,563)*. (4)*JESS MARINEZ*.

Date of Interview: *05 April 2010*.

Type: a)☒ Telephonic b)☐ Video Conference
c)☐ Personal [copy given to: 1)☐ applicant 2)☐ applicant's representative]

Exhibit shown or demonstration conducted: d)☐ Yes e)☒ No.
If Yes, brief description: _____.

Claim(s) discussed: *37-40*.

Identification of prior art discussed: *Trossman and Lowell*.

Agreement with respect to the claims f)☐ was reached. g)☐ was not reached. h)☒ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: *Applicants gave a description of their invention and an explanation of the new dependent claims 37-40. The examiner indicated that upon timely submittal, the amendment would be fully considered and will update the search*.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

/Benjamin R Bruckart/ Primary Examiner, Art Unit 2446	

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record
A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews
Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.
All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

———

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:
- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

1) A brief description of the nature of any exhibit shown or any demonstration conducted,
2) an identification of the claims discussed,
3) an identification of the specific prior art discussed,
4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
5) a brief identification of the general thrust of the principal arguments presented to the examiner,
   (The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
6) a general indication of any other pertinent matters discussed, and
7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

Doc Code: M865 or FAI.REQ.INTV

PTOL-413A (10-09)
Approved for use through 07/31/2012.OM B 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Applicant Initiated Interview Request Form

Application No.: 11503090 First Named Applicant: Vipul Pabari
Examiner: Noel Beharry Art Unit: 2446 Status of Application: Final Rejection

Tentative Participants:
(1) Philip Jensen (63563) (2) Noel Beharry
(3) Vipul Pabari (4) Jess Marinez

Proposed Date of Interview: 5/8/2010 **Proposed Time:** 2 PM **(AM/PM)**

Type of Interview Requested:
(1) [X] **Telephonic** (2) [ ] **Personal** (3) [ ] **Video Conference**

Exhibit To Be Shown or Demonstrated: [ ] **YES** [ ] **NO**
If yes, provide brief description:

Issues To Be Discussed

Issues (Rej., Obj., etc)	Claims/ Fig. #s	Prior Art	Discussed	Agreed	Not Agreed
(1) Rej	37-40	2008/0086731	[ ]	[ ]	[ ]
(2)		2006/0294238	[ ]	[ ]	[ ]
(3)		2005/0155033	[ ]	[ ]	[ ]
(4)			[ ]	[ ]	[ ]

[ ] Continuation Sheet Attached
[ ] Proposed Amendment or Arguments Attached
Brief Description of Arguments to be Presented:

General discussion of the technology area and argument that claims 37-40 are not obvious.

An interview was conducted on the above-identified application on _____.
NOTE: This form should be completed by applicant and submitted to the examiner in advance of the interview (see MPEP § 713.01).
This application will not be delayed from issue because of applicant's failure to submit a written record of this interview. Therefore, applicant is advised to file a statement of the substance of this interview (37 CFR 1.133(b)) as soon as possible.

Applicant/Applicant's Representative Signature

Examiner/SPE Signature

Typed/Printed Name of Applicant or Representative

Registration Number, if applicable

This collection of information is required by 37 CFR 1.133. 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 21 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.

Doc code: RCEX
Doc description: Request for Continued Examination (RCE)

PTO/SB/30EFS (07-09)
Approved for use through 07/31/2012. 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	11/503,090	Filing Date	2006-08-10	Docket Number (if applicable)	367894-000003	Art Unit	2146
First Named Inventor	Vipul PABARI			Examiner Name	David S. Ampagoomian		

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 071896

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

☐ Applicant Signature

EFS - Web 2.1.15

PTO/SB/30EFS (07-09)
Approved for use through 07/31/2012. 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.

Signature of Registered U.S. Patent Practitioner			
Signature	/Philip Jensen/	Date (YYYY-MM-DD)	2010-04-16
Name	Philip Jensen	Registration Number	63563

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.

Electronic Patent Application Fee Transmittal	
Application Number:	11503090
Filing Date:	10-Aug-2006
Title of Invention:	Virtual systems management
First Named Inventor/Applicant Name:	Vipul Pabari
Filer:	Philip Jensen/Rosa Caviedes
Attorney Docket Number:	367894-000003
Filed as Small 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	2251	1	65	65

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Request for continued examination	2801	1	405	405
		Total in USD ($)		**470**

Electronic Acknowledgement Receipt	
EFS ID:	7434867
Application Number:	11503090
International Application Number:	
Confirmation Number:	9855
Title of Invention:	Virtual systems management
First Named Inventor/Applicant Name:	Vipul Pabari
Customer Number:	26379
Filer:	Philip Jensen
Filer Authorized By:	
Attorney Docket Number:	367894-000003
Receipt Date:	16-APR-2010
Filing Date:	10-AUG-2006
Time Stamp:	20:47:25
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$470
RAM confirmation Number	5931
Deposit Account	071896
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	Amendment After Final	Response_C.pdf	116775 9015823f399aa68269404955509e90490168bf091	no	11
Warnings:					
Information:					
2	Request for Continued Examination (RCE)	Request_for_Continued_Examination.pdf	76206 00d65fed05a13e3229d0c74cb8d221824b3ca5e2	no	2
Warnings:					
This is not a USPTO supplied RCE SB30 form.					
Information:					
3	Fee Worksheet (PTO-875)	fee-info.pdf	31805 37a638fd17fa4129348d629d1cba96783d3b87fe	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	224786		

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.

<u>New Applications Under 35 U.S.C. 111</u>
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.

<u>National Stage of an International Application under 35 U.S.C. 371</u>
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.

<u>New International Application Filed with the USPTO as a Receiving Office</u>
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

Appl. No.	:	11/503,090	Confirmation No. 9855
Applicant	:	Vipul Pabari	
Filed	:	August 10, 2006	
TC/A.U.	:	2146	
Examiner	:	AMPAGOOMIAN, DAVID S	
Docket No.	:	367894-000003	
Customer No.	:	26379	

Title: **VIRTUAL SYSTEMS MANAGEMENT**

M/S Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Certificate of Transmission Under 37 CFR 1.8
I hereby certify that this correspondence is being transmitted via electronic submission, attention Mail Stop: Amendment, Commissioner for Patents, Alexandria, VA 22313-1450 on: April 16, 2009

/Philip Jensen/
Philip Jensen

RESPONSE C

Sir:

In response to the final Office action of December 16, 2009, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 8 of this paper.

1. Listing of the claims:

1. (Currently Amended) A method for automatic management of a virtualization environment in a computer network, the method comprising:

determining an inventory of network resources and virtual assets available to the virtualization environment of the computer network;

assigning prioritization to members of the available inventory for the virtualization environment;

provisioning virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment, wherein the virtual assets comprise at least one virtual machines operating on a single physical host, and wherein the at least one virtual machine comprises virtual hardware assets, and wherein the provisioning virtual assets from among the available inventory comprises creating a new virtual machine on the single physical host.

determining real time performance metrics for the provisioned virtualization environment;

producing a reallocation of the virtual assets automatically in response to the real time performance metrics; and

initiating the reallocation of the virtual assets.

2. (Original) The method of claim 1, further comprising receiving user input that specifies parameters to be considered with the real time performance metrics in producing the reallocation of assets.

3. (Original) The method of claim 2, wherein the received user input comprises a Knowledge Block that determines one or more of the reallocation parameters.

4. (Original) The method of claim 2, wherein the received user input specifies parameters that detect operational degradation of a member of the available inventory.

5. (Original) The method of claim 4, wherein the available inventory member that is detected as degraded is removed from the available inventory.

6. (Original) The method of claim 4, wherein the available inventory that is detected as degraded is moved from the available inventory to a debug inventory pool.

7. (Original) The method of claim 4, wherein log files are retrieved from the available inventory that is detected as degraded.

8. (Original) The method of claim 7, wherein the log files are stored in an archive and an alert message is sent to a network administrator with an identification of the log file archive location.

9. (Original) The method of claim 4, wherein the available inventory that is detected as degraded is halted and is removed from the available inventory to a debug inventory pool.

10. (Original) The method of claim 9, wherein the halted available inventory is removed from the debug inventory pool.

11. (Previously Presented) The method of claim 3, wherein the Knowledge Block specifies parameters that send an alert message to an administrator of the network in response to an alert condition.

12. (Original) The method of claim 3, wherein the Knowledge Block specifies parameters that receive an instruction from an administrator of the network in response to an alert condition.

13. (Original) The method of claim 3, wherein the Knowledge Block specifies parameters that identify a last known acceptable virtual machine image that includes one or more applications from the set of available inventory.

14. (Original) The method of claim 3, wherein the Knowledge Block specifies parameters that deploy an instance of an application selected from among the available inventory.

15. (Original) The method of claim 2, wherein the received user input specifies a priority for one or more of the available inventory.

16. (Original) The method of claim 2, wherein the user input specifies a time period during which the reallocation will be applied.

17. (Original) The method of claim 1, further comprising: providing a user interface through which user input can be received and wherein the user input adjusts scheduling of producing the reallocation.

18. (Original) The method of claim 1, wherein producing a reallocation comprises adding a new application instance to the available inventory.

19. (Original) The method of claim 1, wherein producing a reallocation comprises updating the available inventory to include any changes made by the reallocation.

20. (Original) The method of claim 1, wherein the inventory of available inventory includes one or more application programs.

21. (Original) The method of claim 20, wherein one of the application programs comprises a network load balancer.

22. (Original) The method of claim 20, wherein one of the application programs comprises a network server.

23. (Original) The method of claim 1, wherein: determining, by an Asset Manager Component, an inventory of available network resources and virtual assets; assigning prioritization to the available inventory and provisioning virtual assets from among the available inventory, performed by a Provisioning Manager component; determining, by a Performance Manager component, a real time performance metrics; and automatically producing and initializing, by an Optimizer component, a reallocation of the virtual assets.

24. (Original) The method of claim 23, wherein automatically producing a reallocation of the virtual assets comprises forecasting future system needs, which is performed by a Capacity Planning Manager component.

25. (Currently Amended) A method for automatic management of a virtualization environment in a computer network, the method comprising:

performing one or more functions from the group of functions consisting of

(1) identification and management of network resources and virtual assets,

(2) provisioning of virtual assets in response to network workflow demands,

(3) dynamic deployment of virtual assets across the computer network,

(4) performance measurement and reporting of resources and virtual assets, and

(5) planning and forecasting of resource demands and virtual asset utilization of the virtualization environment;

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment and, wherein the virtual assets comprise at least one virtual machines operating on a single physical host, and wherein the at least one virtual machine comprises virtual hardware assets;

wherein provisioning virtual assets from among the available inventory further comprises creating a duplicate of the first virtual machine.

26. (Currently Amended) A method of managing a virtualization environment in a computer network, the method comprising:

providing a virtualization environment at a computer in communication with the computer network;

determining an inventory of network resources and virtual assets available to the virtualization environment;

performing at least one function from among the group of functions consisting of

(1) identification and management of network resources and virtual assets,

(2) provisioning of virtual assets in response to network workflow demands,

(3) dynamic deployment of virtual assets across the computer network,

(4) performance measurement and reporting of resources and virtual assets, and

(5) planning and forecasting of resource demands and virtual asset utilization of the virtualization environment,

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment, and wherein the virtual assets comprise at least one virtual machine operating on a single physical host, and wherein the at least one virtual machine comprises virtual hardware assets, and wherein provisioning virtual assets from among the available inventory further comprises creating a duplicate of the first virtual machine.

27. (Currently Amended) An apparatus that performs automatic management of a virtualization environment in a computer network comprising:

a network communications unit that enables communications between the apparatus and the computer network;

an operating system of the apparatus that supports a virtualization environment in communication with the apparatus; and

a Virtual Mapping layer that determines an inventory of network resources and virtual assets available to the virtualization environment, wherein the Virtual Mapping layer determines the inventory without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment, wherein the virtual assets comprise at least one virtual machine operating on a single physical host, and wherein the at least one virtual machine comprises virtual hardware assets; and

a provisioning component that duplicates the at least one virtual machine operating on the single physical host.

28. (Currently Amended) The apparatus of claim 27, further comprising one or more components that receive the inventory of available resources and assets from the Virtual Mapping layer and perform one or more functions from the group of functions consisting of:

(1) identification and management of network resources and virtual assets,

(2) ~~provisioning of virtual assets in response to network workflow demands,~~

~~(3)~~ dynamic deployment of virtual assets across the computer network,

(4) performance measurement and reporting of resources and virtual assets, and

(5) planning and forecasting of resource demands and asset utilization of the virtualization environment;

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment.

29. (Original) The apparatus of claim 27, further comprising a component selected from a group consisting of: an Asset Manager component that determines an inventory of available network resources and virtual assets;

a Provisioning Manager component that assigns a prioritization to the available inventory and provisions virtual assets from among the available inventory;

a Performance Manager component that determines real time performance metrics; and

an Optimizer component that automatically produces a reallocation of the virtual assets and initiates the reallocation.

30. (Currently Amended) The method of claim 1 wherein the virtual assets further comprise a second virtual machine which comprises virtual assets, and the at least one virtual machine and the second virtual machine each run their own respective operating systems which are a different type of operating system from each other.

31. -35. Canceled

36. (Previously Presented) The method of claim 1 wherein provisioning virtual assets from among the available inventory further comprises routing an application running on a first virtual machine to run on a second virtual machine.

37. (Previously Presented) The method of claim 1 wherein provisioning virtual assets from among the available inventory further comprises creating a duplicate of the first virtual machine.

38. (Currently Amended) The method of claim [[37]] 25 wherein creating a duplicate of the first virtual machine further comprises creating a duplicate of the application running on the first virtual machine as part of the duplicate of the first virtual machine.

39. (Currently Amended) The method of claim [[1]] 25 wherein provisioning virtual assets from among the available inventory further comprises creating a new virtual machine on the single physical host.

40. (Previously Presented) The method of claim 1 wherein provisioning virtual assets from among the available inventory further comprises communicating provisioning instructions from a control agent comprising at least one virtualization platform adapter to a virtualization layer in the single physical host.

REMARKS

In response to the Office action of May 20, 2009, Applicant amends claims 1, 25-26, and 38-39. No new matter has been added. In the Office action, the Examiner (i) rejected claims 1-6 and 9-30 and 36-40 under 35 U.S.C. 103 as being obvious under US Patent Application 2008/0086731 to Trossman et al. ("Trossman") in view of U.S. Patent 7,512,769 to Lowell et al. ("Lowell"), (ii) rejected claim 35 as obvious under Trossmann in view of Lowell in further view of US Patent Application 2005/0155033 ("Luoffo") and (iii) rejected claims 7-8 under 35 U.S.C. 103 as being obvious under Trossman in view of Luoffo in further view of the alleged admitted prior art. Applicant respectfully traverses, and submits that the claims as amended are allowable over the cited art for at least the reasons set forth below.

Interview Summary

On April 5, 2010, Noel Beharry, Philip Jensen, Vipul Pabari, and Jess Marinez met by telephone, and discussed claims 37-40 and the prior art Trossman and Lowell for informational purposes. No agreement was reached.

Rejections under 35 U.S.C. 103

Claims 1-6, 9-30 and 36-40

The Examiner has rejected claims 1-6 and 9-30 and 36-40 under 35 U.S.C. 103 as being obvious given the combination of Trossman and Lowell.

In order to efficiently further prosecution, Applicants have amended claim 1 to recite "wherein the provisioning virtual assets from among the available inventory comprises creating a new virtual machine on the single physical host". On page 18 of the present Office action the Examiner states that Trossman does not disclose this recitation of amended claim 1. The Examiner asserts, however, that this would be obvious given a combination of Trossman and Lowell.

Column 3 of Lowell discusses migrating an application from one machine to a second machine. There is no teaching or suggestion in Lowell of creating a new virtual machine.

Lowell only states that an application is moved. Therefore, Applicants respectfully submit that claim 1 as amended is not obvious given the combination of Trossman and Lowell, and the rejection should be withdrawn.

Additionally, claim 25 has been amended to recite "wherein provisioning virtual assets from among the available inventory further comprises creating a duplicate of the first virtual machine". On page 17 of the present Office action the Examiner states that Trossman does not disclose this recitation of amended claim 1. The Examiner asserts, however, that this would be obvious given a combination of Trossman and Lowell.

Column 3 of Lowell discusses migrating an application from one machine to a second machine. There is no teaching or suggestion in Lowell of creating a duplicate machine. Lowell only states that an application is moved, but there is not mention of duplicating a virtual machine which is an entirely different process involving different processes than merely moving a process to a machine which already exists. Therefore, Applicants respectfully submit that claim 25 as amended is not obvious given the combination of Trossman and Lowell, and the rejection should be withdrawn.

Also, independent claims 26 and 27 have been similarly amended, and claims 1-6 and 9-24, 28-30, and 36-40 depend from these independent claims, and are therefore allowable for at least the same reasons.

Claims 7-8

Claims 7-8 stand rejected under 35 U.S.C. 103 as being obvious under Trossmann in view of Lowell in view of Luoffo in further view of the alleged admitted prior art. Claims 7-8 depend from claim 1. As such, the combination of Trossmann and Naik does not render claims 7-8 obvious for the reasons described above. Luoffo does not cure the deficiencies of Trossmann and Lowell.

Luoffo describes a system for managing and maintaining application operations within a grid environment (See Luoffo: Abstract). The grid environment of Luoffo is made up of clients and multiple computer systems managed to provide resources (See Luoffo: Fig. 2 and paragraphs 40-46). Luoffo does teach that resources are extracted and viewed as virtual resources made available to a client system (See Luoffo Paragraph 41). The virtual resources of

Luoffo, however, are identified as comprised of clusters, servers, desktops, and other physical resources (See Luoffo Fig. 2). Luoffo does not teach or suggest virtual machines comprising virtual hardware assets.

Therefore, claim 1, and claims 7-8 dependent thereon, are not obvious given the combination of Trossmann, Naik, Luoffo and the alleged admitted prior art.

CONCLUSION

In view of the above, it is respectfully submitted that Claims 1-30 and 36-40 as amended are allowable over the prior art cited by the Examiner and early allowance of these claims and the application is respectfully requested.

The Examiner is invited to call Applicant's attorney at the number below in order to speed the prosecution of this application. The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account No. 07-1896 referencing Attorney Docket No. **367894-000003**.

Respectfully submitted,

DLA PIPER LLP (US)

Date: April 16, 2010

By: /Philip Jensen/
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PTO/SB/06 (07-06)
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 11/503,090	Filing Date 08/10/2006	☐ 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	04/16/2010	(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))	* 35	Minus	** 35	= 0	X $26 =	0	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 4	Minus	***4	= 0	X $110 =	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.

** 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:
/GAIL D. D. WOOTEN/

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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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
11/503,090	08/10/2006	

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	04/16/2010	(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))	* 35	Minus	** 35	= 0	X $26 =	0	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 4	Minus	***4	= 0	X $110 =	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 ($)	ADDITIONAL FEE ($)	OR	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:
/GAIL D. D. WOOTEN/

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.
11/503,090	08/10/2006	Vipul Pabari	367894-000003	9855

26379 7590 11/08/2010

DLA PIPER LLP (US)
2000 UNIVERSITY AVENUE
EAST PALO ALTO, CA 94303-2248

EXAMINER	
MUSA, ABDELNABI O	
ART UNIT	PAPER NUMBER
2478	

NOTIFICATION DATE	DELIVERY MODE
11/08/2010	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):

PatentDocketingUS-PaloAlto@dlapiper.com

Office Action Summary	Application No.	Applicant(s)	
	11/503,090	PABARI, VIPUL	
	Examiner	Art Unit	
	ABDELNABI O. MUSA	2478	

-- 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 *16 April 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) *1-30 and 36-40* 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) *1-30 and 36-40* 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 *13 August 2006* 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: _____.

DETAILED ACTION

1. Acknowledgment is made for the applicant's response and amendment filed on 04/16/2010.

Continued Examination Under 37 CFR 1.114

2. 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 04/16/2010 has been entered.

Remarks

3. The claims are presented as follows:

- Claims 1, 25-28, 38-39 amended.
- Claims 31-35 canceled.
- Claims 1-30, 36-40 pending.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 1, 25-28, rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.

claim 1 contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claimed instances of "the available inventory comprises creating a new virtual machine on the single physical host" lack support in the disclosure.

claim 25-28 contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claimed instances of "a provisioning component that duplicates the at least one virtual machine operating on the single physical host" lack support in the disclosure.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-6, 9-30 and 36-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Trossman et al. (US 2008/0086731) in view of Lowell et al. (US 7,512,769) further in view of Khandekar et al. Patent No. (US 7,577,722 B1)

Regarding **claim 1**, a method for automatic management of a virtualization environment in a computer network, the method comprising:

determining an inventory of network resources and virtual assets available to the virtualization environment of the computer network (Trossman: "The data storage 20

contains information on the groupings and poolings of resources in the resource system 12 for management purposes." [0042], [0034-0036]);

assigning prioritization to members of the available inventory for the virtualization environment (Trossman: "Each of these group information sets may contains an identification of each resource in the group, the size of the group, the number of active and idle resources in the group and the priority of the group and the pool to which the group belongs." [0042], [0023]);

provisioning virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment (Trossman: "Given the differing resource requirements for each application environment using and requiring resources in the resource system 12, the resource change mechanism 18 decides where the resources will be allocated." [0031]);

determining real time performance metrics for the provisioned virtualization environment (Trossman: [0021-0024]);

producing a reallocation of the virtual assets automatically in response to the real time performance metrics (Trossman: [0021-0024], [0034-0036]); and

initiating the reallocation of the virtual assets (Trossman: [0021-0024], [0034-0036]).

Trossman dose not explicitly disclose, wherein the virtual assets comprise at least one virtual machines operating on a single physical host, and wherein the at least one virtual machine comprises virtual hardware assets.

However Lowell discloses at least one virtual machines operating on a single physical host (Lowell: Col. 2, lines 37-58), and wherein the at least one virtual machine comprises virtual hardware assets (Lowell: Col. 2, line 59- Col. 3, lines 5) in order to efficiently make use of computer resources by encapsulating and isolating a guest operating systems from the underlying system hardware resources of host in order to allow the use of multiple guest OS (Lowell: Col. 1, line 5- Col. 2, lines 66).

It would have been obvious to one of ordinary skill in the at the time of the invention to create the resource management system of Trossman to include the use of virtual machines and virtual hardware assets as taught by Lowell in order to allow multiple guest computer operating systems to function like normal and unaware of the other operating systems executing on the single physical host computer system (Lowell: Col. 1, line 5- Col. 2, lines 66).

The modified Trossman does not explicitly teach wherein the provisioning virtual assets from among the available inventory comprises creating a new virtual machine on the single physical host

However, Khandekar teaches a provisioning server automatically creates, configures and deploys physical hosts or physical systems to an application of virtual Machine technology (see Abstract, 940-FIG.3) presenting to the user an optional dialog where he can query the details of the model VM, such as its OS, applications, etc.) When the user makes the selections, he submits the request to the provisioning engine, which creates a new Virtual Machine on the same physical host or the requested computer system (col.15, line 29-col.16, line 30; FIG.3) in order to efficiently satisfy the

user's request by either provisioning a new virtual machine or by creating a replica in the physical machine (col.1, line 52-63)

It would have been obvious to one of ordinary skill in the at the time of the invention to have modified the modified Trossman by Khandekar to create a new virtual machine on the same physical host by the provisioning manager to efficiently satisfy the user's request by either provisioning a new virtual machine or by creating a replica in the physical machine.

Regarding **claim 2**, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further discloses receiving user input that specifies parameters to be considered with the real time performance metrics in producing the reallocation of assets (Trossman: [0033]).

Regarding **claim 3**, the modified Trossman reference teaches the method of claim 2 as described above. Trossman further discloses wherein the received user input comprises a Knowledge Block that determines one or more of the reallocation parameters (Trossman: [0033]).

Regarding **claim 4**, the modified Trossman reference teaches the method of claim 2 as described above. Trossman further discloses wherein the received user input specifies parameters that detect operational degradation of a member of the available inventory (Trossman:[0033],[0056-0057]).

Regarding **claim 5**, the modified Trossman reference teaches the method of claim 4 as described above. Trossman further discloses wherein the available inventory

member that is detected as degraded is removed from the available inventory (Trossman: [0119]).

Regarding **claim 6**, the modified Trossman reference teaches the method of claim 4 as described above. Trossman further discloses wherein the available inventory that is detected as degraded is moved from the available inventory to a debug inventory pool (Trossman[0119-0120]).

Regarding **claim 9**, the modified Trossman reference teaches the method of claim 4 as described above. Trossman further discloses wherein the available inventory that is detected as degraded is halted and is removed from the available inventory to a debug inventory pool (Trossman: [0119-0120]).

Regarding **claim 10**, the modified Trossman reference teaches the method of claim 9 as described above. Trossman further discloses wherein the halted available inventory is removed from the debug inventory pool (Trossman: [0119-0120]).

Regarding **claim 11**, the modified Trossman reference teaches the method of claim 3 as described above. Trossman further discloses wherein the Knowledge Block specifies parameters that send an alert message to an administrator of the network in response to an alert condition (Trossman: [0033], [0040], [0119-0120]).

Regarding **claim 12**, the modified Trossman reference teaches the method of claim 3 as described above. Trossman further discloses wherein the Knowledge Block specifies parameters that receive an instruction from an administrator of the network in response to an alert condition (Trossman: [0033], [0040], [0119-0120]).

Regarding **claim 13**, the modified Trossman reference teaches the method of claim 3 as described above. Trossman further discloses wherein the Knowledge Block specifies parameters that identify a last known acceptable virtual machine image that includes one or more applications from the set of available inventory (Trossman: [0033]).

Regarding **claim 14**, the modified Trossman reference teaches the method of claim 3 as described above. Trossman further discloses wherein the Knowledge Block specifies parameters that deploy an instance of an application selected from among the available inventory (Trossman: [0033]).

Regarding **claim 15**, the modified Trossman reference teaches the method of claim 2 as described above. Trossman further discloses wherein the received user input specifies a priority for one or more of the available inventory (Trossman: [0033]).

Regarding **claim 16**, the modified Trossman reference teaches the method of claim 2 as described above. Trossman further discloses wherein the user input specifies a time period during which the reallocation will be applied (Trossman: [0030]-0033).

Regarding **claim 17**, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further teaches providing a user interface through which user input can be received and wherein the user input adjusts scheduling of producing the reallocation (Trossman: [0033]).

Regarding **claim 18**, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further teaches wherein producing a

reallocation comprises adding a new application instance to the available inventory (Trossman: [0119]).

Regarding **claim 19**, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further teaches wherein producing a reallocation comprises updating the available inventory to include any changes made by the reallocation (Trossman: [0104], [0118-0119]).

Regarding **claim 20**, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further discloses wherein the inventory of available inventory includes one or more application programs (Trossman: [0119]).

Regarding **claim 21**, the modified Trossman reference teaches the method of claim 20 as described above. Trossman further discloses wherein one of the application programs comprises a network load balancer (Trossman: [0024]).

Regarding **claim 22**, the modified Trossman reference teaches method of claim 20 as described above. Trossman further discloses wherein one of the application programs comprises a network server (Trossman: [0022]).

Regarding **claim 23**, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further discloses wherein: determining, by an Asset Manager Component, an inventory of available network resources and virtual assets (Trossman: [0022-0023]);

assigning prioritization to the available inventory and provisioning virtual assets from among the available inventory, performed by a Provisioning Manager component (Trossman: [0042], [0023]);

determining, by a Performance Manager component, a real time performance metrics (Trossman: [0022-0023]); and

automatically producing and initializing, by an Optimizer component, a reallocation of the virtual assets (Trossman: [0022-0023]).

Regarding **claim 24**, the modified Trossman reference teaches the method of claim 23 as described above. Trossman further discloses wherein automatically producing a reallocation of the virtual assets comprises forecasting future system needs, which is performed by a Capacity Planning Manager component (Trossman: [0022-0023]).

Regarding **claim 25**, Trossman discloses a method for automatic management of a virtualization environment in a computer network, the method comprising:

performing one or more functions from the group of functions consisting of (1) identification and management of network resources and virtual assets, (2) provisioning of virtual assets in response to network workflow demands, (3) dynamic deployment of virtual assets across the computer network, (4) performance measurement and reporting of resources and virtual assets, and (5) planning and forecasting of resource demands and virtual asset utilization of the virtualization environment (Trossman: [0022-0023],[0031-0036],[0042]);

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment (Trossman: [0031-0036]).

Trossman does not explicitly disclose wherein the virtual assets comprise at least one virtual machines operating on a single physical host, and wherein the at least one virtual machine comprises virtual hardware assets.

However Lowell discloses at least one virtual machines operating on a single physical host (Lowell: Col. 2, lines 37-58), and wherein the at least one virtual machine comprises virtual hardware assets (Lowell: Col. 2, line 59- Col. 3, lines 5) in order to efficiently make use of computer resources by encapsulating and isolating a guest operating systems from the underlying system hardware resources of host in order to allow the use of multiple guest OS (Lowell: Col. 1, line 5- Col. 2, lines 66).

It would have been obvious to one of ordinary skill in the at the time of the invention to create the resource management system of Trossman to include the use of virtual machines and virtual hardware assets as taught by Lowell in order to allow multiple guest computer operating systems to function like normal and unaware of the other operating systems executing on the single physical host computer system (Lowell: Col. 1, line 5- Col. 2, lines 66).

The modified Trossman does not explicitly teach wherein provisioning virtual assets from among the available inventory further comprises creating a duplicate of the first virtual machine.

However, Khandekar teaches a provisioning server automatically creates, configures and deploys physical hosts or computer systems to an application of virtual Machine technology (see Abstract,940-FIG.3) allowing Virtual machines to be created and provisioned by cloning one of a set of model virtual machines (col.9, line 10-25) The

virtual machine created will be a working replica of the machine and can therefore function as a backup clone (col.16, line 1-12) in order to efficiently satisfy the user's request by either provisioning a new virtual machine or by creating a replica in the physical machine (col.1, line 52-63)

It would have been obvious to one of ordinary skill in the at the time of the invention to have modified the modified Trossman by Khandekar to create a new virtual machine on the same physical host by the provisioning manager to efficiently satisfy the user's request by either provisioning a new virtual machine or by creating a replica in the physical machine.

Regarding **claim 26**, Trossman discloses a method of managing a virtualization environment in a computer network, the method comprising:

providing a virtualization environment at a computer in communication with the computer network (Trossman: [0035-0038]);

determining an inventory of network resources and virtual assets available to the virtualization environment (Trossman: “The data storage 20 contains information on the groupings and poolings of resources in the resource system 12 for management purposes.” [0042], [0034-0036]);

performing at least one function from among the group of functions consisting of

(1) identification and management of network resources and virtual assets, (2) provisioning of virtual assets in response to network workflow demands, (3) dynamic deployment of virtual assets across the computer network, (4) performance measurement and reporting of resources and virtual assets, and (5) planning and

forecasting of resource demands and virtual asset utilization of the virtualization environment (Trossman: [0022-0023],[0031-0036],[0042]),

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment (Trossman: [0031-0036]).

Trossman does not explicitly disclose , wherein the virtual assets comprise at least one virtual machines operating on a single physical host, and wherein the at least one virtual machine comprises virtual hardware assets.

However Lowell discloses at least one virtual machines operating on a single physical host (Lowell: Col. 2, lines 37-58), and wherein the at least one virtual machine comprises virtual hardware assets (Lowell: Col. 2, line 59- Col. 3, lines 5) in order to efficiently make use of computer resources by encapsulating and isolating a guest operating systems from the underlying system hardware resources of host in order to allow the use of multiple guest OS (Lowell: Col. 1, line 5- Col. 2, lines 66).

It would have been obvious to one of ordinary skill in the at the time of the invention to create the resource management system of Trossman to include the use of virtual machines and virtual hardware assets as taught by Lowell in order to allow multiple guest computer operating systems to function like normal and unaware of the other operating systems executing on the single physical host computer system (Lowell: Col. 1, line 5- Col. 2, lines 66).

The modified Trossman does not explicitly teach wherein provisioning virtual assets from among the available inventory further comprises creating a duplicate of the first virtual machine.

However, Khandekar teaches a provisioning server automatically creates, configures and deploys physical hosts or computer systems to an application of virtual Machine technology (see Abstract,940-FIG.3) allowing Virtual machines to be created and provisioned by cloning one of a set of model virtual machines (col.9, line 10-25) The virtual machine created will be a working replica of the machine and can therefore function as a backup clone (col.16, line 1-12) in order to efficiently satisfy the user's request by either provisioning a new virtual machine or by creating a replica in the physical machine (col.1, line 52-63)

It would have been obvious to one of ordinary skill in the at the time of the invention to have modified the modified Trossman by Khandekar to create a new virtual machine on the same physical host by the provisioning manager to efficiently satisfy the user's request by either provisioning a new virtual machine or by creating a replica in the physical machine.

Regarding **claim 27**, Trossman discloses an apparatus that performs automatic management of a virtualization environment in a computer network comprising:

a network communications unit that enables communications between the apparatus and the computer network (Trossman:[0023-0024]);

an operating system of the apparatus that supports a virtualization environment in communication with the apparatus (Trossman:[0026]); and

a Virtual Mapping layer that determines an inventory of network resources and virtual assets available to the virtualization environment, wherein the Virtual Mapping layer determines the inventory without regard to processors, operating systems (Trossman: "The data storage 20 contains information on the groupings and poolings of resources in the resource system 12 for management purposes." [0042], [0034-0036]), virtualization platforms, and application software of the virtualization environment (Trossman: [0034-0038]).

Trossman does not explicitly disclose, wherein the virtual assets comprise at least one virtual machines operating on a single physical host, and wherein the at least one virtual machine comprises virtual hardware assets.

However Lowell discloses at least one virtual machines operating on a single physical host (Lowell: Col. 2, lines 37-58), and wherein the at least one virtual machine comprises virtual hardware assets (Lowell: Col. 2, line 59- Col. 3, lines 5) in order to efficiently make use of computer resources by encapsulating and isolating a guest operating systems from the underlying system hardware resources of host in order to allow the use of multiple guest OS (Lowell: Col. 1, line 5- Col. 2, lines 66).

It would have been obvious to one of ordinary skill in the at the time of the invention to create the resource management system of Trossman to include the use of virtual machines and virtual hardware assets as taught by Lowell in order to allow multiple guest computer operating systems to function like normal and unaware of the other operating systems executing on the single physical host computer system (Lowell: Col. 1, line 5- Col. 2, lines 66).

The modified Trossman does not explicitly teach a provisioning component that duplicates the at least one virtual machine operating on the single physical host.

However, Khandekar teaches a provisioning server automatically creates, configures and deploys physical hosts or computer systems to an application of virtual Machine technology (see Abstract,940-FIG.3) allowing Virtual machines to be created and provisioned by cloning one of a set of model virtual machines (col.9, line 10-25) The virtual machine created will be a working replica of the machine and can therefore function as a backup clone (col.16, line 1-12) in order to efficiently satisfy the user's request by either provisioning a new virtual machine or by creating a replica in the physical machine (col.1, line 52-63)

It would have been obvious to one of ordinary skill in the at the time of the invention to have modified the modified Trossman by Khandekar to create a new virtual machine on the same physical host by the provisioning manager to efficiently satisfy the user's request by either provisioning a new virtual machine or by creating a replica in the physical machine.

Regarding **claim 28**, the modified Trossman reference teaches the apparatus of claim 27 as described above. Trossman further discloses comprising one or more components that receive the inventory of available resources and assets from the Virtual Mapping layer and perform one or more functions from the group of functions consisting of:

(1) identification and management of network resources and virtual assets, (2) dynamic deployment of virtual assets across the computer network, (4) performance

measurement and reporting of resources and virtual assets, and (5) planning and forecasting of resource demands and asset utilization of the virtualization environment (Trossman: [0022-0023],[0031-0036],[0042]);

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment (Trossman: [0031-0036]).

Regarding **claim 29**, the modified Trossman reference teaches the apparatus of claim 27 as described above. Trossman further discloses comprising a component selected from a group consisting of: an Asset Manager component that determines an inventory of available network resources and virtual assets;

a Provisioning Manager component that assigns a prioritization to the available inventory and provisions virtual assets from among the available inventory (Trossman: "The data storage 20 contains information on the groupings and poolings of resources in the resource system 12 for management purposes." [0042], [0034-0036]);

a Performance Manager component that determines real time performance metrics Trossman: [0022-0024]; and

an Optimizer component that automatically produces a reallocation of the virtual assets and initiates the reallocation (Trossman: [0021-0024], [0034-0036]).

Regarding **claim 30**, the modified Trossman reference teaches the method of claim 1 as described above. Trossman does not explicitly disclose wherein the virtual assets further comprise a second virtual machine which comprises virtual assets, and the at least one virtual machine and the second virtual machine each run their own

respective operating systems which are the a different type of operating system from each other.

However Lowell discloses a second virtual machine which comprises virtual assets (Lowell: Col. 2, line 25-Col. 3, line 5), and the at least one virtual machine and the second virtual machine each run their own respective operating systems which are the a different type of operating system from each other (Lowell: Col. 2, line 25-Col. 3, line 5; Col. 1, lines 31-37) in order to efficiently make use of computer resources by encapsulating and isolating a guest operating systems from the underlying system hardware resources of host in order to allow the use of multiple guest OS (Lowell: Col. 1, line 5- Col. 2, lines 66).

It would have been obvious to one of ordinary skill in the at the time of the invention to create the virtual machines and virtual hardware resource management system of the modified Trossman reference to include the use of a second virtual machines and second virtual hardware asset as taught by Lowell in order to allow multiple guest computer operating systems to function like normal and unaware of the other operating systems executing on the single physical host computer system (Lowell: Col. 1, line 5- Col. 2, lines 66).

Regarding **claim 36**, the modified Trossman reference teaches the method of claim 1 as described above. Trossman discloses routing/allocating resources to an application (Trossman: [0025]; [0031-0033])

Trossman does not explicitly disclose discloses wherein provisioning virtual assets from among the available inventory further comprises routing an application running on a first virtual machine to run on a second virtual machine.

However Lowell discloses provisioning virtual assets from among the available inventory further comprises routing an application running on a first virtual machine to run on a second virtual machine (Lowell: Col. 3, lines 6-65) in order migrate a processes to a different operating system or virtual machine (Lowell: Col. 3, lines 6-8 and lines 51-53).

It would have been obvious to one of ordinary skill in the at the time of the invention to create the virtual machines and virtual hardware resource management system of the modified Trossman reference to include the use of creating a duplicate of a virtual machine as taught by Lowell in order migrate a processes to a different operating system or virtual machine (Lowell: Col. 3, lines 6-8 and lines 51-53).

Regarding **claim 37**, the modified Trossman reference teaches the method of claim 1 as described above. Trossman does not explicitly disclose wherein provisioning virtual assets from among the available inventory further comprises creating a duplicate of the first virtual machine. However Lowell disclose duplicating a virtual machine (Lowell: Col. 3, lines 6-65) in order migrate a processes to a different operating system or virtual machine (Lowell: Col. 3, lines 6-8 and lines 51-53).

It would have been obvious to one of ordinary skill in the at the time of the invention to create the virtual machines and virtual hardware resource management system of the modified Trossman reference to include the use of creating a duplicate of

a virtual machine as taught by Lowell in order migrate a processes to a different operating system or virtual machine (Lowell: Col. 3, lines 6-8 and lines 51-53).

Regarding **claim 38**, the modified Trossman reference teaches the method of claim 25 as described above. Trossman does not explicitly disclose wherein creating a duplicate of the first virtual machine further comprises creating a duplicate of the application running on the first virtual machine as part of the duplicate of the first virtual machine.

However Lowell disclose duplicating duplicate of the application running on a virtual machine (Lowell: Col. 3, lines 6-65) in order migrate a processes to a different operating system or virtual machine (Lowell: Col. 3, lines 6-8 and lines 51-53).

It would have been obvious to one of ordinary skill in the at the time of the invention to create the virtual machines and virtual hardware resource management system of the modified Trossman reference to include the use of creating a duplicate application running on a virtual machine as taught by Lowell in order migrate a processes to a different operating system or virtual machine (Lowell: Col. 3, lines 6-8 and lines 51-53).

Regarding **claim 39**, the modified Trossman teaches the method of claim 25 but does not explicitly disclose wherein provisioning virtual assets from among the available inventory further comprises creating a new virtual machine on the single physical host.

However, Khandekar teaches a provisioning server automatically creates, configures and deploys physical hosts or physical systems to an application of virtual Machine technology (see Abstract, 940-FIG.3) presenting to the user an optional dialog

where he can query the details of the model VM, such as its OS, applications, etc.) When the user makes the selections, he submits the request to the provisioning engine, which creates a new Virtual Machine on the same physical host or the requested computer system (col.15, line 29-col.16, line 30; FIG.3) in order to efficiently satisfy the user's request by either provisioning a new virtual machine or by creating a replica in the physical machine (col.1, line 52-63)

It would have been obvious to one of ordinary skill in the at the time of the invention to have modified the modified Trossman by Khandekar to create a new virtual machine on the same physical host by the provisioning manager to efficiently satisfy the user's request by either provisioning a new virtual machine or by creating a replica in the physical machine.

Regarding **claim 40**, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further discloses wherein provisioning virtual assets from among the available inventory further comprises communicating provisioning instructions from a control agent comprising at least one virtualization platform adapter to a virtualization layer in the single physical host (Trossman: [0023], [0033]).

6. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Trossman et al. (US 2008/0086731) in view of Lowell et al. (US 7,512,769) in view of Khandekar et al. Patent No. (US 7,577,722 B1) further in view of applicants admitted prior art.

Regarding **claim 7**, the modified Trossman reference teaches the method of claim 4 as described above. Trossman does not explicitly disclose wherein log files are retrieved from the available inventory that is detected as degraded.

Applicant admitted prior art teaches logging computer system performance, faults and errors and alerting an administrator of the logged events is well known in the art.

It would have been obvious to one of ordinary skill in the art at the time of the invention to create the resource management system with multiple virtual machines operating on a single physical server in a virtual computing environment of the modified Trossman reference to include of the use of logging data and alerting an administrator as taught by applicant admitted prior art in order to provide diagnostic data and alerts to properly manage the system.

Regarding **claim 8**, the modified Trossman reference teaches the method of claim 7 as described above. Trossman does not explicitly disclose wherein the log files are stored in an archive and an alert message is sent to a network administrator with an identification of the log file archive location.

Applicant admitted prior art teaches logging computer system performance, faults and errors and alerting an administrator of the logged events is well known in the art.

It would have been obvious to one of ordinary skill in the art at the time of the invention to create the resource management system with multiple virtual machines operating on a single physical server in a virtual computing environment of the modified Trossman reference to include of the use of logging data and alerting an administrator

as taught by applicant admitted prior art in order to provide diagnostic data and alerts to properly manage the system.

Response to Argument

7. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. When responding to this office action, Applicant is advised to clearly point out the patentable novelty which he or she thinks the claims present, in view of the state of the art disclosed by the references cited or the objections made. He or she must also show how the amendments avoid such references or objections See 37 CFR 1.111(c).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abdelnabi O. Musa whose telephone number is 571-2701901. The examiner can normally be reached on Monday thru Friday: 7:30am to 5:00pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Pwu can be reached on 571-2726798. 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.

/A. O. M./
Examiner, Art Unit 2478

/Kenny S Lin/
Primary Examiner, Art Unit 2478

Notice of References Cited	Application/Control No. 11/503,090	Applicant(s)/Patent Under Reexamination PABARI, VIPUL	
	Examiner ABDELNABI O. MUSA	Art Unit 2478	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-7,577,722	08-2009	Khandekar et al.	709/220
	B	US-			
	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.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11503090	PABARI, VIPUL
	Examiner	Art Unit
	Abdelnabi Musa	2478

✓	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	05/27/2008	12/31/2008	05/14/2009	12/08/2009	10/31/2010				
	1	✓	✓	✓	✓	✓				
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	3	✓	✓	✓	✓	✓				
	4	✓	✓	✓	✓	✓				
	5	✓	✓	✓	✓	✓				
	6	✓	✓	✓	✓	✓				
	7	✓	✓	✓	✓	✓				
	8	✓	✓	✓	✓	✓				
	9	✓	✓	✓	✓	✓				
	10	✓	✓	✓	✓	✓				
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	33		✓	✓	-	-				
	34		✓	✓	-	-				
	35		✓	✓	-	-				
	36				✓	✓				

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11503090	PABARI, VIPUL
	Examiner	**Art Unit**
	Abdelnabi Musa	2478

✓	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	05/27/2008	12/31/2008	05/14/2009	12/08/2009	10/31/2010				
	37				✓	✓				
	38				✓	✓				
	39				✓	✓				
	40				✓	✓				

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	7	("20050138165" | "20050155033" | "20060294238" | "20070067435" | "20080086731" | "7463648" | "7512769").PN.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 11:51
S2	19897	709/223.ccls. or 709/226.ccls. or 709/229.ccls.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:10
S3	16	pabari.in.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:10
S4	0	(manage$4 virtual$6 environment inventory resource$4 prioritiz$4 physical host).clm.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:12
S5	1094	(manage$4 virtual$6 environment inventory resource$4 prioritiz$4 physical host)	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:12
S6	1	S3 S5	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:12
S7	1	(virtual$ mange$4).ti.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:13
S8	82	(manage$4 virtual$6 environment resource $4).ab.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:14
S9	13	S2 S8	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:14

S10	2	(manage$4 virtual$6 environment resource $4 physical host).ab.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:17
S11	17572	(manage$4 virtual$6 environment (resource $4 or asset$2) physical host allocat$4)	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:10
S12	19897	709/223.ccls. or 709/226.ccls. or 709/229.ccls.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:11
S13	1084	S11 S12	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:11
S14	468	S13 (load adj (shar$4 or balanc$4))	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:11
S15	82	(manage$4 virtual$6 environment resource $4).ab.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:13
S16	4	S14 S15	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:13
S17	143	((virtual adj machine) or VM) same new same physical same host	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:18
S18	2	S15 S17	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:19
S19	2	S17 S15	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:19
S20	84	S17 S11	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:21
S21	9	S20 S12	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:22

EAST Search History (Interference)

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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11503090	PABARI, VIPUL
	Examiner	**Art Unit**
	Abdelnabi Musa	2478

SEARCHED			
Class	**Subclass**	**Date**	**Examiner**
709	223, 226	5/27/2008	DA
709	223,224,226	12/31/2008	DA
709	223	12/8/2009	DA
709	223, 226, 229	10/31/2010	AM

SEARCH NOTES		
Search Notes	**Date**	**Examiner**
Text searched EAST databases	5/27/2008	DA
Updated EAST text search	12/31/2008	DA
limted class/sublcass search (709/201-202,223-224,226; 718/100-108)	12/31/2008	DA
Inventor name searched	12/31/2008	DA
Updated EAST text search	5/14/2009	DA
Updated Text search of East (USPat, USPG_Pub, JPO, EPO, Derwent, IBM_TDB) and Inventor search	12/8/2009	DA
Limited classification search 709/201,202,223,224,226 and 718/1,100-108	12/8/2009	DA
EAST (USPAT, US-PGPUB, EPO, JPO, DERWENT, IBM_TDB), see attached; NPL: IEEE; Inventor Search/DP	10/31/2010	AM

INTERFERENCE SEARCH			
Class	**Subclass**	**Date**	**Examiner**

Certificate of Transmission Under 37 CFR 1.8
I hereby certify that this correspondence is being transmitted via electronic submission, attention Mail Stop: Amendment, Commissioner for Patents, Alexandria, VA 22313-1450 on:

May 9, 2011

/Timothy W. Lohse/
Timothy W. Lohse

Appl. No.	: 11/503,090	Confirmation No.	9855
Applicant	: Vipul Pabari		
Filed	: August 10, 2006		
TC/A.U.	: 2478		
Examiner	: Abdelnabi Musa		
Docket No.	: 367894-000003		
Customer No.	: 26379		

Title: VIRTUAL SYSTEMS MANAGEMENT

RESPONSE TO NON-FINAL OFFICE ACTION

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

Sir:

In response to the office action mailed on November 8, 2010, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 9 of this paper.

1. Listing of the claims:

1. (Previously Presented) A method for automatic management of a virtualization environment in a computer network, the method comprising:

determining an inventory of network resources and virtual assets available to the virtualization environment of the computer network;

assigning prioritization to members of the available inventory for the virtualization environment;

provisioning virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment, wherein the virtual assets comprise at least one virtual machines operating on a single physical host, and wherein the at least one virtual machine comprises virtual hardware assets, and wherein the provisioning virtual assets from among the available inventory comprises creating a new virtual machine on the single physical host;

determining real time performance metrics for the provisioned virtualization environment;

producing a reallocation of the virtual assets automatically in response to the real time performance metrics; and

initiating the reallocation of the virtual assets.

2. (Original) The method of claim 1, further comprising receiving user input that specifies parameters to be considered with the real time performance metrics in producing the reallocation of assets.

3. (Original) The method of claim 2, wherein the received user input comprises a Knowledge Block that determines one or more of the reallocation parameters.

4. (Original) The method of claim 2, wherein the received user input specifies parameters that detect operational degradation of a member of the available inventory.

5. (Original) The method of claim 4, wherein the available inventory member that is detected as degraded is removed from the available inventory.

6. (Original) The method of claim 4, wherein the available inventory that is detected as degraded is moved from the available inventory to a debug inventory pool.

7. (Original) The method of claim 4, wherein log files are retrieved from the available inventory that is detected as degraded.

8. (Original) The method of claim 7, wherein the log files are stored in an archive and an alert message is sent to a network administrator with an identification of the log file archive location.

9. (Original) The method of claim 4, wherein the available inventory that is detected as degraded is halted and is removed from the available inventory to a debug inventory pool.

10. (Original) The method of claim 9, wherein the halted available inventory is removed from the debug inventory pool.

11. (Previously Presented) The method of claim 3, wherein the Knowledge Block specifies parameters that send an alert message to an administrator of the network in response to an alert condition.

12. (Original) The method of claim 3, wherein the Knowledge Block specifies parameters that receive an instruction from an administrator of the network in response to an alert condition.

13. (Original) The method of claim 3, wherein the Knowledge Block specifies parameters that identify a last known acceptable virtual machine image that includes one or more applications from the set of available inventory.

14. (Original) The method of claim 3, wherein the Knowledge Block specifies parameters that deploy an instance of an application selected from among the available inventory.

15. (Original) The method of claim 2, wherein the received user input specifies a priority for one or more of the available inventory.

16. (Original) The method of claim 2, wherein the user input specifies a time period during which the reallocation will be applied.

17. (Original) The method of claim 1, further comprising: providing a user interface through which user input can be received and wherein the user input adjusts scheduling of producing the reallocation.

18. (Original) The method of claim 1, wherein producing a reallocation comprises adding a new application instance to the available inventory.

19. (Original) The method of claim 1, wherein producing a reallocation comprises updating the available inventory to include any changes made by the reallocation.

20. (Original) The method of claim 1, wherein the inventory of available inventory includes one or more application programs.

21. (Original) The method of claim 20, wherein one of the application programs comprises a network load balancer.

22. (Original) The method of claim 20, wherein one of the application programs comprises a network server.

23. (Original) The method of claim 1, wherein: determining, by an Asset Manager Component, an inventory of available network resources and virtual assets; assigning prioritization to the available inventory and provisioning virtual assets from among the available inventory, performed by a Provisioning Manager component; determining, by a Performance Manager component, a real time performance metrics; and automatically producing and initializing, by an Optimizer component, a reallocation of the virtual assets.

24. (Original) The method of claim 23, wherein automatically producing a reallocation of the virtual assets comprises forecasting future system needs, which is performed by a Capacity Planning Manager component.

25. (Currently Amended) A method for automatic management of a virtualization environment in a computer network, the method comprising:

performing one or more functions from the group of functions consisting of

(1) identification and management of network resources and virtual assets,

(2) provisioning of virtual assets in response to network workflow demands,

(3) dynamic deployment of virtual assets across the computer network,

(4) performance measurement and reporting of resources and virtual assets, and

(5) planning and forecasting of resource demands and virtual asset utilization of the virtualization environment;

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment and, wherein the virtual assets comprise at least one virtual machines operating on a single physical host, and wherein the at least one virtual machine comprises virtual hardware assets;

wherein provisioning virtual assets from among the available inventory further comprises ~~creating a duplicate of the first virtual machine~~ creating a new virtual machine on the single physical host.

26. (Currently Amended) A method of managing a virtualization environment in a computer network, the method comprising:

providing a virtualization environment at a computer in communication with the computer network;

determining an inventory of network resources and virtual assets available to the virtualization environment;

performing at least one function from among the group of functions consisting of

(1) identification and management of network resources and virtual assets,

(2) provisioning of virtual assets in response to network workflow demands,

(3) dynamic deployment of virtual assets across the computer network,

(4) performance measurement and reporting of resources and virtual assets, and

(5) planning and forecasting of resource demands and virtual asset utilization of the virtualization environment,

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment, and wherein the virtual assets comprise at least one virtual machine operating on a single physical host, and wherein the at least one virtual machine comprises virtual hardware assets, and wherein provisioning virtual assets from among the available inventory further comprises ~~creating a duplicate of the first virtual machine~~ creating a new virtual machine on the single physical host.

27. (Currently Amended) An apparatus that performs automatic management of a virtualization environment in a computer network comprising:

a network communications unit that enables communications between the apparatus and the computer network;

an operating system of the apparatus that supports a virtualization environment in communication with the apparatus; and

a Virtual Mapping layer that determines an inventory of network resources and virtual assets available to the virtualization environment, wherein the Virtual Mapping layer determines the inventory without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment, wherein the virtual assets comprise at least one virtual machine operating on a single physical host, and wherein the at least one virtual machine comprises virtual hardware assets; and

a provisioning component that ~~duplicates the at least one virtual machine operating on the single physical host~~ creates a new virtual machine on the single physical host.

28. (Currently Amended) The apparatus of claim 27, further comprising one or more components that receive the inventory of available resources and assets from the Virtual Mapping layer and perform one or more functions from the group of functions consisting of:

~~(1)~~ identification and management of network resources and virtual assets,

dynamic deployment of virtual assets across the computer network,

~~(4)~~ performance measurement and reporting of resources and virtual assets, and

~~(5)~~ planning and forecasting of resource demands and asset utilization of the virtualization environment;

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment.

29. (Original) The apparatus of claim 27, further comprising a component selected from a group consisting of: an Asset Manager component that determines an inventory of available network resources and virtual assets;

a Provisioning Manager component that assigns a prioritization to the available inventory and provisions virtual assets from among the available inventory;

a Performance Manager component that determines real time performance metrics; and

an Optimizer component that automatically produces a reallocation of the virtual assets and initiates the reallocation.

30. (Previously Presented) The method of claim 1 wherein the virtual assets further comprise a second virtual machine which comprises virtual assets, and the at least one virtual machine and the second virtual machine each run their own respective operating systems which are a different type of operating system from each other.

31. -35. Canceled

36. (Previously Presented) The method of claim 1 wherein provisioning virtual assets from among the available inventory further comprises routing an application running on a first virtual machine to run on a second virtual machine.

37. Cancelled.

38. Cancelled.

39. (Previously Presented) The method of claim 25 wherein provisioning virtual assets from among the available inventory further comprises creating a new virtual machine on the single physical host.

40. (Previously Presented) The method of claim 1 wherein provisioning virtual assets from among the available inventory further comprises communicating provisioning instructions from a control agent comprising at least one virtualization platform adapter to a virtualization layer in the single physical host.

REMARKS

In response to the rejection of claims 1 and 25-28 under 35 USC 112, first paragraph as failing to comply with the written description requirement due to lack of support in the description for the terms "the available inventory comprises creating a new virtual machine on the single physical host" and "a provisioning component that duplicates the at least one virtual machine operating on the single physical host", Applicant respectfully traverses the rejection. Applicant has amended the claims with the phrase "a provisioning component that duplicates the at least one virtual machine operating on the single physical host" to overcome the rejection and the term "a provisioning component that duplicates the at least one virtual machine operating on the single physical host" is in fact supported by the originally filed description. In particular, Figure 3 clearly shows a computer device 300 (the claimed single physical host) that has two virtual machines 328 and 330 on the computer device 300. *See at Figure 3 and pg. 15, line 21 – pg. 16, line 34 of the originally filed patent description*. In addition, the description describes the operation of creating and starting up a virtual machine which further supports the terms above. *See pg. 26, lines 1-21 of the originally filed patent description*. Thus, the terms "the available inventory comprises creating a new virtual machine on the single physical host" is supported by the description and the rejection should be withdrawn.

PRIOR ART REJECTIONS

In response to the rejection of claims 1-6 and 9-30 and 36-40 under 35 U.S.C. 103 as being unpatentable over US Patent Application 2008/0086731 to Trossman et al. ("Trossman") in view of U.S. Patent 7,512,769 to Lowell et al. ("Lowell") and further in view of US Patent No. 7,577,722 to Khandekar et al. ("Khandekar") and the rejection of claims 7-8 under 35 U.S.C. 103 as being obvious under Trossman, Lowell, Khandekar and further in view of the alleged admitted prior art, Applicant respectfully traverses the rejections since the combination of prior art cited by the examiner does not disclose or suggest each claim element for the reasons below and the rejection should be withdrawn.

Claims 1-6 and 9-30 and 36-40

These claims have been rejected as being obvious over the combination of Trossman, Lowell and Khandekar. However, the combination of Trossman, Lowell and Khandekar do not disclose or suggest each claim element so that the rejection is improper and must be withdrawn.

Claim 1

Claim 1 recites "wherein the provisioning virtual assets from among the available inventory comprises creating a new virtual machine on the single physical host" which is not disclosed or suggested by the combination of Trossman, Lowell and Khandekar.

The examiner has admitted that neither Trossman or Lowell discloses or suggests this claim element. *See Office action at 4-5*.

The examiner relies on Khandekar as disclosing or teaching this claim element. Khandekar discloses provisioning of computer systems using virtual machines. *See Khandekar at Title and Abstract*. Khandekar also discloses an application selection dialog and VM staging. *See Khandekar at col. 15, line 22 – col. 16, line 29 which was cited by the examiner as disclosing this claim element*. In the Application Selection Dialog, "After the VM virtual hardware and OS have been selected..", the user selects the application. In the VM staging, model VMs or custom-built VMs are prepared and staged. During the staging, a disk image may be extracted from a physical machine. *See Khandekar at Figure 2 and col. 15, lines 22-25 and col. 16, lines 21-29*. However, nothing in Khandekar specifically discloses or suggests "wherein the provisioning virtual assets from among the available inventory comprises creating a new virtual machine on the single physical host." Thus, Khandekar does not disclose or suggest this claim element.

Therefore, the combination of Trossman, Lowell and Khandekar do not disclose or suggest this claim element and the rejection must be withdrawn.

Claims 2-6, 9-24, 30 and 36-37

These claims depend from claim 1 and are not obvious over the combination of Trossman, Lowell and Khandekar for at least the same reasons as claim 1 above.

Claim 25

Claim 25 recites "wherein provisioning virtual assets from among the available inventory further comprises creating a new virtual machine on the single physical host" which is not disclosed or suggested by the combination of Trossman, Lowell and Khandekar.

The examiner has admitted that neither Trossman or Lowell discloses or suggests this claim element. *See Office action at 4-5*.

The examiner relies on Khandekar as disclosing or teaching this claim element. Khandekar discloses provisioning of computer systems using virtual machines. *See Khandekar at Title and Abstract*. Khandekar also discloses an application selection dialog and VM staging. *See Khandekar at col. 15, line 22 – col. 16, line 29 which was cited by the examiner as disclosing this claim element*. In the Application Selection Dialog, "After the VM virtual hardware and OS have been selected..", the user selects the application. In the VM staging, model VMs or custom-built VMs are prepared and staged. During the staging, a disk image may be extracted from a physical machine. *See Khandekar at Figure 2 and col. 15, lines 22-25 and col. 16, lines 21-29*. However, nothing in Khandekar specifically discloses or suggests "wherein provisioning virtual assets from among the available inventory further comprises creating a new virtual machine on the single physical host." Thus, Khandekar does not disclose or suggest this claim element.

Therefore, the combination of Trossman, Lowell and Khandekar do not disclose or suggest this claim element and the rejection must be withdrawn.

Claim 26

Claim 26 recites "wherein provisioning virtual assets from among the available inventory further comprises creating a new virtual machine on the single physical host" which is not disclosed or suggested by the combination of Trossman, Lowell and Khandekar.

The examiner has admitted that neither Trossman or Lowell discloses or suggests this claim element. *See Office action at 4-5*.

The examiner relies on Khandekar as disclosing or teaching this claim element. Khandekar discloses provisioning of computer systems using virtual machines. *See Khandekar at Title and Abstract*. Khandekar also discloses an application selection dialog and VM staging. *See Khandekar at col. 15, line 22 – col. 16, line 29 which was cited by the examiner as disclosing this claim element*. In the Application Selection Dialog, "After the VM virtual hardware and OS have been selected..", the user selects the application. In the VM staging, model VMs or custom-built VMs are prepared and staged. During the staging, a disk image may be extracted from a physical machine. *See Khandekar at Figure 2 and col. 15, lines 22-25 and col. 16, lines 21-29*. However, nothing in Khandekar specifically discloses or suggests "wherein provisioning virtual assets from among the available inventory further comprises creating a new

virtual machine on the single physical host." Thus, Khandekar does not disclose or suggest this claim element.

Therefore, the combination of Trossman, Lowell and Khandekar do not disclose or suggest this claim element and the rejection must be withdrawn.

Claim 27

Claim 27 recites "a provisioning component that creates a new virtual machine on the single physical host" which is not disclosed or suggested by the combination of Trossman, Lowell and Khandekar.

The examiner has admitted that neither Trossman or Lowell discloses or suggests this claim element. *See Office action at 4-5*.

The examiner relies on Khandekar as disclosing or teaching this claim element. Khandekar discloses provisioning of computer systems using virtual machines. *See Khandekar at Title and Abstract*. Khandekar also discloses an application selection dialog and VM staging. *See Khandekar at col. 15, line 22 – col. 16, line 29 which was cited by the examiner as disclosing this claim element*. In the Application Selection Dialog, "After the VM virtual hardware and OS have been selected..", the user selects the application. In the VM staging, model VMs or custom-built VMs are prepared and staged. During the staging, a disk image may be extracted from a physical machine. *See Khandekar at Figure 2 and col. 15, lines 22-25 and col. 16, lines 21-29*. However, nothing in Khandekar specifically discloses or suggests "wherein provisioning virtual assets from among the available inventory further comprises creating a new virtual machine on the single physical host." Thus, Khandekar does not disclose or suggest this claim element.

Therefore, the combination of Trossman, Lowell and Khandekar do not disclose or suggest this claim element and the rejection must be withdrawn.

Claims 28-29 and 38-30

These claims depend from claim 27 and are not obvious over the combination of Trossman, Lowell and Khandekar for at least the same reasons as claim 27 above.

Claims 7-8

These claims depend from claim 1. The combination of Trossman, Lowell and Khandekar do not disclose each claim element of the claim 1 for the reasons above. Further, the admitted prior

art does not contain admitted prior art disclosure of the claim elements missing from Trossman, Lowell and Khandekar so that the combination of Trossman, Lowell, Khandekar and the allegedly admitted prior art does not disclose or suggest each claim element of claims 7-8 (which incorporate all of the claim elements of claim 1) and the rejection should be withdrawn.

CONCLUSION

In view of the above, it is respectfully submitted that the claims are allowable over the prior art cited by the Examiner and early allowance of these claims and the application is respectfully requested.

The Examiner is invited to call Applicant's attorney at the number below in order to speed the prosecution of this application.

The Commissioner is authorized to charge any deficiencies in fees and credit any overpayment of fees to Deposit Account No. 07-1896.

Respectfully submitted,

DLA PIPER US LLP

Dated: May 9, 2011 By /Timothy W. Lohse/
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Electronic Patent Application Fee Transmittal

Application Number:	11503090
Filing Date:	10-Aug-2006
Title of Invention:	Virtual systems management
First Named Inventor/Applicant Name:	Vipul Pabari
Filer:	Timothy W. Lohse
Attorney Docket Number:	367894-000003

Filed as Small 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 - 3 months with $0 paid	2253	1	555	555

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
		Total in USD ($)		**555**

Electronic Acknowledgement Receipt	
EFS ID:	10051502
Application Number:	11503090
International Application Number:	
Confirmation Number:	9855
Title of Invention:	Virtual systems management
First Named Inventor/Applicant Name:	Vipul Pabari
Customer Number:	26379
Filer:	Timothy W. Lohse
Filer Authorized By:	
Attorney Docket Number:	367894-000003
Receipt Date:	09-MAY-2011
Filing Date:	10-AUG-2006
Time Stamp:	21:34:05
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$555
RAM confirmation Number	7182
Deposit Account	071896
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	Amendment/Req. Reconsideration-After Non-Final Reject	Toutvirtual367894_Response_to_OA_5-9-11.pdf	129503 6f84a36b94c05a3a82d4d1a804b14e1f261a4894	no	13
Warnings:					
Information:					
2	Fee Worksheet (PTO-875)	fee-info.pdf	29688 b2f54d9c0d55cd85a40d4c5877fe99e5c7c4e3bd	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	159191		

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.

<u>New Applications Under 35 U.S.C. 111</u>
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.

<u>National Stage of an International Application under 35 U.S.C. 371</u>
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.

<u>New International Application Filed with the USPTO as a Receiving Office</u>
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	Filing Date	☐ To be Mailed
11/503,090	08/10/2006	

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	05/09/2011	(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))	* 33	Minus	** 35	= 0	X $26 =	0	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 4	Minus	***4	= 0	X $110 =	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 ($)	ADDITIONAL FEE ($)	OR	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:
/CORALIA BETANCOURT/

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.
11/503,090	08/10/2006	Vipul Pabari	367894-000003	9855

26379 7590 07/20/2011

DLA PIPER LLP (US)
2000 UNIVERSITY AVENUE
EAST PALO ALTO, CA 94303-2248

EXAMINER	
MUSA, ABDELNABI O	
ART UNIT	PAPER NUMBER
2478	

NOTIFICATION DATE	DELIVERY MODE
07/20/2011	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):

PatentDocketingUS-PaloAlto@dlapiper.com

Office Action Summary	Application No.	Applicant(s)	
	11/503,090	PABARI, VIPUL	
	Examiner	Art Unit	
	ABDELNABI MUSA	2478	

-- 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 *09 May 2011*.

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) *1-30,36,39 and 40* 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) *1-30,36,39 and 40* 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 *10 August 2006* 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: _____.

DETAILED ACTION

1. Acknowledgment is made for the applicant's response and amendment filed on 05/09/2011.

Remarks

2. The claims are presented as follows:

- Claims 25-28 amended.
- Claims 31-35, 37-38 canceled.
- Claims 1-30, 36, 39-40 pending.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-6, 9-30, 36, 39-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Trossman et al. (US 2008/0086731) in view of Lowell et al. (US 7,512,769) further in view of Khandekar et al. Patent No. (US 7,577,722 B1)

Regarding **claim 1**, a method for automatic management of a virtualization environment in a computer network, the method comprising:

determining an inventory of network resources and virtual assets available to the virtualization environment of the computer network (Trossman: "The data storage 20 contains information on the groupings and poolings of resources in the resource system 12 for management purposes." [0042], [0034-0036]);

assigning prioritization to members of the available inventory for the virtualization environment (Trossman: "Each of these group information sets may contains an

identification of each resource in the group, the size of the group, the number of active and idle resources in the group and the priority of the group and the pool to which the group belongs." [0042], [0023]);

provisioning virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment (Trossman: "Given the differing resource requirements for each application environment using and requiring resources in the resource system 12, the resource change mechanism 18 decides where the resources will be allocated." [0031]);

determining real time performance metrics for the provisioned virtualization environment (Trossman: [0021-0024]);

producing a reallocation of the virtual assets automatically in response to the real time performance metrics (Trossman: [0021-0024], [0034-0036]); and

initiating the reallocation of the virtual assets (Trossman: [0021-0024], [0034-0036]).

Trossman dose not explicitly disclose, wherein the virtual assets comprise at least one virtual machines operating on a single physical host, and wherein the at least one virtual machine comprises virtual hardware assets.

However Lowell discloses at least one virtual machines operating on a single physical host (Lowell: Col. 2, lines 37-58), and wherein the at least one virtual machine comprises virtual hardware assets (Lowell: Col. 2, line 59- Col. 3, lines 5) in order to efficiently make use of computer resources by encapsulating and isolating a guest

operating systems from the underlying system hardware resources of host in order to allow the use of multiple guest OS (Lowell: Col. 1, line 5- Col. 2, lines 66).

It would have been obvious to one of ordinary skill in the at the time of the invention to create the resource management system of Trossman to include the use of virtual machines and virtual hardware assets as taught by Lowell in order to allow multiple guest computer operating systems to function like normal and unaware of the other operating systems executing on the single physical host computer system (Lowell: Col. 1, line 5- Col. 2, lines 66).

The modified Trossman does not explicitly teach wherein the provisioning virtual assets from among the available inventory comprises creating a new virtual machine on the single physical host.

However, Khandekar teaches a provisioning server automatically creates, configures and deploys physical hosts or physical systems to an application of virtual Machine technology (see Abstract, 940-FIG.3) presenting to the user an optional dialog where he can query the details of the model VM, such as its OS, applications, etc.) When the user makes the selections, he submits the request to the provisioning engine, which creates a new Virtual Machine on the same physical host or the requested computer system (col.15, line 29-col.16, line 30; FIG.3) in order to efficiently satisfy the user's request by either provisioning a new virtual machine or by creating a replica in the physical machine (col.1, line 52-63)

It would have been obvious to one of ordinary skill in the at the time of the invention to have modified the modified Trossman by Khandekar to create a new virtual

machine on the same physical host by the provisioning manager to efficiently satisfy the user's request by either provisioning a new virtual machine or by creating a replica in the physical machine.

Regarding **claim 2**, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further discloses receiving user input that specifies parameters to be considered with the real time performance metrics in producing the reallocation of assets (Trossman: [0033]).

Regarding **claim 3**, the modified Trossman reference teaches the method of claim 2 as described above. Trossman further discloses wherein the received user input comprises a Knowledge Block that determines one or more of the reallocation parameters (Trossman: [0033]).

Regarding **claim 4**, the modified Trossman reference teaches the method of claim 2 as described above. Trossman further discloses wherein the received user input specifies parameters that detect operational degradation of a member of the available inventory (Trossman:[0033],[0056-0057]).

Regarding **claim 5**, the modified Trossman reference teaches the method of claim 4 as described above. Trossman further discloses wherein the available inventory member that is detected as degraded is removed from the available inventory (Trossman: [0119]).

Regarding **claim 6**, the modified Trossman reference teaches the method of claim 4 as described above. Trossman further discloses wherein the available inventory

that is detected as degraded is moved from the available inventory to a debug inventory pool (Trossman[0119-0120]).

Regarding **claim 9**, the modified Trossman reference teaches the method of claim 4 as described above. Trossman further discloses wherein the available inventory that is detected as degraded is halted and is removed from the available inventory to a debug inventory pool (Trossman: [0119-0120]).

Regarding **claim 10**, the modified Trossman reference teaches the method of claim 9 as described above. Trossman further discloses wherein the halted available inventory is removed from the debug inventory pool (Trossman: [0119-0120]).

Regarding **claim 11**, the modified Trossman reference teaches the method of claim 3 as described above. Trossman further discloses wherein the Knowledge Block specifies parameters that send an alert message to an administrator of the network in response to an alert condition (Trossman: [0033], [0040], [0119-0120]).

Regarding **claim 12**, the modified Trossman reference teaches the method of claim 3 as described above. Trossman further discloses wherein the Knowledge Block specifies parameters that receive an instruction from an administrator of the network in response to an alert condition (Trossman: [0033], [0040], [0119-0120]).

Regarding **claim 13**, the modified Trossman reference teaches the method of claim 3 as described above. Trossman further discloses wherein the Knowledge Block specifies parameters that identify a last known acceptable virtual machine image that includes one or more applications from the set of available inventory (Trossman: [0033]).

Regarding **claim 14**, the modified Trossman reference teaches the method of claim 3 as described above. Trossman further discloses wherein the Knowledge Block specifies parameters that deploy an instance of an application selected from among the available inventory (Trossman: [0033]).

Regarding **claim 15**, the modified Trossman reference teaches the method of claim 2 as described above. Trossman further discloses wherein the received user input specifies a priority for one or more of the available inventory (Trossman: [0033]).

Regarding **claim 16**, the modified Trossman reference teaches the method of claim 2 as described above. Trossman further discloses wherein the user input specifies a time period during which the reallocation will be applied (Trossman: [0030]-0033).

Regarding **claim 17**, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further teaches providing a user interface through which user input can be received and wherein the user input adjusts scheduling of producing the reallocation (Trossman: [0033]).

Regarding **claim 18**, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further teaches wherein producing a reallocation comprises adding a new application instance to the available inventory (Trossman: [0119]).

Regarding **claim 19**, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further teaches wherein producing a

reallocation comprises updating the available inventory to include any changes made by the reallocation (Trossman: [0104], [0118-0119]).

Regarding **claim 20**, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further discloses wherein the inventory of available inventory includes one or more application programs (Trossman: [0119]).

Regarding **claim 21**, the modified Trossman reference teaches the method of claim 20 as described above. Trossman further discloses wherein one of the application programs comprises a network load balancer (Trossman: [0024]).

Regarding **claim 22**, the modified Trossman reference teaches method of claim 20 as described above. Trossman further discloses wherein one of the application programs comprises a network server (Trossman: [0022]).

Regarding **claim 23**, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further discloses wherein: determining, by an Asset Manager Component, an inventory of available network resources and virtual assets (Trossman: [0022-0023]);

assigning prioritization to the available inventory and provisioning virtual assets from among the available inventory, performed by a Provisioning Manager component (Trossman: [0042], [0023]);

determining, by a Performance Manager component, a real time performance metrics (Trossman: [0022-0023]); and

automatically producing and initializing, by an Optimizer component, a reallocation of the virtual assets (Trossman: [0022-0023]).

Regarding **claim 24**, the modified Trossman reference teaches the method of claim 23 as described above. Trossman further discloses wherein automatically producing a reallocation of the virtual assets comprises forecasting future system needs, which is performed by a Capacity Planning Manager component (Trossman: [0022-0023]).

Regarding **claim 25**, Trossman discloses a method for automatic management of a virtualization environment in a computer network, the method comprising:

performing one or more functions from the group of functions consisting of (1) identification and management of network resources and virtual assets, (2) provisioning of virtual assets in response to network workflow demands, (3) dynamic deployment of virtual assets across the computer network, (4) performance measurement and reporting of resources and virtual assets, and (5) planning and forecasting of resource demands and virtual asset utilization of the virtualization environment (Trossman: [0022-0023],[0031-0036],[0042]);

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment (Trossman: [0031-0036]).

Trossman does not explicitly disclose wherein the virtual assets comprise at least one virtual machines operating on a single physical host, and wherein the at least one virtual machine comprises virtual hardware assets.

However Lowell discloses at least one virtual machines operating on a single physical host (Lowell: Col. 2, lines 37-58), and wherein the at least one virtual machine

comprises virtual hardware assets (Lowell: Col. 2, line 59- Col. 3, lines 5) in order to efficiently make use of computer resources by encapsulating and isolating a guest operating systems from the underlying system hardware resources of host in order to allow the use of multiple guest OS (Lowell: Col. 1, line 5- Col. 2, lines 66).

It would have been obvious to one of ordinary skill in the at the time of the invention to create the resource management system of Trossman to include the use of virtual machines and virtual hardware assets as taught by Lowell in order to allow multiple guest computer operating systems to function like normal and unaware of the other operating systems executing on the single physical host computer system (Lowell: Col. 1, line 5- Col. 2, lines 66).

The modified Trossman does not explicitly teach wherein provisioning virtual assets from among the available inventory further comprises creating a new virtual machine on the single physical host.

However, Khandekar teaches a provisioning server automatically creates, configures and deploys physical hosts or computer systems to an application of virtual Machine technology (see Abstract,940-FIG.3) allowing Virtual machines to be created and provisioned by cloning one of a set of model virtual machines (col.9, line 10-25) The virtual machine created will be a working replica of the machine and can therefore function as a backup clone (col.16, line 1-12) in order to efficiently satisfy the user's request by either provisioning a new virtual machine or by creating a replica in the physical machine (col.1, line 52-63)

It would have been obvious to one of ordinary skill in the at the time of the invention to have modified the modified Trossman by Khandekar to create a new virtual machine on the same physical host by the provisioning manager to efficiently satisfy the user's request by either provisioning a new virtual machine or by creating a replica in the physical machine.

Regarding **claim 26**, Trossman discloses a method of managing a virtualization environment in a computer network, the method comprising:

providing a virtualization environment at a computer in communication with the computer network (Trossman: [0035-0038]);

determining an inventory of network resources and virtual assets available to the virtualization environment (Trossman: “The data storage 20 contains information on the groupings and poolings of resources in the resource system 12 for management purposes.” [0042], [0034-0036]);

performing at least one function from among the group of functions consisting of

(1) identification and management of network resources and virtual assets, (2) provisioning of virtual assets in response to network workflow demands, (3) dynamic deployment of virtual assets across the computer network, (4) performance measurement and reporting of resources and virtual assets, and (5) planning and forecasting of resource demands and virtual asset utilization of the virtualization environment (Trossman: [0022-0023],[0031-0036],[0042]),

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment (Trossman: [0031-0036]).

Trossman does not explicitly disclose , wherein the virtual assets comprise at least one virtual machines operating on a single physical host, and wherein the at least one virtual machine comprises virtual hardware assets.

However Lowell discloses at least one virtual machines operating on a single physical host (Lowell: Col. 2, lines 37-58), and wherein the at least one virtual machine comprises virtual hardware assets (Lowell: Col. 2, line 59- Col. 3, lines 5) in order to efficiently make use of computer resources by encapsulating and isolating a guest operating systems from the underlying system hardware resources of host in order to allow the use of multiple guest OS (Lowell: Col. 1, line 5- Col. 2, lines 66).

It would have been obvious to one of ordinary skill in the at the time of the invention to create the resource management system of Trossman to include the use of virtual machines and virtual hardware assets as taught by Lowell in order to allow multiple guest computer operating systems to function like normal and unaware of the other operating systems executing on the single physical host computer system (Lowell: Col. 1, line 5- Col. 2, lines 66).

The modified Trossman does not explicitly teach wherein provisioning virtual assets from among the available inventory further comprises creating a new virtual machine on the single physical host.

However, Khandekar teaches a provisioning server automatically creates, configures and deploys physical hosts or physical systems to an application of virtual Machine technology (see Abstract, 940-FIG.3) presenting to the user an optional dialog where he can query the details of the model VM, such as its OS, applications, etc.) When the user makes the selections, he submits the request to the provisioning engine, which creates a new Virtual Machine on the same physical host or the requested computer system (col.15, line 29-col.16, line 30; FIG.3) in order to efficiently satisfy the user's request by either provisioning a new virtual machine or by creating a replica in the physical machine (col.1, line 52-63)

It would have been obvious to one of ordinary skill in the at the time of the invention to have modified the modified Trossman by Khandekar to create a new virtual machine on the same physical host by the provisioning manager to efficiently satisfy the user's request by either provisioning a new virtual machine or by creating a replica in the physical machine.

Regarding **claim 27**, Trossman discloses an apparatus that performs automatic management of a virtualization environment in a computer network comprising:

a network communications unit that enables communications between the apparatus and the computer network (Trossman:[0023-0024]);

an operating system of the apparatus that supports a virtualization environment in communication with the apparatus (Trossman:[0026]); and

a Virtual Mapping layer that determines an inventory of network resources and virtual assets available to the virtualization environment, wherein the Virtual Mapping

layer determines the inventory without regard to processors, operating systems (Trossman: “The data storage 20 contains information on the groupings and poolings of resources in the resource system 12 for management purposes.” [0042], [0034-0036]), virtualization platforms, and application software of the virtualization environment (Trossman: [0034-0038]).

Trossman does not explicitly disclose, wherein the virtual assets comprise at least one virtual machines operating on a single physical host, and wherein the at least one virtual machine comprises virtual hardware assets.

However Lowell discloses at least one virtual machines operating on a single physical host (Lowell: Col. 2, lines 37-58), and wherein the at least one virtual machine comprises virtual hardware assets (Lowell: Col. 2, line 59- Col. 3, lines 5) in order to efficiently make use of computer resources by encapsulating and isolating a guest operating systems from the underlying system hardware resources of host in order to allow the use of multiple guest OS (Lowell: Col. 1, line 5- Col. 2, lines 66).

It would have been obvious to one of ordinary skill in the at the time of the invention to create the resource management system of Trossman to include the use of virtual machines and virtual hardware assets as taught by Lowell in order to allow multiple guest computer operating systems to function like normal and unaware of the other operating systems executing on the single physical host computer system (Lowell: Col. 1, line 5- Col. 2, lines 66).

The modified Trossman does not explicitly teach a provisioning component that creating a new virtual machine on the single physical host.

However, Khandekar teaches a provisioning server automatically creates, configures and deploys physical hosts or physical systems to an application of virtual Machine technology (see Abstract, 940-FIG.3) presenting to the user an optional dialog where he can query the details of the model VM, such as its OS, applications, etc.) When the user makes the selections, he submits the request to the provisioning engine, which creates a new Virtual Machine on the same physical host or the requested computer system (col.15, line 29-col.16, line 30; FIG.3) in order to efficiently satisfy the user's request by either provisioning a new virtual machine or by creating a replica in the physical machine (col.1, line 52-63)

It would have been obvious to one of ordinary skill in the at the time of the invention to have modified the modified Trossman by Khandekar to create a new virtual machine on the same physical host by the provisioning manager to efficiently satisfy the user's request by either provisioning a new virtual machine or by creating a replica in the physical machine.

Regarding **claim 28**, the modified Trossman reference teaches the apparatus of claim 27 as described above. Trossman further discloses comprising one or more components that receive the inventory of available resources and assets from the Virtual Mapping layer and perform one or more functions from the group of functions consisting of:

identification and management of network resources and virtual assets, dynamic deployment of virtual assets across the computer network, performance measurement and reporting of resources and virtual assets, and planning and forecasting of resource

demands and asset utilization of the virtualization environment (Trossman: [0022-0023] [0031-0036] [0042]);

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment (Trossman: [0031-0036]).

Regarding **claim 29**, the modified Trossman reference teaches the apparatus of claim 27 as described above. Trossman further discloses comprising a component selected from a group consisting of: an Asset Manager component that determines an inventory of available network resources and virtual assets;

a Provisioning Manager component that assigns a prioritization to the available inventory and provisions virtual assets from among the available inventory (Trossman: "The data storage 20 contains information on the groupings and poolings of resources in the resource system 12 for management purposes." [0042], [0034-0036]);

a Performance Manager component that determines real time performance metrics Trossman: [0022-0024]; and

an Optimizer component that automatically produces a reallocation of the virtual assets and initiates the reallocation (Trossman: [0021-0024], [0034-0036]).

Regarding **claim 30**, the modified Trossman reference teaches the method of claim 1 as described above. Trossman does not explicitly disclose wherein the virtual assets further comprise a second virtual machine which comprises virtual assets, and the at least one virtual machine and the second virtual machine each run their own

respective operating systems which are the a different type of operating system from each other.

However Lowell discloses a second virtual machine which comprises virtual assets (Lowell: Col. 2, line 25-Col. 3, line 5), and the at least one virtual machine and the second virtual machine each run their own respective operating systems which are the a different type of operating system from each other (Lowell: Col. 2, line 25-Col. 3, line 5; Col. 1, lines 31-37) in order to efficiently make use of computer resources by encapsulating and isolating a guest operating systems from the underlying system hardware resources of host in order to allow the use of multiple guest OS (Lowell: Col. 1, line 5- Col. 2, lines 66).

It would have been obvious to one of ordinary skill in the at the time of the invention to create the virtual machines and virtual hardware resource management system of the modified Trossman reference to include the use of a second virtual machines and second virtual hardware asset as taught by Lowell in order to allow multiple guest computer operating systems to function like normal and unaware of the other operating systems executing on the single physical host computer system (Lowell: Col. 1, line 5- Col. 2, lines 66).

Regarding **claim 36**, the modified Trossman reference teaches the method of claim 1 as described above. Trossman discloses routing/allocating resources to an application (Trossman: [0025]; [0031-0033])

Trossman does not explicitly disclose discloses wherein provisioning virtual assets from among the available inventory further comprises routing an application running on a first virtual machine to run on a second virtual machine.

However Lowell discloses provisioning virtual assets from among the available inventory further comprises routing an application running on a first virtual machine to run on a second virtual machine (Lowell: Col. 3, lines 6-65) in order migrate a processes to a different operating system or virtual machine (Lowell: Col. 3, lines 6-8 and lines 51-53).

It would have been obvious to one of ordinary skill in the at the time of the invention to create the virtual machines and virtual hardware resource management system of the modified Trossman reference to include the use of creating a duplicate of a virtual machine as taught by Lowell in order migrate a processes to a different operating system or virtual machine (Lowell: Col. 3, lines 6-8 and lines 51-53).

Regarding **claim 39**, the modified Trossman teaches the method of claim 25 but does not explicitly disclose wherein provisioning virtual assets from among the available inventory further comprises creating a new virtual machine on the single physical host.

However, Khandekar teaches a provisioning server automatically creates, configures and deploys physical hosts or physical systems to an application of virtual Machine technology (see Abstract, 940-FIG.3) presenting to the user an optional dialog where he can query the details of the model VM, such as its OS, applications, etc.) When the user makes the selections, he submits the request to the provisioning engine, which creates a new Virtual Machine on the same physical host or the requested

computer system (col.15, line 29-col.16, line 30; FIG.3) in order to efficiently satisfy the user's request by either provisioning a new virtual machine or by creating a replica in the physical machine (col.1, line 52-63)

It would have been obvious to one of ordinary skill in the at the time of the invention to have modified the modified Trossman by Khandekar to create a new virtual machine on the same physical host by the provisioning manager to efficiently satisfy the user's request by either provisioning a new virtual machine or by creating a replica in the physical machine.

Regarding **claim 40**, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further discloses wherein provisioning virtual assets from among the available inventory further comprises communicating provisioning instructions from a control agent comprising at least one virtualization platform adapter to a virtualization layer in the single physical host (Trossman: [0023], [0033]).

4. Claims 7-8 rejected under 35 U.S.C. 103(a) as being unpatentable over Trossman et al. (US 2008/0086731) in view of Lowell et al. (US 7,512,769) in view of Khandekar et al. Patent No. (US 7,577,722 B1) further in view of applicants admitted prior art.

Regarding **claim 7**, the modified Trossman reference teaches the method of claim 4 as described above. Trossman does not explicitly disclose wherein log files are retrieved from the available inventory that is detected as degraded.

Applicant admitted prior art teaches logging computer system performance, faults and errors and alerting an administrator of the logged events is well known in the art.

It would have been obvious to one of ordinary skill in the art at the time of the invention to create the resource management system with multiple virtual machines operating on a single physical server in a virtual computing environment of the modified Trossman reference to include of the use of logging data and alerting an administrator as taught by applicant admitted prior art in order to provide diagnostic data and alerts to properly manage the system.

Regarding **claim 8**, the modified Trossman reference teaches the method of claim 7 as described above. Trossman does not explicitly disclose wherein the log files are stored in an archive and an alert message is sent to a network administrator with an identification of the log file archive location.

Applicant admitted prior art teaches logging computer system performance, faults and errors and alerting an administrator of the logged events is well known in the art.

It would have been obvious to one of ordinary skill in the art at the time of the invention to create the resource management system with multiple virtual machines operating on a single physical server in a virtual computing environment of the modified Trossman reference to include of the use of logging data and alerting an administrator as taught by applicant admitted prior art in order to provide diagnostic data and alerts to properly manage the system.

Response to Amendment

5. Applicant's arguments filed 05/09/2011 have been fully considered but they are not persuasive. The amendment submitted by the applicant does not overcome the rejection made by the examiner in the last office action. The applicant's argument has been considered carefully and does not provide the evidence for lack of motivation.

The applicant recites that the references do not disclose, teach or suggest the following argument;

- **Argument-1**

Applicant recites that the references do not disclose, teach or suggest "wherein the provisioning virtual assets from among the available inventory comprises creating a new virtual machine on the single physical host"

- **Response to Argument**

In contrary, Khandekar teaches a provisioning server automatically configures a virtual machine (VM) according to user specifications and then deploys the VM on a physical host (see abstract) the system implementation for creating a virtualized computer system based on input information identifying a desired computer configuration. The invention then automatically configures and deploys on a physical host platform a virtual machine (VM) according to the inputted information (col.4, line 30-65, col.1, line 52-63) as shown in FIGs.2 and 7 When the user has finished making the selections of hardware, he submits the request to the provisioning engine 810, which creates a new virtual machine 'VM' by the process described in FIG.3. As soon as the process is initiated, a new transaction is started in the task manager 820 and the

user is returned a task ID. When the task completes successfully, the VM will have been created and the user is so informed, for example, via the browser from which he submitted the request, or by email. The user can then access the VM using remote access software (col.15, line 29-col.16, line 30; FIG.3) therefore the cited art teaches provisioning virtual assets from among the available inventory comprises creating a new virtual machine on the selected physical host as claimed.

In addition, the examiner would like to point out that a similar limitations were presented in recently canceled claims 37-38, which disclose duplicating of applications running on a virtual machine (found in Lowell: Col. 3, lines 6-65) in order migrate a processes to a different operating system or virtual machine (Lowell: Col. 3, lines 6-8 and lines 51-53) as cited in previous office actions.

In response to applicant's argument that there is no teaching, suggestion, or motivation to combine the references, the examiner recognizes that obviousness may be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988), *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992), and *KSR International Co. v. Teleflex, Inc.*, 550 U.S. 398, 82 USPQ2d 1385 (2007). In this case, the cited art teaches a virtual system management.

As explained, the reference cited and references made up of record teach a virtual system management, whereas the examiner interpreted the claims to its

broadest reason interpretation and has taken the language of the claims *As Written*, considering the invention as a whole. Also Applicant should consider the previously presented prior art from the updated search made of record and not relied upon, which is cited to establish the level of skill in the applicant's art and those arts considered reasonably pertinent to applicant's disclosure. See MPEP 707.05(c).

Conclusion

6. **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

When responding to this office action, Applicant is advised to clearly point out the patentable novelty which he or she thinks the claims present, in view of the state of the art disclosed by the references cited or the objections made. He or she must also show how the amendments avoid such references or objections See 37 CFR 1.111(c).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abdelnabi O. Musa whose telephone number is 571-

2701901. and email address is abdelnabi.musa@uspto.gov 'preferred'. The examiner can normally be reached on Monday thru Friday: 7:30am to 5:00pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Pwu can be reached on 571-2726798. 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.

/A. O. M./
Examiner, Art Unit 2478

/Jeffrey Pwu/
Supervisory Patent Examiner, Art Unit 2478

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11503090	PABARI, VIPUL
	Examiner	**Art Unit**
	Abdelnabi Musa	2478

✓	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	05/27/2008	12/31/2008	05/14/2009	12/08/2009	10/31/2010	07/15/2011			
	1	✓	✓	✓	✓	✓	✓			
	2	✓	✓	✓	✓	✓	✓			
	3	✓	✓	✓	✓	✓	✓			
	4	✓	✓	✓	✓	✓	✓			
	5	✓	✓	✓	✓	✓	✓			
	6	✓	✓	✓	✓	✓	✓			
	7	✓	✓	✓	✓	✓	✓			
	8	✓	✓	✓	✓	✓	✓			
	9	✓	✓	✓	✓	✓	✓			
	10	✓	✓	✓	✓	✓	✓			
	11	✓	✓	✓	✓	✓	✓			
	12	✓	✓	✓	✓	✓	✓			
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	14	✓	✓	✓	✓	✓	✓			
	15	✓	✓	✓	✓	✓	✓			
	16	✓	✓	✓	✓	✓	✓			
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	33		✓	✓	-	-	-			
	34		✓	✓	-	-	-			
	35		✓	✓	-	-	-			
	36				✓	✓	✓			

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11503090	PABARI, VIPUL
	Examiner	**Art Unit**
	Abdelnabi Musa	2478

✓	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	05/27/2008	12/31/2008	05/14/2009	12/08/2009	10/31/2010	07/15/2011			
	37				✓	✓	-			
	38				✓	✓	-			
	39				✓	✓	✓			
	40				✓	✓	✓			

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11503090	PABARI, VIPUL
	Examiner	**Art Unit**
	Abdelnabi Musa	2478

SEARCHED

Class	Subclass	Date	Examiner
709	223, 226	5/27/2008	DA
709	223,224,226	12/31/2008	DA
709	223	12/8/2009	DA
709	223, 226, 229	10/31/2010	AM
709	223, 226, 229	7/15/2011	AM

SEARCH NOTES

Search Notes	Date	Examiner
Text searched EAST databases	5/27/2008	DA
Updated EAST text search	12/31/2008	DA
limted class/sublcass search (709/201-202,223-224,226; 718/100-108)	12/31/2008	DA
Inventor name searched	12/31/2008	DA
Updated EAST text search	5/14/2009	DA
Updated Text search of East (USPat, USPG_Pub, JPO, EPO, Derwent, IBM_TDB) and Inventor search	12/8/2009	DA
Limited classification search 709/201,202,223,224,226 and 718/1,100-108	12/8/2009	DA
EAST (USPAT, US-PGPUB, EPO, JPO, DERWENT, IBM_TDB), see attached; NPL: IEEE; Inventor Search/DP	10/31/2010	AM
EAST (USPAT, US-PGPUB, EPO, JPO, DERWENT, IBM_TDB), see attached; NPL: IEEE; Inventor Search/DP	7/15/2011	AM

INTERFERENCE SEARCH

Class	Subclass	Date	Examiner

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	7	("20050138165" | "20050155033" | "20060294238" | "20070067435" | "20080086731" | "7463648" | "7512769").PN.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 11:51
S2	19897	709/223.ccls. or 709/226.ccls. or 709/229.ccls.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:10
S3	16	pabari.in.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:10
S4	0	(manage$4 virtual$6 environment inventory resource$4 prioritiz$4 physical host).clm.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:12
S5	1094	(manage$4 virtual$6 environment inventory resource$4 prioritiz$4 physical host)	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:12
S6	1	S3 S5	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:12
S7	1	(virtual$ mange$4).ti.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:13
S8	82	(manage$4 virtual$6 environment resource $4).ab.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:14
S9	13	S2 S8	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:14

S10	2	(manage$4 virtual$6 environment resource $4 physical host).ab.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:17
S11	17572	(manage$4 virtual$6 environment (resource $4 or asset$2) physical host allocat$4)	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:10
S12	19897	709/223.ccls. or 709/226.ccls. or 709/229.ccls.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:11
S13	1084	S11 S12	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:11
S14	468	S13 (load adj (shar$4 or balanc$4))	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:11
S15	82	(manage$4 virtual$6 environment resource $4).ab.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:13
S16	4	S14 S15	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:13
S17	143	((virtual adj machine) or VM) same new same physical same host	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:18
S18	2	S15 S17	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:19
S19	2	S17 S15	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:19
S20	84	S17 S11	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:21
S21	9	S20 S12	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:22

EAST Search History (Interference)

<This search history is empty>

7/15/2011 12:31:22 PM
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PTO/SB/31 (07-09)
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NOTICE OF APPEAL FROM THE EXAMINER TO THE BOARD OF PATENT APPEALS AND INTERFERENCES

Docket Number (Optional): 367894-000003

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"[37 CFR 1.8(a)]

on Via Electronic Filing / October 20, 2011

Signature /Timothy W. Lohse/

Typed or printed name Timothy W. Lohse

In re Application of: Vipul Pabari

Application Number	Filed
11/503,090	August 10, 2006

For VIRTUAL SYSTEMS MANAGEMENT

Art Unit	Examiner
2478	MUSA, ABDELNABI O.

Applicant hereby **appeals** to the Board of Patent Appeals and Interferences from the last decision of the examiner.

The fee for this Notice of Appeal is (37 CFR 41.20 (b)(1)) $_____

☒ Applicant claims small entity status. See 37 CFR 1.27. Therefore, the fee shown above is reduced by half, and the resulting fee is: $ 310.00

☐ A check in the amount of the fee is enclosed,

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Director has already been authorized to charge fees in this application to a Deposit Account.

☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. 07-1896.

☐ A petition for an extension of time under 37 CFR 1.136(a) (PTO/SB/22) is enclosed.

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I am the

☐ applicant/inventor.

☐ assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96)

☒ attorney or agent of record. Registration number 35,255

☐ attorney or agent acting under 37 CFR 1.34. Registration number if acting under 37 CFR 1.34. _____

/Timothy W. Lohse/
Signature

Timothy W. Lohse
Typed or printed name

October 20, 2011
Telephone number

_____
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☒ *Total of 1 forms are submitted.

This collection of information is required by 37 CFR 41.31. 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, 1.14 and 41.6. 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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Electronic Patent Application Fee Transmittal	
Application Number:	11503090
Filing Date:	10-Aug-2006
Title of Invention:	Virtual systems management
First Named Inventor/Applicant Name:	Vipul Pabari
Filer:	Timothy W. Lohse
Attorney Docket Number:	367894-000003
Filed as Small 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:				
Notice of appeal	2401	1	310	310
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
		Total in USD ($)		**310**

Electronic Acknowledgement Receipt	
EFS ID:	11234301
Application Number:	11503090
International Application Number:	
Confirmation Number:	9855
Title of Invention:	Virtual systems management
First Named Inventor/Applicant Name:	Vipul Pabari
Customer Number:	26379
Filer:	Timothy W. Lohse
Filer Authorized By:	
Attorney Docket Number:	367894-000003
Receipt Date:	20-OCT-2011
Filing Date:	10-AUG-2006
Time Stamp:	19:32:34
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$310
RAM confirmation Number	5537
Deposit Account	071896
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	Notice of Appeal Filed	367894-000003_Notice_of_Appeal.pdf	111119 b79bd0194e0f1d91d9de2b3d09bebd3c875b475e	no	1
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	29672 d21a12c87305ccd631ae5d2d494ffb5f60409c62	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	140791		

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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/30 (07-09)
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Request for Continued Examination (RCE) Transmittal

Address to:
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P.O. Box 1450
Alexandria, VA 22313-1450

Application Number	11/503,090
Filing Date	August 10, 2006
First Named Inventor	Vipul Pabari
Art Unit	2478
Examiner Name	Abdelnabi Musa
Attorney Docket Number	367894-000003

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. See Instruction Sheet for RCEs (not to be submitted to the USPTO) on page 2.

1. 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).

   a. ☐ 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.

      i. ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

      ii. ☐ Other _____

   b. ☒ Enclosed

      i. ☒ Amendment/Reply

      ii. ☐ Affidavit(s)/ Declaration(s)

      iii. ☐ Information Disclosure Statement (IDS)

      iv. ☐ Other _____

2. Miscellaneous

   Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a

   a. ☐ period of _____ months. (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

   b. ☐ Other _____

3. 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 the following fees any underpayment of fees or credit any overpayments to

   a. ☒ Deposit Account No. 07-1896 .

      i. ☒ RCE fee required under 37 CFR 1.17(e)

      ii ☒ Extension of time fee (37 CFR 1.136 and 1.17)

      iii ☐ Other _____

   b. ☐ Check in the amount of $ _____ enclosed

   c. ☐ Payment by credit card (Form PTO-2038 enclosed)

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SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

Signature	/Timothy W. Lohse/	Date	February 27, 2012
Name (Print/Type)	Timothy W. Lohse	Registration No.	35255

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Signature	/Timothy W. Lohse/		
Name (Print/Type)	Timothy W. Lohse	Date	February 27, 2012

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. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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February 27, 2012

/Timothy W. Lohse/
Timothy W. Lohse

Appl. No.	: 11/503,090	Confirmation No.	9855
Applicant	: Vipul Pabari		
Filed	: August 10, 2006		
TC/A.U.	: 2478		
Examiner	: Abdelnabi Musa		
Docket No.	: 367894-000003		
Customer No.	: 26379		

Title: VIRTUAL SYSTEMS MANAGEMENT

RESPONSE TO FINAL OFFICE ACTION

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

Sir:

In response to the office action, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 9 of this paper.

1. Listing of the claims:

1. (Currently Amended) A method for automatic management of a virtualization environment in a computer network, the method comprising:

determining an inventory of network resources and virtual assets available to the virtualization environment of the computer network;

assigning prioritization to members of the available inventory for the virtualization environment;

provisioning virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment, wherein the virtual assets comprise at least one virtual machines operating on a single physical host, and wherein the at least one virtual machine comprises virtual hardware assets, and wherein the provisioning virtual assets from among the available inventory comprises creating a new virtual machine on the single physical host;

determining real time performance metrics for the provisioned virtualization environment;

producing a reallocation of the virtual assets automatically in response to the real time performance metrics; and

initiating the reallocation of the virtual assets;

receiving user input that is a Knowledge Block that determines one or more of the reallocation parameters to be considered with the real time performance metrics in producing the reallocation of assets; and

wherein the Knowledge Block specifies parameters that identify a last known acceptable virtual machine image that includes one or more applications from the set of available inventory.

2. Cancelled.

3. Cancelled.

4. (Original) The method of claim 2, wherein the received user input specifies parameters that detect operational degradation of a member of the available inventory.

5. (Original) The method of claim 4, wherein the available inventory member that is detected as degraded is removed from the available inventory.

6. (Original) The method of claim 4, wherein the available inventory that is detected as degraded is moved from the available inventory to a debug inventory pool.

7. (Original) The method of claim 4, wherein log files are retrieved from the available inventory that is detected as degraded.

8. (Original) The method of claim 7, wherein the log files are stored in an archive and an alert message is sent to a network administrator with an identification of the log file archive location.

9. (Original) The method of claim 4, wherein the available inventory that is detected as degraded is halted and is removed from the available inventory to a debug inventory pool.

10. (Original) The method of claim 9, wherein the halted available inventory is removed from the debug inventory pool.

11. (Previously Presented) The method of claim 3, wherein the Knowledge Block specifies parameters that send an alert message to an administrator of the network in response to an alert condition.

12. (Original) The method of claim 3, wherein the Knowledge Block specifies parameters that receive an instruction from an administrator of the network in response to an alert condition.

13. Cancelled.

14. (Original) The method of claim 3, wherein the Knowledge Block specifies parameters that deploy an instance of an application selected from among the available inventory.

15. (Original) The method of claim 2, wherein the received user input specifies a priority for one or more of the available inventory.

16. (Original) The method of claim 2, wherein the user input specifies a time period during which the reallocation will be applied.

17. (Original) The method of claim 1, further comprising: providing a user interface through which user input can be received and wherein the user input adjusts scheduling of producing the reallocation.

18. (Original) The method of claim 1, wherein producing a reallocation comprises adding a new application instance to the available inventory.

19. (Original) The method of claim 1, wherein producing a reallocation comprises updating the available inventory to include any changes made by the reallocation.

20. (Original) The method of claim 1, wherein the inventory of available inventory includes one or more application programs.

21. (Original) The method of claim 20, wherein one of the application programs comprises a network load balancer.

22. (Original) The method of claim 20, wherein one of the application programs comprises a network server.

23. (Original) The method of claim 1, wherein: determining, by an Asset Manager Component, an inventory of available network resources and virtual assets; assigning prioritization to the available inventory and provisioning virtual assets from among the available inventory, performed by a Provisioning Manager component; determining, by a Performance Manager component, a real time performance metrics; and automatically producing and initializing, by an Optimizer component, a reallocation of the virtual assets.

24. (Original) The method of claim 23, wherein automatically producing a reallocation of the virtual assets comprises forecasting future system needs, which is performed by a Capacity Planning Manager component.

25. (Currently Amended) A method for automatic management of a virtualization environment in a computer network, the method comprising:

performing one or more functions from the group of functions consisting of

(1) identification and management of network resources and virtual assets,

(2) provisioning of virtual assets in response to network workflow demands,

(3) dynamic deployment of virtual assets across the computer network,

(4) performance measurement and reporting of resources and virtual assets, and

(5) planning and forecasting of resource demands and virtual asset utilization of the virtualization environment;

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment and, wherein the virtual assets comprise at least one virtual machines operating on a single physical host, and wherein the at least one virtual machine comprises virtual hardware assets;

wherein provisioning virtual assets from among the available inventory further comprises creating a new virtual machine on the single physical host; and

receiving user input that is a Knowledge Block that determines one or more of the reallocation parameters to be considered with the real time performance metrics in producing the reallocation of assets, wherein the Knowledge Block specifies parameters that identify a last known acceptable virtual machine image that includes one or more applications from the set of available inventory.

26. Cancelled.

27. (Currently Amended) An apparatus that performs automatic management of a virtualization environment in a computer network comprising:

a network communications unit that enables communications between the apparatus and the computer network;

an operating system of the apparatus that supports a virtualization environment in communication with the apparatus; and

a Virtual Mapping layer that determines an inventory of network resources and virtual assets available to the virtualization environment, wherein the Virtual Mapping layer determines the inventory without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment, wherein the virtual assets comprise at least one virtual machine operating on a single physical host, and wherein the at least one virtual machine comprises virtual hardware assets; and

a provisioning component that creates a new virtual machine on the single physical host, the provisioning component receives user input that is a Knowledge Block that determines one or more of the reallocation parameters to be considered with the real time performance metrics that identify a last known acceptable virtual machine image that includes one or more applications from the set of available inventory.

28. (Previously Presented) The apparatus of claim 27, further comprising one or more components that receive the inventory of available resources and assets from the Virtual Mapping layer and perform one or more functions from the group of functions consisting of:

identification and management of network resources and virtual assets,

dynamic deployment of virtual assets across the computer network,

performance measurement and reporting of resources and virtual assets, and

planning and forecasting of resource demands and asset utilization of the virtualization environment;

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment.

29. (Original) The apparatus of claim 27, further comprising a component selected from a group consisting of: an Asset Manager component that determines an inventory of available network resources and virtual assets;

a Provisioning Manager component that assigns a prioritization to the available inventory and provisions virtual assets from among the available inventory;

a Performance Manager component that determines real time performance metrics; and

an Optimizer component that automatically produces a reallocation of the virtual assets and initiates the reallocation.

30. (Previously Presented) The method of claim 1 wherein the virtual assets further comprise a second virtual machine which comprises virtual assets, and the at least one virtual machine and the second virtual machine each run their own respective operating systems which are a different type of operating system from each other.

31. -35. Canceled

36. (Previously Presented) The method of claim 1 wherein provisioning virtual assets from among the available inventory further comprises routing an application running on a first virtual machine to run on a second virtual machine.

37. Cancelled.

38. Cancelled.

39. (Previously Presented) The method of claim 25 wherein provisioning virtual assets from among the available inventory further comprises creating a new virtual machine on the single physical host.

40. (Previously Presented) The method of claim 1 wherein provisioning virtual assets from among the available inventory further comprises communicating provisioning instructions

from a control agent comprising at least one virtualization platform adapter to a virtualization layer in the single physical host.

REMARKS

Applicant thanks the examiner for the courtesy of the telephone interview with Applicant's undersigned Attorney and the patent application.

This response is being filed with an RCE in lieu of an appeal brief and we understand that the amended claims distinguish over the cited prior art.

PRIOR ART REJECTIONS

In response to the rejection of claims 1-6 and 9-30 and 36-40 under 35 U.S.C. 103 as being unpatentable over US Patent Application 2008/0086731 to Trossman et al. ("Trossman") in view of U.S. Patent 7,512,769 to Lowell et al. ("Lowell") and further in view of US Patent No. 7,577,722 to Khandekar et al. ("Khandekar") and the rejection of claims 7-8 under 35 U.S.C. 103 as being obvious under Trossman, Lowell, Khandekar and further in view of the alleged admitted prior art, Applicant respectfully traverses the rejections since the combination of prior art cited by the examiner does not disclose or suggest each claim element of the amended claims as agreed during the telephone interview.

CONCLUSION

In view of the above, it is respectfully submitted that the claims are allowable over the prior art cited by the Examiner and early allowance of these claims and the application is respectfully requested.

The Examiner is invited to call Applicant's attorney at the number below in order to speed the prosecution of this application.

The Commissioner is authorized to charge any deficiencies in fees and credit any overpayment of fees to Deposit Account No. 07-1896.

Respectfully submitted,

DLA PIPER US LLP

Dated: February 27, 2012

By /Timothy W. Lohse/
Timothy W. Lohse
Reg. No. 35,255
Attorney for Applicant

DLA PIPER US LLP
2000 University Avenue
East Palo Alto, CA 94303
Telephone: (650) 833-2055

Electronic Patent Application Fee Transmittal

Application Number:	11503090
Filing Date:	10-Aug-2006
Title of Invention:	Virtual systems management
First Named Inventor/Applicant Name:	Vipul Pabari
Filer:	Timothy W. Lohse
Attorney Docket Number:	367894-000003

Filed as Small 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 - 3 months with $0 paid	2253	1	635	635

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Request for continued examination	2801	1	465	465
		Total in USD ($)		**1100**

Electronic Acknowledgement Receipt	
EFS ID:	12160611
Application Number:	11503090
International Application Number:	
Confirmation Number:	9855
Title of Invention:	Virtual systems management
First Named Inventor/Applicant Name:	Vipul Pabari
Customer Number:	26379
Filer:	Timothy W. Lohse
Filer Authorized By:	
Attorney Docket Number:	367894-000003
Receipt Date:	27-FEB-2012
Filing Date:	10-AUG-2006
Time Stamp:	15:15:58
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$1100
RAM confirmation Number	1922
Deposit Account	071896
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	Request for Continued Examination (RCE)	367894-000003_RCE.pdf	125066 3de29200f5a8844220a9493e0e91066c8398cadd	no	1
Warnings:					
This is not a USPTO supplied RCE SB30 form.					
Information:					
2		367894-000003_Response_to_FOA.pdf	97210 ecd1cd2a6a71fc304e48fd6cc9a3e07c589be1a2	yes	9

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment After Final	1	1
	Claims	2	8
	Applicant Arguments/Remarks Made in an Amendment	9	9

Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	31690 c1a7fc96dc70d49eae769cac91a5cd9c858a408a	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	253966		

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	Filing Date	☐ To be Mailed
11/503,090	08/10/2006	

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	02/27/2012	(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))	* 29	Minus	** 35	= 0	X $30 =	0	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 3	Minus	***4	= 0	X $125 =	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 ($)	ADDITIONAL FEE ($)	OR	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:
/FRANCES FIELDS/

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.

PTOL-413A (08-03)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Applicant Initiated Interview Request Form

Application No.: 11 / 503,090 First Named Applicant: Parabi
Examiner: Musa Art Unit: 2478 Status of Application: Pending

Tentative Participants:
(1) Examiner Musa (2) Jess Marinez, CEO of Assignee
(3) Vipul Parabi - inventor (4) Tim Lohse, reg 35,255

Proposed Date of Interview: 2/22/2012 **Proposed Time:** 12 Noon **(AM/PM)**

Type of Interview Requested:
(1) [X] Telephonic (2) [ ] Personal (3) [ ] Video Conference

Exhibit To Be Shown or Demonstrated: [ ] YES [X] NO
If yes, provide brief description:

Issues To Be Discussed

Issues (Rej., Obj., etc)	Claims/ Fig. #s	Prior Art	Discussed	Agreed	Not Agreed
(1) Rejection	All	Trossman, Lowell and Khandwhar	[ ]	[ ]	[ ]
(2)			[ ]	[ ]	[ ]
(3)			[ ]	[ ]	[ ]
(4)			[ ]	[ ]	[ ]

[ ] Continuation Sheet Attached

Brief Description of Arguments to be Presented:

The combination of prior art does not disclose or suggest the claims as amended to incorporate claims 3 and 13 into the independent claims.

An interview was conducted on the above-identified application on _____.

NOTE:
This form should be completed by applicant and submitted to the examiner in advance of the interview (see MPEP § 713.01).
This application will not be delayed from issue because of applicant's failure to submit a written record of this interview. Therefore, applicant is advised to file a statement of the substance of this interview (37 CFR 1.133(b)) as soon as possible.

(Applicant/Applicant's Representative Signature) (Examiner/SPE Signature)

This collection of information is required by 37 CFR 1.133. 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 21 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.

Appl. No.	: 11/503,090	Confirmation No.	9855
Applicant	: Vipul Pabari		
Filed	: August 10, 2006		
TC/A.U.	: 2478		
Examiner	: Abdelnabi Musa		
Docket No.	: 367894-000003		
Customer No.	: 26379		

Title: VIRTUAL SYSTEMS MANAGEMENT

PROPOSED AMENDED CLAIMS

1. (Currently Amended) A method for automatic management of a virtualization environment in a computer network, the method comprising:

determining an inventory of network resources and virtual assets available to the virtualization environment of the computer network;

assigning prioritization to members of the available inventory for the virtualization environment;

provisioning virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment, wherein the virtual assets comprise at least one virtual machines operating on a single physical host, and wherein the at least one virtual machine comprises virtual hardware assets~~, and wherein the provisioning virtual assets from among the available inventory comprises creating a new virtual machine on the single physical host~~;

determining real time performance metrics for the provisioned virtualization environment;

producing a reallocation of the virtual assets automatically in response to the real time performance metrics; ~~and~~

initiating the reallocation of the virtual assets;

receiving input that is a Knowledge Block that determines one or more of the reallocation parameters to be considered in producing the reallocation of assets; and

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wherein the Knowledge Block specifies parameters that identify a last known acceptable virtual machine image that includes one or more applications from the set of available inventory.

2. Cancelled.

3. Cancelled.

4. (Currently Amended) The method of claim 1 ~~2~~, wherein the received user input specifies parameters that detect operational degradation of a member of the available inventory.

5. (Original) The method of claim 4, wherein the available inventory member that is detected as degraded is removed from the available inventory.

6. (Original) The method of claim 4, wherein the available inventory that is detected as degraded is moved from the available inventory to a debug inventory pool.

7. (Original) The method of claim 4, wherein log files are retrieved from the available inventory that is detected as degraded.

8. (Original) The method of claim 7, wherein the log files are stored in an archive and an alert message is sent to a network administrator with an identification of the log file archive location.

9. (Original) The method of claim 4, wherein the available inventory that is detected as degraded is halted and is removed from the available inventory to a debug inventory pool.

10. (Original) The method of claim 9, wherein the halted available inventory is removed from the debug inventory pool.

11. (Currently Amended) The method of claim 1 ~~3~~, wherein the Knowledge Block specifies parameters that send an alert message to an administrator of the network in response to an alert condition.

DRAFT

12. (Currently Amended) The method of claim 1 ~~3~~, wherein the Knowledge Block specifies parameters that receive an instruction from an administrator of the network in response to an alert condition.

13. Cancelled.

14. (Currently Amended) The method of claim 1 ~~3~~, wherein the Knowledge Block specifies parameters that deploy an instance of an application selected from among the available inventory.

15. (Currently Amended) The method of claim 1 ~~2~~, wherein the received user input specifies a priority for one or more of the available inventory.

16. (Currently Amended) The method of claim 1 ~~2~~, wherein the user input specifies a time period during which the reallocation will be applied.

17. (Original) The method of claim 1, further comprising: providing a user interface through which user input can be received and wherein the user input adjusts scheduling of producing the reallocation.

18. (Original) The method of claim 1, wherein producing a reallocation comprises adding a new application instance to the available inventory.

19. (Original) The method of claim 1, wherein producing a reallocation comprises updating the available inventory to include any changes made by the reallocation.

20. (Original) The method of claim 1, wherein the inventory of available inventory includes one or more application programs.

21. (Original) The method of claim 20, wherein one of the application programs comprises a network load balancer.

22. (Original) The method of claim 20, wherein one of the application programs comprises a network server.

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23. (Original) The method of claim 1, wherein: determining, by an Asset Manager Component, an inventory of available network resources and virtual assets; assigning prioritization to the available inventory and provisioning virtual assets from among the available inventory, performed by a Provisioning Manager component; determining, by a Performance Manager component, a real time performance metrics; and automatically producing and initializing, by an Optimizer component, a reallocation of the virtual assets.

24. (Original) The method of claim 23, wherein automatically producing a reallocation of the virtual assets comprises forecasting future system needs, which is performed by a Capacity Planning Manager component.

25. (Currently Amended) A method for automatic management of a virtualization environment in a computer network, the method comprising:

performing one or more functions from the group of functions consisting of

(1) identification and management of network resources and virtual assets,

(2) provisioning of virtual assets in response to network workflow demands,

(3) dynamic deployment of virtual assets across the computer network,

(4) performance measurement and reporting of resources and virtual assets, and

(5) planning and forecasting of resource demands and virtual asset utilization of the virtualization environment;

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment and~~, wherein the virtual assets comprise at least one virtual machines operating on a single physical host, and wherein the at least one virtual machine comprises virtual hardware assets~~;

wherein provisioning virtual assets from among the available inventory further comprises creating a new virtual machine on the single physical host; and

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receiving input that is a Knowledge Block that determines one or more of the reallocation parameters to be considered in producing the reallocation of assets, wherein the Knowledge Block specifies parameters that identify a last known acceptable virtual machine image that includes one or more applications from the set of available inventory.

26. (Currently Amended) A method of managing a virtualization environment in a computer network, the method comprising:

providing a virtualization environment at a computer in communication with the computer network;

determining an inventory of network resources and virtual assets available to the virtualization environment;

performing at least one function from among the group of functions consisting of

(1) identification and management of network resources and virtual assets,

(2) provisioning of virtual assets in response to network workflow demands,

(3) dynamic deployment of virtual assets across the computer network,

(4) performance measurement and reporting of resources and virtual assets, and

(5) planning and forecasting of resource demands and virtual asset utilization of the virtualization environment,

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment, and wherein the virtual assets comprise at least one virtual machine operating on a single physical host, and wherein the at least one virtual machine comprises virtual hardware assets~~, and wherein provisioning virtual assets from among the available inventory further comprises creating a new virtual machine on the single physical host~~ ; and

receiving input that is a Knowledge Block that determines one or more of the reallocation parameters to be considered in producing the reallocation of assets, wherein the Knowledge Block specifies parameters that identify a last known acceptable virtual machine image that includes one or more applications from the set of available inventory

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27. (Currently Amended) An apparatus that performs automatic management of a virtualization environment in a computer network comprising:

a network communications unit that enables communications between the apparatus and the computer network;

an operating system of the apparatus that supports a virtualization environment in communication with the apparatus; and

a Virtual Mapping layer that determines an inventory of network resources and virtual assets available to the virtualization environment, wherein the Virtual Mapping layer determines the inventory without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment, wherein the virtual assets comprise at least one virtual machine operating on a single physical host, and wherein the at least one virtual machine comprises virtual hardware assets; and

a provisioning component that ~~creates a new virtual machine on the single physical host~~ receives input that is a Knowledge Block that determines one or more of the reallocation parameters that identify a last known acceptable virtual machine image that includes one or more applications from the set of available inventory.

28. (Previously Presented) The apparatus of claim 27, further comprising one or more components that receive the inventory of available resources and assets from the Virtual Mapping layer and perform one or more functions from the group of functions consisting of:

identification and management of network resources and virtual assets,

dynamic deployment of virtual assets across the computer network,

performance measurement and reporting of resources and virtual assets, and

planning and forecasting of resource demands and asset utilization of the virtualization environment;

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wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment.

29. (Original) The apparatus of claim 27, further comprising a component selected from a group consisting of: an Asset Manager component that determines an inventory of available network resources and virtual assets;

a Provisioning Manager component that assigns a prioritization to the available inventory and provisions virtual assets from among the available inventory;

a Performance Manager component that determines real time performance metrics; and

an Optimizer component that automatically produces a reallocation of the virtual assets and initiates the reallocation.

30. (Previously Presented) The method of claim 1 wherein the virtual assets further comprise a second virtual machine which comprises virtual assets, and the at least one virtual machine and the second virtual machine each run their own respective operating systems which are a different type of operating system from each other.

31.-35. Canceled

36. (Previously Presented) The method of claim 1 wherein provisioning virtual assets from among the available inventory further comprises routing an application running on a first virtual machine to run on a second virtual machine.

37. Cancelled.

38. Cancelled.

39. (Previously Presented) The method of claim 25 wherein provisioning virtual assets from among the available inventory further comprises creating a new virtual machine on the single physical host.

DRAFT

40. (Previously Presented) The method of claim 1 wherein provisioning virtual assets from among the available inventory further comprises communicating provisioning instructions from a control agent comprising at least one virtualization platform adapter to a virtualization layer in the single physical host.

DRAFT

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/503,090	08/10/2006	Vipul Pabari	367894-000003	9855

26379 7590 03/01/2012

DLA PIPER LLP (US)
2000 UNIVERSITY AVENUE
EAST PALO ALTO, CA 94303-2248

EXAMINER	
MUSA, ABDELNABI O	
ART UNIT	PAPER NUMBER
2478	

NOTIFICATION DATE	DELIVERY MODE
03/01/2012	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):

PatentDocketingUS-PaloAlto@dlapiper.com

Applicant-Initiated Interview Summary	**Application No.**	**Applicant(s)**	
	11/503,090	PABARI, VIPUL	
	Examiner	**Art Unit**	
	ABDELNABI MUSA	2478	

All participants (applicant, applicant's representative, PTO personnel):

(1) *ABDELNABI MUSA*.

(2) *Vipul Parabi*.

(3) *Tim Lohse (Reg#35,255)*.

(4) *Jess Marinez*.

Date of Interview: *24 February 2012*.

Type: ☒ Telephonic ☐ Video Conference
☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☒ No.
If Yes, brief description: _____.

Issues Discussed ☐101 ☐112 ☐102 ☒103 ☒Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: *1-40*.

Identification of prior art discussed: *(US 2008/0086731) (US 7,512,769) (US 7,577,722 B1)*.

Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

Applicant provided proposed amendments to the claims, and explained the invention related to the claims whereas a brief discussion was made regarding the references in view of the proposed amendments. applicant explained that the combination of the prior art does not teach the claims as amended. Examiner agreed that the amendment made to the claims is not taught in the art and explained that further search and/or consideration will be required upon receiving the amendment.

Applicant recordation instructions: The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☐ Attachment

/Abdelnabi O Musa/ Examiner, Art Unit 2478	

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record
A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews
Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.
All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

———

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:
- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:
1) A brief description of the nature of any exhibit shown or any demonstration conducted,
2) an identification of the claims discussed,
3) an identification of the specific prior art discussed,
4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
5) a brief identification of the general thrust of the principal arguments presented to the examiner,
   (The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
6) a general indication of any other pertinent matters discussed, and
7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/503,090	08/10/2006	Vipul Pabari	367894-000003	9855

26379 7590 09/12/2012

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EXAMINER	
MUSA, ABDELNABI O	
ART UNIT	PAPER NUMBER
2478	

NOTIFICATION DATE	DELIVERY MODE
09/12/2012	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):

PatentDocketingUS-PaloAlto@dlapiper.com

Office Action Summary	Application No.	Applicant(s)	
	11/503,090	PABARI, VIPUL	
	Examiner	Art Unit	
	ABDELNABI MUSA	2478	

-- 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 *27 February 2012*.

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

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ 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

5)☒ Claim(s) *1,4-12,14-30,36,39 and 40* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1,4-12,14-30,36,39 and 40* is/are rejected.

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

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

Application Papers

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

11)☒ The drawing(s) filed on *10 August 2006* 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).

12)☐ 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

13)☐ 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: _____.

DETAILED ACTION

1. Acknowledgment is made for the applicant's response and amendment filed on 02/27/2012.

Continued Examination Under 37 CFR 1.114

2. 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 02/27/2012 has been entered.

Remarks

3. The claims are presented as follows:

- Claims 1, 4,11-12,14-16,25-27 amended.
- Claims 2-3, 13, 31-35, 37-38 canceled.
- Claims 1, 4-12, 14-30, 36, 39-40 pending.

Claim Objections

4. Claims 4-10,15,16,11,12,14 objected to under 37 CFR 1.75(c) as being depending on a canceled claim. See MPEP § 608.01(n). Accordingly, the claims been further treated on the merits for compact prosecution.

Response to Amendment

5. Applicant's arguments filed 02/27/2012 have been fully considered but they are not persuasive. The amendment submitted by the applicant does not overcome the

rejection made by the examiner in the last office action. Applicant's argument has been considered carefully and does not provide the evidence for lack of motivation.

Trossman teaches a dynamic configuration and allocation of resources in a data center (see abstract) as illustrated in FIG.1, a user interface 40 is in communication with the data storage 20 to allow user access to and manipulation of the information contained therein based on the user input information. The user interface 40 is also in communication with the data acquisition mechanism 14, the deployment mechanism 22, the state determination mechanism 16 and the resource change mechanism 18. The user interface 40 provides a view of the state of all physical and logical resources in the resource system 12. In this manner a user can access information about the resources and their allocation as well as allow for user generated configurations and allocations. The user interface 40 may also be used to create application environments ([0033] FIG.1) The data storage 20 stores information on the resources in the resource system 12 such as a resource identifier and current configuration information as well as performance and demand information [0029] [0040] The resource requirements determination mechanism takes real environment performance information indicating the resources used, level of demand and the performance of the application environment under these conditions [0042] [0072]

Lowell discloses at least one virtual machines operating on a single physical host (Lowell: Col. 2, lines 37-58), and wherein the at least one virtual machine comprises virtual hardware assets (Lowell: Col. 2, line 59- Col. 3, lines 5)

Therefore, the combination of the cited art teaches receiving user input that determines one or more of the reallocation parameters with real time performance in producing the reallocation of resources; wherein the user input specifies parameters that identify a virtual machine from the set of available inventory

Claim Rejections - 35 USC § 103

6. 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 1,4-6, 9-12, 14-25, 27-30, 36, 39-40 rejected under 35 U.S.C. 103(a) as being unpatentable over Trossman et al. (US 2008/0086731) in view of Lowell et al. (US 7,512,769) further in view of Khandekar et al. Patent No. (US 7,577,722 B1)

Regarding **claim 1**, Trossman teaches a method for automatic management of a virtualization environment in a computer network, the method comprising:

determining an inventory of network resources and virtual assets available to the virtualization environment of the computer network (Trossman: “The data storage 20 contains information on the groupings and poolings of resources in the resource system 12 for management purposes.” [0042], [0034-0036]);

assigning prioritization to members of the available inventory for the virtualization environment (Trossman: “Each of these group information sets may contains an identification of each resource in the group, the size of the group, the number of active

and idle resources in the group and the priority of the group and the pool to which the group belongs." [0042], [0023]);

provisioning virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment (Trossman: "Given the differing resource requirements for each application environment using and requiring resources in the resource system 12, the resource change mechanism 18 decides where the resources will be allocated." [0031]);

determining real time performance metrics for the provisioned virtualization environment (Trossman: [0021-0024]);

producing a reallocation of the virtual assets automatically in response to the real time performance metrics (Trossman: [0021-0024], [0034-0036]); and

initiating the reallocation of the virtual assets (Trossman: [0021-0024], [0034-0036]).

receiving user input that is a Knowledge Block that determines one or more of the reallocation parameters to be considered with the real time performance metrics in producing the reallocation of assets ([0033] 702-FIG.8A); and

wherein the Knowledge Block specifies parameters ([0033] [0072]) that identify a last known acceptable virtual machine image that includes one or more applications from the set of available inventory

Trossman does not explicitly teach wherein the virtual assets comprise at least one virtual machines operating on a single physical host and wherein the at least one virtual machine comprises virtual hardware assets that identify a last known acceptable

virtual machine image that includes one or more applications from the set of available inventory.

However Lowell discloses at least one virtual machines operating on a single physical host (Lowell: Col. 2, lines 37-58), and wherein the at least one virtual machine comprises virtual hardware assets (Lowell: Col. 2, line 59- Col. 3, lines 5) in order to efficiently make use of computer resources by encapsulating and isolating a guest operating systems from the underlying system hardware resources of host in order to allow the use of multiple guest OS (Lowell: Col. 1, line 5- Col. 2, lines 66).

It would have been obvious to one of ordinary skill in the at the time of the invention to create the resource management system of Trossman to include the use of virtual machines and virtual hardware assets as taught by Lowell in order to allow multiple guest computer operating systems to function like normal and unaware of the other operating systems executing on the single physical host computer system (Lowell: Col. 1, line 5- Col. 2, lines 66).

The modified Trossman does not explicitly teach wherein the provisioning virtual asset from among the available inventory comprises creating a new virtual machine on the single physical host.

However, Khandekar teaches a provisioning server automatically creates, configures and deploys physical hosts or physical systems to an application of virtual Machine technology (see Abstract, 940-FIG.3) presenting to the user an optional dialog where he can query the details of the model VM, such as its OS, applications, etc.) When the user makes the selections, he submits the request to the provisioning engine,

which creates a new Virtual Machine on the same physical host or the requested computer system (col.15, line 29-col.16, line 30; FIG.3) in order to efficiently satisfy the user's request by either provisioning a new virtual machine or by creating a replica in the physical machine (col.1, line 52-63)

It would have been obvious to one of ordinary skill in the at the time of the invention to have modified the modified Trossman by Khandekar to create a new virtual machine on the same physical host by the provisioning manager to efficiently satisfy the user's request by either provisioning a new virtual machine or by creating a replica in the physical machine.

Regarding **claim 4**, the modified Trossman reference teaches the method of claim 2 as described above. Trossman further discloses wherein the received user input specifies parameters that detect operational degradation of a member of the available inventory (Trossman:[0033],[0056-0057]).

Regarding **claim 5**, the modified Trossman reference teaches the method of claim 4 as described above. Trossman further discloses wherein the available inventory member that is detected as degraded is removed from the available inventory (Trossman: [0119]).

Regarding **claim 6**, the modified Trossman reference teaches the method of claim 4 as described above. Trossman further discloses wherein the available inventory that is detected as degraded is moved from the available inventory to a debug inventory pool (Trossman[0119-0120]).

Regarding **claim 9**, the modified Trossman reference teaches the method of claim 4 as described above. Trossman further discloses wherein the available inventory that is detected as degraded is halted and is removed from the available inventory to a debug inventory pool (Trossman: [0119-0120]).

Regarding **claim 10**, the modified Trossman reference teaches the method of claim 9 as described above. Trossman further discloses wherein the halted available inventory is removed from the debug inventory pool (Trossman: [0119-0120]).

Regarding **claim 11**, the modified Trossman reference teaches the method of claim 3 as described above. Trossman further discloses wherein the Knowledge Block specifies parameters that send an alert message to an administrator of the network in response to an alert condition (Trossman: [0033], [0040], [0119-0120]).

Regarding **claim 12**, the modified Trossman reference teaches the method of claim 3 as described above. Trossman further discloses wherein the Knowledge Block specifies parameters that receive an instruction from an administrator of the network in response to an alert condition (Trossman: [0033], [0040], [0119-0120]).

Regarding **claim 14**, the modified Trossman reference teaches the method of claim 3 as described above. Trossman further discloses wherein the Knowledge Block specifies parameters that deploy an instance of an application selected from among the available inventory (Trossman: [0033]).

Regarding **claim 15**, the modified Trossman reference teaches the method of claim 2 as described above. Trossman further discloses wherein the received user input specifies a priority for one or more of the available inventory (Trossman: [0033]).

Regarding **claim 16**, the modified Trossman reference teaches the method of claim 2 as described above. Trossman further discloses wherein the user input specifies a time period during which the reallocation will be applied (Trossman: [0030]-0033).

Regarding **claim 17**, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further teaches providing a user interface through which user input can be received and wherein the user input adjusts scheduling of producing the reallocation (Trossman: [0033]).

Regarding **claim 18**, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further teaches wherein producing a reallocation comprises adding a new application instance to the available inventory (Trossman: [0119]).

Regarding **claim 19**, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further teaches wherein producing a reallocation comprises updating the available inventory to include any changes made by the reallocation (Trossman: [0104], [0118-0119]).

Regarding **claim 20**, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further discloses wherein the inventory of available inventory includes one or more application programs (Trossman: [0119]).

Regarding **claim 21**, the modified Trossman reference teaches the method of claim 20 as described above. Trossman further discloses wherein one of the application programs comprises a network load balancer (Trossman: [0024]).

Regarding **claim 22**, the modified Trossman reference teaches method of claim 20 as described above. Trossman further discloses wherein one of the application programs comprises a network server (Trossman: [0022]).

Regarding **claim 23**, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further discloses wherein: determining, by an Asset Manager Component, an inventory of available network resources and virtual assets (Trossman: [0022-0023]);

assigning prioritization to the available inventory and provisioning virtual assets from among the available inventory, performed by a Provisioning Manager component (Trossman: [0042], [0023]);

determining, by a Performance Manager component, a real time performance metrics (Trossman: [0022-0023]); and

automatically producing and initializing, by an Optimizer component, a reallocation of the virtual assets (Trossman: [0022-0023]).

Regarding **claim 24**, the modified Trossman reference teaches the method of claim 23 as described above. Trossman further discloses wherein automatically producing a reallocation of the virtual assets comprises forecasting future system needs, which is performed by a Capacity Planning Manager component (Trossman: [0022-0023]).

Regarding **claim 25**, Trossman discloses a method for automatic management of a virtualization environment in a computer network, the method comprising:

performing one or more functions from the group of functions consisting of (1) identification and management of network resources and virtual assets, (2) provisioning of virtual assets in response to network workflow demands, (3) dynamic deployment of virtual assets across the computer network, (4) performance measurement and reporting of resources and virtual assets, and (5) planning and forecasting of resource demands and virtual asset utilization of the virtualization environment (Trossman: [0022-0023],[0031-0036],[0042]);

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment (Trossman: [0031-0036]).

receiving user input that is a Knowledge Block that determines one or more of the reallocation parameters to be considered with the real time performance metrics in producing the reallocation of assets [0033] [0072]); wherein the Knowledge Block specifies parameters that identify a last known acceptable virtual machine image that includes one or more applications from the set of available inventory.

Trossman does not explicitly teach wherein the virtual assets comprise at least one virtual machines operating on a single physical host and wherein the at least one virtual machine comprises virtual hardware assets that identify a last known acceptable virtual machine image that includes one or more applications from the set of available inventory.

However Lowell discloses at least one virtual machines operating on a single physical host (Lowell: Col. 2, lines 37-58), and wherein the at least one virtual machine

comprises virtual hardware assets (Lowell: Col. 2, line 59- Col. 3, lines 5) in order to efficiently make use of computer resources by encapsulating and isolating a guest operating systems from the underlying system hardware resources of host in order to allow the use of multiple guest OS (Lowell: Col. 1, line 5- Col. 2, lines 66).

It would have been obvious to one of ordinary skill in the at the time of the invention to create the resource management system of Trossman to include the use of virtual machines and virtual hardware assets as taught by Lowell in order to allow multiple guest computer operating systems to function like normal and unaware of the other operating systems executing on the single physical host computer system (Lowell: Col. 1, line 5- Col. 2, lines 66).

The modified Trossman does not explicitly teach wherein provisioning virtual assets from among the available inventory further comprises creating a new virtual machine on the single physical host.

However, Khandekar teaches a provisioning server automatically creates, configures and deploys physical hosts or computer systems to an application of virtual Machine technology (see Abstract,940-FIG.3) allowing Virtual machines to be created and provisioned by cloning one of a set of model virtual machines (col.9, line 10-25) The virtual machine created will be a working replica of the machine and can therefore function as a backup clone (col.16, line 1-12) in order to efficiently satisfy the user's request by either provisioning a new virtual machine or by creating a replica in the physical machine (col.1, line 52-63)

It would have been obvious to one of ordinary skill in the at the time of the invention to have modified the modified Trossman by Khandekar to create a new virtual machine on the same physical host by the provisioning manager to efficiently satisfy the user's request by either provisioning a new virtual machine or by creating a replica in the physical machine.

Regarding **claim 27**, Trossman discloses an apparatus that performs automatic management of a virtualization environment in a computer network comprising:

a network communications unit that enables communications between the apparatus and the computer network (Trossman:[0023-0024]);

an operating system of the apparatus that supports a virtualization environment in communication with the apparatus (Trossman:[0026]); and

a Virtual Mapping layer that determines an inventory of network resources and virtual assets available to the virtualization environment, wherein the Virtual Mapping layer determines the inventory without regard to processors, operating systems (Trossman: “The data storage 20 contains information on the groupings and poolings of resources in the resource system 12 for management purposes.” [0042], [0034-0036]), virtualization platforms, and application software of the virtualization environment (Trossman: [0034-0038]).

the provisioning component receives user input that is a Knowledge Block that determines one or more of the reallocation parameters to be considered with the real time performance metrics ([0033] [0072]) that identify a last known acceptable virtual

machine image that includes one or more applications from the set of available inventory.

Trossman does not explicitly teach wherein the virtual assets comprise at least one virtual machines operating on a single physical host and wherein the at least one virtual machine comprises virtual hardware assets that identify a last known acceptable virtual machine image that includes one or more applications from the set of available inventory.

However Lowell discloses at least one virtual machines operating on a single physical host (Lowell: Col. 2, lines 37-58), and wherein the at least one virtual machine comprises virtual hardware assets (Lowell: Col. 2, line 59- Col. 3, lines 5) in order to efficiently make use of computer resources by encapsulating and isolating a guest operating systems from the underlying system hardware resources of host in order to allow the use of multiple guest OS (Lowell: Col. 1, line 5- Col. 2, lines 66).

It would have been obvious to one of ordinary skill in the at the time of the invention to create the resource management system of Trossman to include the use of virtual machines and virtual hardware assets as taught by Lowell in order to allow multiple guest computer operating systems to function like normal and unaware of the other operating systems executing on the single physical host computer system (Lowell: Col. 1, line 5- Col. 2, lines 66).

The modified Trossman does not explicitly teach a provisioning component that creating a new virtual machine on the single physical host.

However, Khandekar teaches a provisioning server automatically creates, configures and deploys physical hosts or physical systems to an application of virtual Machine technology (see Abstract, 940-FIG.3) presenting to the user an optional dialog where he can query the details of the model VM, such as its OS, applications, etc.) When the user makes the selections, he submits the request to the provisioning engine, which creates a new Virtual Machine on the same physical host or the requested computer system (col.15, line 29-col.16, line 30; FIG.3) in order to efficiently satisfy the user's request by either provisioning a new virtual machine or by creating a replica in the physical machine (col.1, line 52-63)

It would have been obvious to one of ordinary skill in the at the time of the invention to have modified the modified Trossman by Khandekar to create a new virtual machine on the same physical host by the provisioning manager to efficiently satisfy the user's request by either provisioning a new virtual machine or by creating a replica in the physical machine.

Regarding **claim 28**, the modified Trossman reference teaches the apparatus of claim 27 as described above. Trossman further discloses comprising one or more components that receive the inventory of available resources and assets from the Virtual Mapping layer and perform one or more functions from the group of functions consisting of:

identification and management of network resources and virtual assets, dynamic deployment of virtual assets across the computer network, performance measurement and reporting of resources and virtual assets, and planning and forecasting of resource

demands and asset utilization of the virtualization environment (Trossman: [0022-0023] [0031-0036] [0042]);

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment (Trossman: [0031-0036]).

Regarding **claim 29**, the modified Trossman reference teaches the apparatus of claim 27 as described above. Trossman further discloses comprising a component selected from a group consisting of: an Asset Manager component that determines an inventory of available network resources and virtual assets;

a Provisioning Manager component that assigns a prioritization to the available inventory and provisions virtual assets from among the available inventory (Trossman: "The data storage 20 contains information on the groupings and poolings of resources in the resource system 12 for management purposes." [0042], [0034-0036]);

a Performance Manager component that determines real time performance metrics Trossman: [0022-0024]; and

an Optimizer component that automatically produces a reallocation of the virtual assets and initiates the reallocation (Trossman: [0021-0024], [0034-0036]).

Regarding **claim 30**, the modified Trossman reference teaches the method of claim 1 as described above. Trossman does not explicitly disclose wherein the virtual assets further comprise a second virtual machine which comprises virtual assets, and the at least one virtual machine and the second virtual machine each run their own

respective operating systems which are the a different type of operating system from each other.

However Lowell discloses a second virtual machine which comprises virtual assets (Lowell: Col. 2, line 25-Col. 3, line 5), and the at least one virtual machine and the second virtual machine each run their own respective operating systems which are the a different type of operating system from each other (Lowell: Col. 2, line 25-Col. 3, line 5; Col. 1, lines 31-37) in order to efficiently make use of computer resources by encapsulating and isolating a guest operating systems from the underlying system hardware resources of host in order to allow the use of multiple guest OS (Lowell: Col. 1, line 5- Col. 2, lines 66).

It would have been obvious to one of ordinary skill in the at the time of the invention to create the virtual machines and virtual hardware resource management system of the modified Trossman reference to include the use of a second virtual machines and second virtual hardware asset as taught by Lowell in order to allow multiple guest computer operating systems to function like normal and unaware of the other operating systems executing on the single physical host computer system (Lowell: Col. 1, line 5- Col. 2, lines 66).

Regarding **claim 36**, the modified Trossman reference teaches the method of claim 1 as described above. Trossman discloses routing/allocating resources to an application (Trossman: [0025]; [0031-0033])

Trossman does not explicitly disclose discloses wherein provisioning virtual assets from among the available inventory further comprises routing an application running on a first virtual machine to run on a second virtual machine.

However Lowell discloses provisioning virtual assets from among the available inventory further comprises routing an application running on a first virtual machine to run on a second virtual machine (Lowell: Col. 3, lines 6-65) in order migrate a processes to a different operating system or virtual machine (Lowell: Col. 3, lines 6-8 and lines 51-53).

It would have been obvious to one of ordinary skill in the at the time of the invention to create the virtual machines and virtual hardware resource management system of the modified Trossman reference to include the use of creating a duplicate of a virtual machine as taught by Lowell in order migrate a processes to a different operating system or virtual machine (Lowell: Col. 3, lines 6-8 and lines 51-53).

Regarding **claim 39**, the modified Trossman teaches the method of claim 25 but does not explicitly disclose wherein provisioning virtual assets from among the available inventory further comprises creating a new virtual machine on the single physical host.

However, Khandekar teaches a provisioning server automatically creates, configures and deploys physical hosts or physical systems to an application of virtual Machine technology (see Abstract, 940-FIG.3) presenting to the user an optional dialog where he can query the details of the model VM, such as its OS, applications, etc.) When the user makes the selections, he submits the request to the provisioning engine, which creates a new Virtual Machine on the same physical host or the requested

computer system (col.15, line 29-col.16, line 30; FIG.3) in order to efficiently satisfy the user's request by either provisioning a new virtual machine or by creating a replica in the physical machine (col.1, line 52-63)

It would have been obvious to one of ordinary skill in the at the time of the invention to have modified the modified Trossman by Khandekar to create a new virtual machine on the same physical host by the provisioning manager to efficiently satisfy the user's request by either provisioning a new virtual machine or by creating a replica in the physical machine.

Regarding **claim 40**, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further discloses wherein provisioning virtual assets from among the available inventory further comprises communicating provisioning instructions from a control agent comprising at least one virtualization platform adapter to a virtualization layer in the single physical host (Trossman: [0023], [0033]).

7. Claims 7-8 rejected under 35 U.S.C. 103(a) as being unpatentable over Trossman et al. (US 2008/0086731) in view of Lowell et al. (US 7,512,769) in view of Khandekar et al. Patent No. (US 7,577,722 B1) further in view of applicants admitted prior art.

Regarding **claim 7**, the modified Trossman reference teaches the method of claim 4 as described above. Trossman does not explicitly disclose wherein log files are retrieved from the available inventory that is detected as degraded.

Applicant admitted prior art teaches logging computer system performance, faults and errors and alerting an administrator of the logged events is well known in the art.

It would have been obvious to one of ordinary skill in the art at the time of the invention to create the resource management system with multiple virtual machines operating on a single physical server in a virtual computing environment of the modified Trossman reference to include of the use of logging data and alerting an administrator as taught by applicant admitted prior art in order to provide diagnostic data and alerts to properly manage the system.

Regarding **claim 8**, the modified Trossman reference teaches the method of claim 7 as described above. Trossman does not explicitly disclose wherein the log files are stored in an archive and an alert message is sent to a network administrator with an identification of the log file archive location.

Applicant admitted prior art teaches logging computer system performance, faults and errors and alerting an administrator of the logged events is well known in the art.

It would have been obvious to one of ordinary skill in the art at the time of the invention to create the resource management system with multiple virtual machines operating on a single physical server in a virtual computing environment of the modified Trossman reference to include of the use of logging data and alerting an administrator as taught by applicant admitted prior art in order to provide diagnostic data and alerts to properly manage the system.

Conclusion

8. When responding to this office action, Applicant is advised to clearly point out the patentable novelty which he or she thinks the claims present, in view of the state of the art disclosed by the references cited or the objections made. He or she must also show how the amendments avoid such references or objections See 37 CFR 1.111(c).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abdelnabi O. Musa whose telephone number is 571-2701901. and email address is abdelnabi.musa@uspto.gov 'preferred'. The examiner can normally be reached on Monday thru Friday: 7:30am to 5:00pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ferris Derrick can be reached on 571-2723123. 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.

/A. O. M./

Examiner, Art Unit 2478

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	7	("20050138165" | "20050155033" | "20060294238" | "20070067435" | "20080086731" | "7463648" | "7512769").PN.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 11:51
S2	19897	709/223.ccls. or 709/226.ccls. or 709/229.ccls.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:10
S3	16	pabari.in.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:10
S4	0	(manage$4 virtual$6 environment inventory resource$4 prioritiz$4 physical host).clm.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:12
S5	1094	(manage$4 virtual$6 environment inventory resource$4 prioritiz$4 physical host)	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:12
S6	1	S3 S5	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:12
S7	1	(virtual$ mange$4).ti.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:13
S8	82	(manage$4 virtual$6 environment resource$4).ab.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:14
S9	13	S2 S8	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:14
S10	2	(manage$4 virtual$6 environment resource$4 physical host).ab.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:17

S11	17572	(manage$4 virtual$6 environment (resource$4 or asset$2) physical host allocat$4)	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:10
S12	19897	709/223.ccls. or 709/226.ccls. or 709/229.ccls.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:11
S13	1084	S11 S12	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:11
S14	468	S13 (load adj (shar$4 or balanc$4))	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:11
S15	82	(manage$4 virtual$6 environment resource$4).ab.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:13
S16	4	S14 S15	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:13
S17	143	((virtual adj machine) or VM) same new same physical same host	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:18
S18	2	S15 S17	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:19
S19	2	S17 S15	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:19
S20	84	S17 S11	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:21
S21	9	S20 S12	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:22
S22	0	(knowledge near block re$allocat$4 (real$time or real near time) virtual$2 image application$2 (inventory or resource$2) prioriti$6 (peer$2 or member$2) physical).clm.	US-PGPUB; USPAT; USOCR	AND	OFF	2012/04/10 14:21

S23	2	(knowledge near block re$allocat$4 (real$time or real near time) virtual$2 image application$2 (inventory or resource$2) prioriti$6 (peer$2 or member$2) physical)	US-PGPUB; USPAT; USOCR	AND	OFF	2012/04/10 14:21
S24	156	(Automatic configuration management).ab.	US-PGPUB; USPAT; USOCR	AND	OFF	2012/04/10 14:29
S25	41755	709/223,224,226,229,220,221.ccls.	US-PGPUB; USPAT; USOCR	AND	OFF	2012/04/10 14:31
S26	29	S24 S25	US-PGPUB; USPAT; USOCR	AND	OFF	2012/04/10 14:31
S27	0	(10/460518).APP.	USPAT; USOCR	OR	OFF	2012/04/10 14:34
S28	7	("20050138165" | "20050155033" | "20060294238" | "20070067435" | "20080086731" | "7463648" | "7512769").PN.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S29	25092	709/223.ccls. or 709/226.ccls. or 709/229.ccls.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S30	20	pabari.in.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S31	0	(manage$4 virtual$6 environment inventory resource$4 prioritiz$4 physical host).clm.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S32	1541	(manage$4 virtual$6 environment inventory resource$4 prioritiz$4 physical host)	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S33	1	S30 S32	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S34	1	(virtual$ mange$4).ti.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S35	122	(manage$4 virtual$6 environment resource$4).ab.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36

S36	26	S29 S35	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S37	3	(manage$4 virtual$6 environment resource$4 physical host).ab.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S38	22641	(manage$4 virtual$6 environment (resource$4 or asset$2) physical host allocat$4)	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S39	25092	709/223.ccls. or 709/226.ccls. or 709/229.ccls.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S40	1484	S38 S39	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S41	637	S40 (load adj (shar$4 or balanc$4))	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S42	122	(manage$4 virtual$6 environment resource$4).ab.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S43	8	S41 S42	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S44	238	((virtual adj machine) or VM) same new same physical same host	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S45	7	S42 S44	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S46	7	S44 S42	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S47	141	S44 S38	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36

S48	18	S47 S39	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S49	166	(manage$4 virtual$6 resource$4 physical).ab.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:39
S50	118867	"709".clas.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:39
S51	49	S50 S49	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:39
S52	49	S51 not S26	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:39
S53	0	real near time matrics virtual physical	US-PGPUB; USPAT; USOCR; IBM_TDB	SAME	OFF	2012/04/10 14:43
S54	27	real near time metrics virtual physical	US-PGPUB; USPAT; USOCR; IBM_TDB	SAME	OFF	2012/04/10 14:43
S55	1	S39 and real near time metrics virtual physical	US-PGPUB; USPAT; USOCR; IBM_TDB	SAME	OFF	2012/04/10 14:44
S56	3	S50 S54	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:46
S57	9	pabari.in.	USPAT	AND	OFF	2012/04/10 14:50
S58	20	pabari.in.	US-PGPUB; USPAT	AND	OFF	2012/04/10 14:50
S59	1	S23 S58	US-PGPUB; USPAT	AND	OFF	2012/04/10 14:50
S60	0	S24 S58	USPAT	AND	OFF	2012/04/10 14:51

6/6/2012 5:53:10 PM
H:\EAST\Workspaces\11503090.wsp

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11503090	PABARI, VIPUL
	Examiner	Art Unit
	ABDELNABI MUSA	2478

✓	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	05/27/2008	12/31/2008	05/14/2009	12/08/2009	10/31/2010	07/15/2011	06/06/2012		
	1	✓	✓	✓	✓	✓	✓	✓		
	2	✓	✓	✓	✓	✓	✓	-		
	3	✓	✓	✓	✓	✓	✓	-		
	4	✓	✓	✓	✓	✓	✓	✓		
	5	✓	✓	✓	✓	✓	✓	✓		
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	14	✓	✓	✓	✓	✓	✓	✓		
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	28	✓	✓	✓	✓	✓	✓	✓		
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	32		✓	-	-	-	-	-		
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	34		✓	✓	-	-	-	-		
	35		✓	✓	-	-	-	-		
	36				✓	✓	✓	✓		

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11503090	PABARI, VIPUL
	Examiner	**Art Unit**
	ABDELNABI MUSA	2478

✓	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	05/27/2008	12/31/2008	05/14/2009	12/08/2009	10/31/2010	07/15/2011	06/06/2012		
	37				✓	✓	-	-		
	38				✓	✓	-	-		
	39				✓	✓	✓	✓		
	40				✓	✓	✓	✓		

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11503090	PABARI, VIPUL
	Examiner	Art Unit
	Abdelnabi Musa	2478

SEARCHED

Class	Subclass	Date	Examiner
709	223, 226	5/27/2008	DA
709	223,224,226	12/31/2008	DA
709	223	12/8/2009	DA
709	223, 226, 229	10/31/2010	AM
709	223, 226, 229	7/15/2011	AM
709	223,224,226,229,220,221	6/6/2012	AM

SEARCH NOTES

Search Notes	Date	Examiner
Text searched EAST databases	5/27/2008	DA
Updated EAST text search	12/31/2008	DA
limted class/sublcass search (709/201-202,223-224,226; 718/100-108)	12/31/2008	DA
Inventor name searched	12/31/2008	DA
Updated EAST text search	5/14/2009	DA
Updated Text search of East (USPat, USPG_Pub, JPO, EPO, Derwent, IBM_TDB) and Inventor search	12/8/2009	DA
Limited classification search 709/201,202,223,224,226 and 718/1,100-108	12/8/2009	DA
EAST (USPAT, US-PGPUB, EPO, JPO, DERWENT, IBM_TDB), see attached; NPL: IEEE; Inventor Search/DP	10/31/2010	AM
EAST (USPAT, US-PGPUB, EPO, JPO, DERWENT, IBM_TDB), see attached; NPL: IEEE; Inventor Search/DP	7/15/2011	AM
EAST (USPAT, US-PGPUB, EPO, JPO, DERWENT, IBM_TDB), see attached; NPL: IEEE; Inventor Search/DP	6/6/2012	AM

INTERFERENCE SEARCH

Class	Subclass	Date	Examiner
709	223,224,226,229,220,221	6/6/2012	AM

/ABDELNABI MUSA/ Examiner.Art Unit 2478	

Certificate of Transmission Under 37 CFR 1.8
I hereby certify that this correspondence is being transmitted via electronic submission, attention Mail Stop: Amendment, Commissioner for Patents, Alexandria, VA 22313-1450 on:

December 10, 2012

/Timothy W. Lohse/
Timothy W. Lohse

Appl. No.	:	11/503,090	Confirmation No.	9855
Applicant	:	Vipul Pabari		
Filed	:	August 10, 2006		
TC/A.U.	:	2478		
Examiner	:	Abdelnabi Musa		
Docket No.	:	367894-000003		
Customer No.	:	26379		

Title: VIRTUAL SYSTEMS MANAGEMENT

RESPONSE TO OFFICE ACTION

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

Sir:

In response to the office action, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 9 of this paper.

1. Listing of the claims:

1. (Currently Amended) A method for automatic management of a virtualization environment in a computer network, the method comprising:

providing a virtualization environment that has a virtualization layer, network resources and virtual assets, the virtual assets including at least one software instantiations of equipment objects in the virtualization environment;

providing a controller coupled to the virtualization environment over a network;

determining, using the controller, an inventory of network resources and virtual assets available to the virtualization environment ~~of the computer network~~;

~~assigning prioritization to members of the available inventory for the virtualization environment;~~

provisioning, by the controller, the virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment~~, wherein the virtual assets comprise at least one virtual machines operating on a single physical host, and wherein the at least one virtual machine comprises virtual hardware assets, and wherein the provisioning the virtual assets from among the available inventory comprises creating a new virtual machine on the single physical host~~;

determining, at the controller, real time performance metrics for the provisioned virtualization environment;

automatically determining ~~producing~~, for the provisioned virtualization environment under control of the controller, a reallocation of the virtual assets ~~automatically~~ in response to the real time performance metrics; ~~and~~

initiating, by the controller, the reallocation of the virtual assets in the provisioned virtualization environment~~;~~.

~~receiving user input that is a Knowledge Block that determines one or more of the reallocation parameters to be considered with the real time performance metrics in producing the reallocation of assets; and~~

~~wherein the Knowledge Block specifies parameters that identify a last known acceptable virtual machine image that includes one or more applications from the set of available inventory~~.

2. Cancelled.

3. Cancelled.

4. (Currently Amended) The method of claim 1 ~~2~~[[,]] further comprising receiving user input that is a Knowledge Block that determines one or more of the reallocation parameters to be considered with the real time performance metrics in producing the reallocation of assets and wherein the received user input specifies parameters that detect operational degradation of a member of the available inventory.

5. (Original) The method of claim 4, wherein the available inventory member that is detected as degraded is removed from the available inventory.

6. (Original) The method of claim 4, wherein the available inventory that is detected as degraded is moved from the available inventory to a debug inventory pool.

7. (Original) The method of claim 4, wherein log files are retrieved from the available inventory that is detected as degraded.

8. (Original) The method of claim 7, wherein the log files are stored in an archive and an alert message is sent to a network administrator with an identification of the log file archive location.

9. (Original) The method of claim 4, wherein the available inventory that is detected as degraded is halted and is removed from the available inventory to a debug inventory pool.

10. (Original) The method of claim 9, wherein the halted available inventory is removed from the debug inventory pool.

11. (Currently Amended) The method of claim 4 ~~3~~, wherein the Knowledge Block specifies parameters that send an alert message to an administrator of the network in response to an alert condition.

12. (Currently Amended) The method of claim 4 ~~3~~, wherein the Knowledge Block specifies parameters that receive an instruction from an administrator of the network in response to an alert condition.

13. Cancelled.

14. (Currently Amended) The method of claim 4 ~~3~~, wherein the Knowledge Block specifies parameters that deploy an instance of an application selected from among the available inventory.

15. (Currently Amended) The method of claim 4 ~~2~~, wherein the received user input specifies a priority for one or more of the available inventory.

16. (Currently Amended) The method of claim 4 ~~2~~, wherein the user input specifies a time period during which the reallocation will be applied.

17. (Original) The method of claim 1, further comprising: providing a user interface through which user input can be received and wherein the user input adjusts scheduling of producing the reallocation.

18. (Original) The method of claim 1, wherein producing a reallocation comprises adding a new application instance to the available inventory.

19. (Original) The method of claim 1, wherein producing a reallocation comprises updating the available inventory to include any changes made by the reallocation.

20. (Original) The method of claim 1, wherein the inventory of available inventory includes one or more application programs.

21. (Original) The method of claim 20, wherein one of the application programs comprises a network load balancer.

22. (Original) The method of claim 20, wherein one of the application programs comprises a network server.

23. (Original) The method of claim 1, wherein: determining, by an Asset Manager Component, an inventory of available network resources and virtual assets; assigning prioritization to the available inventory and provisioning virtual assets from among the available inventory, performed by a Provisioning Manager component; determining, by a Performance Manager component, a real time performance metrics; and automatically producing and initializing, by an Optimizer component, a reallocation of the virtual assets.

24. (Original) The method of claim 23, wherein automatically producing a reallocation of the virtual assets comprises forecasting future system needs, which is performed by a Capacity Planning Manager component.

25. (Currently Amended) A method for automatic management of a virtualization environment in a computer network, the method comprising:

providing a virtualization environment that has a virtualization layer, network resources and virtual assets, the virtual assets including at least one software instantiations of equipment objects in the virtualization environment;

providing a controller coupled to the virtualization environment over a network;

performing one or more functions by the controller from the group of functions consisting of

(1) identification and management of network resources and virtual assets,

(2) provisioning of virtual assets in response to network workflow demands,

(3) dynamic deployment of virtual assets across the computer network,

(4) performance measurement and reporting of resources and virtual assets, and

(5) planning and forecasting of resource demands and virtual asset utilization of the virtualization environment;

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment ~~and, wherein~~

~~the virtual assets comprise at least one virtual machines operating on a single physical host, and wherein the at least one virtual machine comprises virtual hardware assets~~;

~~wherein provisioning virtual assets from among the available inventory further comprises creating a new virtual machine on the single physical host; and~~

~~receiving user input that is a Knowledge Block that determines one or more of the reallocation parameters to be considered with the real time performance metrics in producing the reallocation of assets, wherein the Knowledge Block specifies parameters that identify a last known acceptable virtual machine image that includes one or more applications from the set of available inventory~~.

26. Cancelled.

27. (Currently Amended) An apparatus that performs automatic management of a virtualization environment in a computer network comprising:

a network communications unit that enables communications between the apparatus and a virtualization environment over a ~~the~~ computer network;

an operating system of the apparatus that supports a virtualization environment in communication with the apparatus over the computer network; and

a Virtual Mapping layer that determines an inventory of network resources and virtual assets available to the virtualization environment, wherein the Virtual Mapping layer determines the inventory without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment, wherein the virtual assets comprise ~~at least one virtual machine operating on a single physical host, and wherein the at least one virtual machine comprises virtual hardware assets~~ at least one software instantiations of equipment objects in the virtualization environment; and

a ~~provisioning component~~ controller that ~~creates a new virtual machine on the single physical host, the provisioning component receives user input that is a Knowledge Block that determines one or more of the reallocation parameters to be considered with the real time performance metrics that identify a last known acceptable virtual machine image that includes one or more applications from the set of available inventory~~ provisions the virtual assets from

among the available inventory, thereby establishing a provisioned virtualization environment, determines real time performance metrics for the provisioned virtualization environment, automatically determines for the provisioned virtualization environment under control of the controller, a reallocation of the virtual assets ~~automatically~~ in response to the real time performance metrics and initiates the reallocation of the virtual assets in the provisioned virtualization environment.

28. (Previously Presented) The apparatus of claim 27, further comprising one or more components that receive the inventory of available resources and assets from the Virtual Mapping layer and perform one or more functions from the group of functions consisting of:

identification and management of network resources and virtual assets,

dynamic deployment of virtual assets across the computer network,

performance measurement and reporting of resources and virtual assets, and

planning and forecasting of resource demands and asset utilization of the virtualization environment;

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment.

29. (Original) The apparatus of claim 27, further comprising a component selected from a group consisting of: an Asset Manager component that determines an inventory of available network resources and virtual assets;

a Provisioning Manager component that assigns a prioritization to the available inventory and provisions virtual assets from among the available inventory;

a Performance Manager component that determines real time performance metrics; and

an Optimizer component that automatically produces a reallocation of the virtual assets and initiates the reallocation.

30. (Previously Presented) The method of claim 1 wherein the virtual assets further comprise a second virtual machine which comprises virtual assets, and the at least one virtual machine and the second virtual machine each run their own respective operating systems which are a different type of operating system from each other.

31. -35. Canceled

36. (Previously Presented) The method of claim 1 wherein provisioning virtual assets from among the available inventory further comprises routing an application running on a first virtual machine to run on a second virtual machine.

37. Cancelled.

38. Cancelled.

39. (Previously Presented) The method of claim 25 wherein provisioning virtual assets from among the available inventory further comprises creating a new virtual machine on the single physical host.

40. (Previously Presented) The method of claim 1 wherein provisioning virtual assets from among the available inventory further comprises communicating provisioning instructions from a control agent comprising at least one virtualization platform adapter to a virtualization layer in the single physical host.

REMARKS

Applicant thanks the examiner for the courtesy of the telephone interview with Applicant's undersigned Attorney and the patent applicant on December 6, 2012. During the interview, Applicant presented an amended claim to the examiner (claim 1 above) and the examiner indicated that claim 1 distinguished over the combination of prior art currently relied on by the examiner.

SUPPORT FOR AMENDED CLAIMS

The amended claims are fully supported by the specification and drawings. For example, "providing a virtualization environment that has a virtualization layer, network resources and virtual assets, the virtual assets including at least one software instantiations of equipment objects in the virtualization environment" and "providing a controller coupled to the virtualization environment over a network" is supported, for example, by Figure 1 and paragraphs 0043-0050 of the published patent application. Specifically, paragraph 0044 supports the virtual asset definition that now appears in the claims. The other claim elements are all supported by various portions of the drawings and specification that disclose that the claimed controller/control center connected over a network to the virtual environment performs the virtual environment management set forth in the claims.

PRIOR ART REJECTIONS

In response to the rejection of claims 1, 4-6 and 9-12, 14-25, 27-30, 36 and 39-40 under 35 U.S.C. 103 as being unpatentable over US Patent Application 2008/0086731 to Trossman et al. ("Trossman") in view of U.S. Patent 7,512,769 to Lowell et al. ("Lowell") and further in view of US Patent No. 7,577,722 to Khandekar et al. ("Khandekar") and the rejection of claims 7-8 under 35 U.S.C. 103 as being obvious under Trossman, Lowell, Khandekar and further in view of the alleged admitted prior art, Applicant respectfully traverses the rejections since the combination of prior art cited by the examiner does not disclose or suggest each claim element of the amended claims.

Specifically, Trossman is a data center resources management system that manages computing resources such as a computing unit with CPUs and memory. *See Trossman at 0034-0036*. Trossman does not disclose or suggest managing virtual assets generally, managing a virtual environment or the claimed virtual assets which are "at least one software instantiations of equipment objects in the virtualization environment." Furthermore, Trossman does not disclose

or suggest the management of a virtual environment over a network by a controller as set forth in the claim. Thus, Trossman does not disclose or suggest several elements of the claims.

Lowell is a process migration method and system and thus also does not disclose or suggest the elements missing from Trossman.

Khandekar discloses a typical virtual environment in which virtual machines are being provisioned. *See Khandekar at Abstract*. However, Khandekar does not disclose or suggest the claimed virtual assets which are "at least one software instantiations of equipment objects in the virtualization environment." Furthermore, Khandekar does not disclose or suggest the management of a virtual environment over a network by a controller as set forth in the claim. Thus, Khandekar does not disclose or suggest several elements of the claims.

In summary, the combination of Trossman, Khandekar and Lowell does not disclose or suggest each claim element and therefore the obviousness rejection based on Trossman, Khandekar and Lowell should be withdrawn.

CONCLUSION

In view of the above, it is respectfully submitted that the claims are allowable over the prior art cited by the Examiner and early allowance of these claims and the application is respectfully requested.

The Examiner is invited to call Applicant's attorney at the number below in order to speed the prosecution of this application.

The Commissioner is authorized to charge any deficiencies in fees and credit any overpayment of fees to Deposit Account No. 07-1896.

Respectfully submitted,

DLA PIPER US LLP

Dated: December 10, 2012

By /Timothy W. Lohse/
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Electronic Acknowledgement Receipt

EFS ID:	14430086
Application Number:	11503090
International Application Number:	
Confirmation Number:	9855
Title of Invention:	Virtual systems management
First Named Inventor/Applicant Name:	Vipul Pabari
Customer Number:	26379
Filer:	Timothy W. Lohse
Filer Authorized By:	
Attorney Docket Number:	367894-000003
Receipt Date:	10-DEC-2012
Filing Date:	10-AUG-2006
Time Stamp:	18:50:46
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		367894-000003_Response_to_NFOA.pdf	42832 4a62c24fef8597caf152a4a22c12475c3334f46e	yes	10

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
	Claims	2	8
	Applicant Arguments/Remarks Made in an Amendment	9	10
Warnings:			
Information:			
	Total Files Size (in bytes):	42832	

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
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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
11/503,090	08/10/2006	

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	12/10/2012	(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))	* 29	Minus	** 35	= 0	X $31 =	0	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 3	Minus	***4	= 0	X $125 =	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 ($)	ADDITIONAL FEE ($)	OR	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:
/TRACIE ROBERTSON/

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.
11/503,090	08/10/2006	Vipul Pabari	367894-000003	9855

26379 7590 03/27/2013

DLA PIPER LLP (US)
2000 UNIVERSITY AVENUE
EAST PALO ALTO, CA 94303-2248

EXAMINER	
MUSA, ABDELNABI O	
ART UNIT	PAPER NUMBER
2478	

NOTIFICATION DATE	DELIVERY MODE
03/27/2013	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):

PatentDocketingUS-PaloAlto@dlapiper.com

Office Action Summary	Application No.	Applicant(s)	
	11/503,090	PABARI, VIPUL	
	Examiner	Art Unit	
	ABDELNABI MUSA	2478	

-- 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 *10 December 2012*.

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

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ 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

5)☒ Claim(s) *1,4-12,14-25,27-30,36,39 and 40* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1,4-12,14-25,27-30,36,39 and 40* is/are rejected.

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

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

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

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

11)☒ The drawing(s) filed on *10 August 2006* 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).

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) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

DETAILED ACTION

1. Acknowledgment is made for the applicant's response and amendment filed on 12/10/2012.

Remarks

2. The claims are presented as follows:

- Claims 1, 4, 11-12, 14-16, 25, 27 amended.
- Claims 2-3, 13, 26, 31-35, 37-38 canceled.
- Claims 1, 4-12, 14-25, 27-30, 36, 39-40 pending.

Claim Rejections - 35 USC § 103

3. 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 1,4-6, 9-12, 14-25, 27-30, 36, 39-40 rejected under 35 U.S.C. 103(a) as being unpatentable over Trossman et al. (US 2008/0086731) in view of Dawson et al. Pub. No. (US 2006/0149842 A1).

Regarding **claim 1**, Trossman teaches a method for automatic management of a virtualization environment in a computer network, the method comprising:

providing a controller coupled to the virtualization environment over a network (Trossman: a controller 102 coupled to the data storage and controls the data acquisition from each layer of the application environment [0045] [0052] FIG.2)

determining, using the controller (Trossman: a controller 102 that controls the data acquisition from each layer of the application environment [0045] FIG.2), an inventory of network resources (Trossman: [0022-0023]) and virtual assets available to the virtualization environment (Trossman: "The data storage 20 contains information on the groupings and poolings of resources in the resource system 12 for management purposes." [0042], [0034-0036]);

provisioning, by the controller (Trossman: a controller 102 that controls the data acquisition from each layer of the application environment [0045] FIG.2), the virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment (Trossman: "Given the differing resource requirements for each application environment using and requiring resources in the resource system 12, the resource change mechanism 18 decides where the resources will be allocated." [0031]);

determining, at the controller (Trossman: a controller 102 that controls the data acquisition from each layer of the application environment [0045] FIG.2), real time performance metrics for the provisioned virtualization environment (Trossman: [0021-0024]);

automatically determining, for the provisioned virtualization environment under the control of the controller (Trossman: a controller 102 that controls the data acquisition from each layer of the application environment [0045] FIG.2), a reallocation of the virtual assets in response to the real time performance metrics (Trossman: [0021-0024], [0034-0036]);

initiating, by the controller (Trossman: a controller 102 that controls the data acquisition from each layer of the application environment [0045] FIG.2), the reallocation of the virtual assets in the provisioned virtualization (Trossman: [0021-0024], [0034-0036]).

Trossman does not explicitly teach providing a virtualization environment that has a virtualization layer, network resources and virtual assets, the virtual assets including at least one software instantiations of equipment objects in the virtualization environment.

However, Dawson teaches a virtualization environment that includes multiple resource nodes [0012-14] as illustrated in FIG.3 multiple layers of functionality are implemented that includes network resources (via servers, storage media and networks) and software such as operating systems and other resource assets that includes multiple services that interact with other management systems ([0042-45] FIG.3) in order to efficiently achieve an automatic and efficient virtualization management of a resource/computer network.

It would have been obvious to one of ordinary skill in the at the time of the invention to have modified the modified Trossman by the teaching of Dawson to provide a virtualization environment that includes a virtualization layer, network resources and virtual assets that has at least one software instantiations of equipment objects to efficiently achieve an automatic and efficient virtualization management of a resource/computer network.

Regarding **claim 4**, the modified Trossman teaches the method of claim 1 as described above. Trossman further discloses receiving user input that is a Knowledge Block that determines one or more of the reallocation parameters to be considered with the real time performance metrics in producing the reallocation of assets ([0033] 702-FIG.8A) wherein the received user input specifies parameters that detect operational degradation of a member of the available inventory (Trossman:[0033],[0056-0057]).

Regarding **claim 5**, the modified Trossman reference teaches the method of claim 4 as described above. Trossman further discloses wherein the available inventory member that is detected as degraded is removed from the available inventory (Trossman: [0119]).

Regarding **claim 6**, the modified Trossman reference teaches the method of claim 4 as described above. Trossman further discloses wherein the available inventory that is detected as degraded is moved from the available inventory to a debug inventory pool (Trossman[0119-0120]).

Regarding **claim 9**, the modified Trossman reference teaches the method of claim 4 as described above. Trossman further discloses wherein the available inventory that is detected as degraded is halted and is removed from the available inventory to a debug inventory pool (Trossman: [0119-0120]).

Regarding **claim 10**, the modified Trossman reference teaches the method of claim 9 as described above. Trossman further discloses wherein the halted available inventory is removed from the debug inventory pool (Trossman: [0119-0120]).

Regarding **claim 11**, the modified Trossman reference teaches the method of claim 4 as described above. Trossman further discloses wherein the Knowledge Block specifies parameters that send an alert message to an administrator of the network in response to an alert condition (Trossman: [0033], [0040], [0119-0120]).

Regarding **claim 12**, the modified Trossman reference teaches the method of claim 4 as described above. Trossman further discloses wherein the Knowledge Block specifies parameters that receive an instruction from an administrator of the network in response to an alert condition (Trossman: [0033], [0040], [0119-0120]).

Regarding **claim 14**, the modified Trossman reference teaches the method of claim 4 as described above. Trossman further discloses wherein the Knowledge Block specifies parameters that deploy an instance of an application selected from among the available inventory (Trossman: [0033]).

Regarding **claim 15**, the modified Trossman reference teaches the method of claim 4 as described above. Trossman further discloses wherein the received user input specifies a priority for one or more of the available inventory (Trossman: [0033]).

Regarding **claim 16**, the modified Trossman reference teaches the method of claim 4 as described above. Trossman further discloses wherein the user input specifies a time period during which the reallocation will be applied (Trossman: [0030]-0033).

Regarding **claim 17**, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further teaches providing a user interface

through which user input can be received and wherein the user input adjusts scheduling of producing the reallocation (Trossman: [0033]).

Regarding **claim 18**, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further teaches wherein producing a reallocation comprises adding a new application instance to the available inventory (Trossman: [0119]).

Regarding **claim 19**, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further teaches wherein producing a reallocation comprises updating the available inventory to include any changes made by the reallocation (Trossman: [0104], [0118-0119]).

Regarding **claim 20**, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further discloses wherein the inventory of available inventory includes one or more application programs (Trossman: [0119]).

Regarding **claim 21**, the modified Trossman reference teaches the method of claim 20 as described above. Trossman further discloses wherein one of the application programs comprises a network load balancer (Trossman: [0024]).

Regarding **claim 22**, the modified Trossman reference teaches method of claim 20 as described above. Trossman further discloses wherein one of the application programs comprises a network server (Trossman: [0022]).

Regarding **claim 23**, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further discloses wherein: determining, by an

Asset Manager Component, an inventory of available network resources and virtual assets (Trossman: [0022-0023]);

assigning prioritization to the available inventory and provisioning virtual assets from among the available inventory, performed by a Provisioning Manager component (Trossman: [0042], [0023]);

determining, by a Performance Manager component, a real time performance metrics (Trossman: [0022-0023]); and

automatically producing and initializing, by an Optimizer component, a reallocation of the virtual assets (Trossman: [0022-0023]).

Regarding **claim 24**, the modified Trossman reference teaches the method of claim 23 as described above. Trossman further discloses wherein automatically producing a reallocation of the virtual assets comprises forecasting future system needs, which is performed by a Capacity Planning Manager component (Trossman: [0022-0023]).

Regarding **claim 25**, Trossman discloses a method for automatic management of a virtualization environment in a computer network, the method comprising:

providing a controller coupled to the virtualization environment over a network (Trossman: a controller 102 coupled to the data storage and controls the data acquisition from each layer of the application environment [0045] [0052] FIG.2)

performing one or more functions by the controller (Trossman: a controller 102 that controls the data acquisition from each layer of the application environment [0045] FIG.2) from the group of functions consisting of (1) identification and management of

network resources and virtual assets, (2) provisioning of virtual assets in response to network workflow demands, (3) dynamic deployment of virtual assets across the computer network, (4) performance measurement and reporting of resources and virtual assets, and (5) planning and forecasting of resource demands and virtual asset utilization of the virtualization environment (Trossman: [0022-0023],[0031-0036],[0042]);

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment (Trossman: [0031-0036]).

Trossman does not explicitly teach providing a virtualization environment that has a virtualization layer, network resources and virtual assets, the virtual assets including at least one software instantiations of equipment objects in the virtualization environment.

However, Dawson teaches a virtualization environment that includes multiple resource nodes [0012-14] as illustrated in FIG.3 multiple layers of functionality are implemented that includes network resources (via servers, storage media and networks) and software such as operating systems and other resource assets that includes multiple services that interact with other management systems ([0042-45] FIG.3) in order to efficiently achieve an automatic and efficient virtualization management of a resource/computer network.

It would have been obvious to one of ordinary skill in the at the time of the invention to have modified the modified Trossman by the teaching of Dawson to provide a virtualization environment that includes a virtualization layer, network resources and

virtual assets that has at least one software instantiations of equipment objects to efficiently achieve an automatic and efficient virtualization management of a resource/computer network.

Regarding **claim 27**, Trossman discloses an apparatus that performs automatic management of a virtualization environment in a computer network comprising:

a network communications unit that enables communications between the apparatus and a virtualization environment over the computer network (Trossman:[0023-0024]);

an operating system of the apparatus that supports a virtualization environment in communication with the apparatus over the computer network (Trossman:[0026]); and

a Virtual Mapping layer that determines an inventory of network resources and virtual assets available to the virtualization environment, wherein the Virtual Mapping layer determines the inventory without regard to processors, operating systems (Trossman: “The data storage 20 contains information on the groupings and poolings of resources in the resource system 12 for management purposes.” [0042], [0034-0036]), virtualization platforms, and application software of the virtualization environment (Trossman: [0034-0038]).

a controller that provisions the virtual assets from among the available inventory (Trossman: a controller 102 coupled to the data storage and controls the data acquisition from each layer of the application environment [0045] [0052] FIG.2), thereby establishing a provisioned virtualization environment (Trossman: “Given the differing

resource requirements for each application environment using and requiring resources in the resource system 12, the resource change mechanism 18 decides where the resources will be allocated." [0031]); determines real time performance metrics for the provisioned virtualization environment (Trossman: [0021-0024]), automatically determines for the provisioned virtualization environment under control of the controller (Trossman: a controller 102 that controls the data acquisition from each layer of the application environment [0045] FIG.2), a reallocation of the virtual assets automatically in response to the real time performance metrics (Trossman: [0021-0024], [0034-0036 and initiates the reallocation of the virtual assets in the provisioned virtualization environment (Trossman: [0021-0024], [0034-0036]).

Trossman does not explicitly teach providing a virtualization environment that has a virtualization layer, network resources and virtual assets, the virtual assets including at least one software instantiations of equipment objects in the virtualization environment.

However, Dawson teaches a virtualization environment that includes multiple resource nodes [0012-14] as illustrated in FIG.3 multiple layers of functionality are implemented that includes network resources (via servers, storage media and networks) and software such as operating systems and other resource assets that includes multiple services that interact with other management systems ([0042-45] FIG.3) in order to efficiently achieve an automatic and efficient virtualization management of a resource/computer network.

It would have been obvious to one of ordinary skill in the at the time of the invention to have modified the modified Trossman by the teaching of Dawson to provide a virtualization environment that includes a virtualization layer, network resources and virtual assets that has at least one software instantiations of equipment objects to efficiently achieve an automatic and efficient virtualization management of a resource/computer network.

Regarding **claim 28**, the modified Trossman reference teaches the apparatus of claim 27 as described above. Trossman further discloses comprising one or more components that receive the inventory of available resources and assets from the Virtual Mapping layer and perform one or more functions from the group of functions consisting of:

identification and management of network resources and virtual assets, dynamic deployment of virtual assets across the computer network, performance measurement and reporting of resources and virtual assets, and planning and forecasting of resource demands and asset utilization of the virtualization environment (Trossman: [0022-0023] [0031-0036] [0042]);

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment (Trossman: [0031-0036]).

Regarding **claim 29**, the modified Trossman reference teaches the apparatus of claim 27 as described above. Trossman further discloses comprising a component

selected from a group consisting of: an Asset Manager component that determines an inventory of available network resources and virtual assets;

a Provisioning Manager component that assigns a prioritization to the available inventory and provisions virtual assets from among the available inventory (Trossman: "The data storage 20 contains information on the groupings and poolings of resources in the resource system 12 for management purposes." [0042], [0034-0036]);

a Performance Manager component that determines real time performance metrics Trossman: [0022-0024]; and

an Optimizer component that automatically produces a reallocation of the virtual assets and initiates the reallocation (Trossman: [0021-0024], [0034-0036]).

Regarding **claim 30**, the modified Trossman reference teaches the method of claim 1 as described above. Trossman does not explicitly disclose wherein the virtual assets further comprise a second virtual machine which comprises virtual assets, and the at least one virtual machine and the second virtual machine each run their own respective operating systems which are the a different type of operating system from each other.

However Lowell discloses a second virtual machine which comprises virtual assets (Lowell: Col. 2, line 25-Col. 3, line 5), and the at least one virtual machine and the second virtual machine each run their own respective operating systems which are the a different type of operating system from each other (Lowell: Col. 2, line 25-Col. 3, line 5; Col. 1, lines 31-37) in order to efficiently make use of computer resources by encapsulating and isolating a guest operating systems from the underlying system

hardware resources of host in order to allow the use of multiple guest OS (Lowell: Col. 1, line 5- Col. 2, lines 66).

It would have been obvious to one of ordinary skill in the at the time of the invention to create the virtual machines and virtual hardware resource management system of the modified Trossman reference to include the use of a second virtual machines and second virtual hardware asset as taught by Lowell in order to allow multiple guest computer operating systems to function like normal and unaware of the other operating systems executing on the single physical host computer system (Lowell: Col. 1, line 5- Col. 2, lines 66).

Regarding **claim 36**, the modified Trossman reference teaches the method of claim 1 as described above. Trossman discloses routing/allocating resources to an application (Trossman: [0025]; [0031-0033])

Trossman does not explicitly disclose wherein provisioning virtual assets from among the available inventory further comprises routing an application running on a first virtual machine to run on a second virtual machine. However Lowell discloses provisioning virtual assets from among the available inventory further comprises routing an application running on a first virtual machine to run on a second virtual machine (Lowell: Col. 3, lines 6-65) in order migrate a processes to a different operating system or virtual machine (Lowell: Col. 3, lines 6-8 and lines 51-53).

It would have been obvious to one of ordinary skill in the at the time of the invention to create the virtual machines and virtual hardware resource management system of the modified Trossman reference to include the use of creating a duplicate of

a virtual machine as taught by Lowell in order migrate a processes to a different operating system or virtual machine (Lowell: Col. 3, lines 6-8 and lines 51-53).

Regarding **claim 39**, the modified Trossman teaches the method of claim 25 but does not explicitly disclose wherein provisioning virtual assets from among the available inventory further comprises creating a new virtual machine on the single physical host.

However, Khandekar teaches a provisioning server automatically creates, configures and deploys physical hosts or physical systems to an application of virtual Machine technology (see Abstract, 940-FIG.3) presenting to the user an optional dialog where he can query the details of the model VM, such as its OS, applications, etc.) When the user makes the selections, he submits the request to the provisioning engine, which creates a new Virtual Machine on the same physical host or the requested computer system (col.15, line 29-col.16, line 30; FIG.3) in order to efficiently satisfy the user's request by either provisioning a new virtual machine or by creating a replica in the physical machine (col.1, line 52-63)

It would have been obvious to one of ordinary skill in the at the time of the invention to have modified the modified Trossman by Khandekar to create a new virtual machine on the same physical host by the provisioning manager to efficiently satisfy the user's request by either provisioning a new virtual machine or by creating a replica in the physical machine.

Regarding **claim 40**, the modified Trossman reference teaches the method of claim 1 as described above. Trossman further discloses wherein provisioning virtual assets from among the available inventory further comprises communicating

provisioning instructions from a control agent comprising at least one virtualization platform adapter to a virtualization layer in the single physical host (Trossman: [0023], [0033]).

4. Claims 7-8 rejected under 35 U.S.C. 103(a) as being unpatentable over Trossman et al. (US 2008/0086731) in view of Dawson et al. Pub. No. (US 2006/0149842 A1) further in view of applicants admitted prior art.

Regarding **claim 7**, the modified Trossman reference teaches the method of claim 4 as described above. Trossman does not explicitly disclose wherein log files are retrieved from the available inventory that is detected as degraded.

Applicant admitted prior art teaches logging computer system performance, faults and errors and alerting an administrator of the logged events is well known in the art.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to create the resource management system with multiple virtual machines operating on a single physical server in a virtual computing environment of the modified Trossman reference to include of the use of logging data and alerting an administrator as taught by applicant admitted prior art in order to provide diagnostic data and alerts to properly manage the system.

Regarding **claim 8**, the modified Trossman reference teaches the method of claim 7 as described above. Trossman does not explicitly disclose wherein the log files are stored in an archive and an alert message is sent to a network administrator with an identification of the log file archive location.

Applicant admitted prior art teaches logging computer system performance, faults and errors and alerting an administrator of the logged events is well known in the art.

It would have been obvious to one of ordinary skill in the art at the time of the invention to create the resource management system with multiple virtual machines operating on a single physical server in a virtual computing environment of the modified Trossman reference to include of the use of logging data and alerting an administrator as taught by applicant admitted prior art in order to provide diagnostic data and alerts to properly manage the system.

Response to Arguments

5. Applicant's arguments with respect to the above treated claim(s) have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. 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.

When responding to this office action, Applicant is advised to clearly point out the patentable novelty which he or she thinks the claims present, in view of the state of the art disclosed by the references cited or the objections made. He or she must also show how the amendments avoid such references or objections See 37 CFR 1.111(c).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abdelnabi O. Musa whose telephone number is 571-2701901. and email address is abdelnabi.musa@uspto.gov 'preferred'. The examiner can normally be reached on Monday thru Friday: 7:30am to 5:00pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ferris Derrick W. can be reached on 571-2723123. 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.

/A. O. M./
Examiner, Art Unit 2478

/Kenny S Lin/

Primary Examiner, Art Unit 2478

Notice of References Cited	Application/Control No. 11/503,090	Applicant(s)/Patent Under Reexamination PABARI, VIPUL	
	Examiner ABDELNABI MUSA	Art Unit 2478	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2006/0149842	07-2006	Dawson et al.	709/226
	B	US-			
	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.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11503090	PABARI, VIPUL
	Examiner	Art Unit
	ABDELNABI MUSA	2478

✓	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	05/27/2008	12/31/2008	05/14/2009	12/08/2009	10/31/2010	07/15/2011	06/06/2012	03/15/2013	
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	36				✓	✓	✓	✓	✓	

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11503090	PABARI, VIPUL
	Examiner	**Art Unit**
	ABDELNABI MUSA	2478

✓	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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	37				✓	✓	-	-	-	
	38				✓	✓	-	-	-	
	39				✓	✓	✓	✓	✓	
	40				✓	✓	✓	✓	✓	

EAST Search History

EAST Search History (Prior Art)

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S3	16	pabari.in.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:10
S4	0	(manage$4 virtual$6 environment inventory resource$4 prioritiz$4 physical host).clm.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:12
S5	1094	(manage$4 virtual$6 environment inventory resource$4 prioritiz$4 physical host)	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:12
S6	1	S3 S5	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:12
S7	1	(virtual$ mange$4).ti.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:13
S8	82	(manage$4 virtual$6 environment resource$4).ab.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:14
S9	13	S2 S8	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:14
S10	2	(manage$4 virtual$6 environment resource$4 physical host).ab.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:17
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S19	2	S17 S15	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:19
S20	84	S17 S11	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:21
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S38	22641	(manage$4 virtual$6 environment (resource$4 or asset$2) physical host allocat$4)	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S39	25092	709/223.ccls. or 709/226.ccls. or 709/229.ccls.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
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S41	637	S40 (load adj (shar$4 or balanc$4))	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S42	122	(manage$4 virtual$6 environment resource$4).ab.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36

S43	8	S41 S42	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S44	238	((virtual adj machine) or VM) same new same physical same host	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S45	7	S42 S44	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
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S47	141	S44 S38	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
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S52	49	S51 not S26	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:39
S53	0	real near time matrics virtual physical	US-PGPUB; USPAT; USOCR; IBM_TDB	SAME	OFF	2012/04/10 14:43
S54	27	real near time metrics virtual physical	US-PGPUB; USPAT; USOCR; IBM_TDB	SAME	OFF	2012/04/10 14:43
S55	1	S39 and real near time metrics virtual physical	US-PGPUB; USPAT; USOCR; IBM_TDB	SAME	OFF	2012/04/10 14:44
S56	3	S50 S54	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:46
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S58	20	pabari.in.	US-PGPUB; USPAT	AND	OFF	2012/04/10 14:50
S59	1	S23 S58	US-PGPUB; USPAT	AND	OFF	2012/04/10 14:50
S60	0	S24 S58	USPAT	AND	OFF	2012/04/10 14:51
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S79	8	(US-20080086731-$ or US-20050155033-$ or US-20060149842-$ or US-20050125537-$ or US-20040015600-$).did. or (US-7512769-$ or US-7577722-$ or US-6490620-$).did.	US-PGPUB; USPAT	OR	OFF	2013/03/12 15:52
S80	5	S79 and (virtual$7 environment layer network (resourc$2 or computer$2 or printer$2 or device$2) (asset$2 or sofware or program$2 or instruction$2))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2013/03/12 15:54
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EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S61	10106	(manage$4 virtual$6 environment (resource$4 or asset$2) physical host allocat$4)	USPAT; UPAD	AND	OFF	2012/04/10 14:47
S62	76	((virtual adj machine) or VM) same new same physical same host	USPAT; UPAD	AND	OFF	2012/04/10 14:47
S63	206	"S13" (load adj (shar$4 or balanc$4))	USPAT; UPAD	AND	OFF	2012/04/10 14:47
S64	10106	(manage$4 virtual$6 environment (resource$4 or asset$2) physical host allocat$4)	USPAT; UPAD	AND	OFF	2012/04/10 14:47
S65	45876	"S2" "S8"	USPAT; UPAD	AND	OFF	2012/04/10 14:47
S66	78	(manage$4 virtual$6 resource$4 physical).ab.	USPAT; UPAD	AND	OFF	2012/04/10 14:47
S67	23872	709/223,224,226,229,220,221.ccls.	USPAT; UPAD	AND	OFF	2012/04/10 14:47
S68	21589	"I3" "I4"	USPAT; UPAD	AND	OFF	2012/04/10 14:47
S69	593	(manage$4 virtual$6 environment inventory resource$4 prioritiz$4 physical host)	USPAT; UPAD	AND	OFF	2012/04/10 14:47
S70	2	("20050138165" | "20050155033" | "20060294238" | "20070067435" | "20080086731" | "7463648" | "7512769").PN.	USPAT; UPAD	AND	OFF	2012/04/10 14:48

S71	0	(manage$4 virtual$6 environment inventory resource$4 prioritiz$4 physical host).clm.	USPAT; UPAD	AND	OFF	2012/04/10 14:48
S72	593	(manage$4 virtual$6 environment inventory resource$4 prioritiz$4 physical host)	USPAT; UPAD	AND	OFF	2012/04/10 14:48
S73	497	"L26" "L18"	USPAT; UPAD	AND	OFF	2012/04/10 14:48
S74	0	S73 S72	USPAT; UPAD	AND	OFF	2012/04/10 14:48
S75	463	S69 S64	USPAT; UPAD	AND	OFF	2012/04/10 14:49
S76	0	S62 S72	USPAT; UPAD	AND	OFF	2012/04/10 14:49
S77	9	pabari.in.	USPAT; UPAD	AND	OFF	2012/04/10 14:49

3/12/2013 5:50:41 PM
H:\EAST\Workspaces\11503090.wsp

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11503090	PABARI, VIPUL
	Examiner	Art Unit
	Abdelnabi Musa	2478

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
709	223, 226	5/27/2008	DA
709	223,224,226	12/31/2008	DA
709	223	12/8/2009	DA
709	223, 226, 229	10/31/2010	AM
709	223, 226, 229	7/15/2011	AM
709	223,224,226,229,220,221	6/6/2012	AM
709	223,224,226,229,220,221	3/15/2013	AM

SEARCH NOTES		
Search Notes	Date	Examiner
Text searched EAST databases	5/27/2008	DA
Updated EAST text search	12/31/2008	DA
limted class/sublcass search (709/201-202,223-224,226; 718/100-108)	12/31/2008	DA
Inventor name searched	12/31/2008	DA
Updated EAST text search	5/14/2009	DA
Updated Text search of East (USPat, USPG_Pub, JPO, EPO, Derwent, IBM_TDB) and Inventor search	12/8/2009	DA
Limited classification search 709/201,202,223,224,226 and 718/1,100-108	12/8/2009	DA
EAST (USPAT, US-PGPUB, EPO, JPO, DERWENT, IBM_TDB), see attached; NPL: IEEE; Inventor Search/DP	10/31/2010	AM
EAST (USPAT, US-PGPUB, EPO, JPO, DERWENT, IBM_TDB), see attached; NPL: IEEE; Inventor Search/DP	7/15/2011	AM

/ABDELNABI MUSA/ Examiner.Art Unit 2478	

SEARCH NOTES		
Search Notes	**Date**	**Examiner**
EAST (USPAT, US-PGPUB, EPO, JPO, DERWENT, IBM_TDB), see attached; NPL: IEEE; Inventor Search/DP	6/6/2012	AM
EAST (USPAT, US-PGPUB, EPO, JPO, DERWENT, IBM_TDB), see attached; NPL: IEEE; Inventor Search/DP	3/15/2013	AM

INTERFERENCE SEARCH			
US Class/ CPC Symbol	**US Subclass / CPC Group**	**Date**	**Examiner**
709	223,224,226,229,220,221	6/6/2012	AM

/ABDELNABI MUSA/ Examiner.Art Unit 2478	

PTO/AIA/31 (07-12)
Approved for use through 01/31/2013. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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NOTICE OF APPEAL FROM THE EXAMINER TO THE BOARD OF PATENT APPEALS AND INTERFERENCES

Docket Number (Optional): 367894-000003

I hereby certify that this correspondence is being facsimile transmitted to the USPTO, EFS-Web transmitted to the USPTO, or deposited with the United States Postal Service with sufficient postage in an envelope addressed to "Commissioner for Patents, P.O. Box 1450, Alexandria, Alexandria, VA 22313-1450" [37 CFR 1.8(a)]

on March 27, 2013

Signature /Timothy W. Lohse/

Typed or printed name Timothy W. Lohse

In re Application of: Vipul Pabari

Application Number	Filed
11/503,090	August 10, 2006

For Virtual Systems Management

Art Unit	Examiner
2478	Musa, Abdelnabio

Applicant hereby **appeals** to the Board of Patent Appeals and Interferences from the last decision of the examiner.

The fee for this Notice of Appeal is (37 CFR 41.20(b)(1)) $ 800.00

☒ Applicant claims small entity status. See 37 CFR 1.27. Therefore, the fee shown above is reduced by half, and the resulting fee is: $ 400.00

☐ A check in the amount of the fee is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Director has already been authorized to charge fees in this application to a Deposit Account.

☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. 07-1896.

☐ Payment made via EFS-Web.

☐ A petition for an extension of time under 37 CFR 1.136(a) (PTO/SB/22 or equivalent) is enclosed.

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I am the

☐ applicant.

☒ attorney or agent of record.
Registration number 35,255

☐ attorney or agent acting under 37 CFR 1.34
Registration number if acting under 37 CFR 1.34 _____

/Timothy W. Lohse/
Signature

Timothy W. Lohse
Typed or printed name

650-833-2055
Telephone number

March 27, 2013
Date

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.

*Total of 1 forms are submitted.

This collection of information is required by 37 CFR 41.31. 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, 1.14 and 41.6. 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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Electronic Patent Application Fee Transmittal

Application Number:	11503090
Filing Date:	10-Aug-2006
Title of Invention:	Virtual systems management
First Named Inventor/Applicant Name:	Vipul Pabari
Filer:	Timothy W. Lohse/Kathleen LaBrie
Attorney Docket Number:	367894-000003

Filed as Small 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:				
Notice of Appeal	2401	1	400	400
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
			Total in USD ($)	**400**

Electronic Acknowledgement Receipt	
EFS ID:	15371077
Application Number:	11503090
International Application Number:	
Confirmation Number:	9855
Title of Invention:	Virtual systems management
First Named Inventor/Applicant Name:	Vipul Pabari
Customer Number:	26379
Filer:	Timothy W. Lohse
Filer Authorized By:	
Attorney Docket Number:	367894-000003
Receipt Date:	27-MAR-2013
Filing Date:	10-AUG-2006
Time Stamp:	19:35:04
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$400
RAM confirmation Number	6412
Deposit Account	071896
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	Notice of Appeal Filed	Notice_Of_Appeal_filed_3-27-13_367894-000003.pdf	170801 bc8c2a30a5c8fba212f0b79273d7a7e517ef2f6c	no	1
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	29943 f21f09d7841ca3bec0cf40d51bc3962acd8dd3ac	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	200744		

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.

<u>New Applications Under 35 U.S.C. 111</u>
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.

<u>National Stage of an International Application under 35 U.S.C. 371</u>
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.

<u>New International Application Filed with the USPTO as a Receiving Office</u>
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/30 (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Request for Continued Examination (RCE) Transmittal

Address to:
Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Application Number	11/503,090
Filing Date	August 10, 2006
First Named Inventor	Vipul Pabari
Art Unit	2478
Examiner Name	Abdelnabi Musa
Attorney Docket Number	367894-000003

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. See Instruction Sheet for RCEs (not to be submitted to the USPTO) on page 2.

1. 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).

   a. ☐ 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.

      i. ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

      ii. ☐ Other _____

   b. ☐ Enclosed

      i. ☒ Amendment/Reply

      ii. ☐ Affidavit(s)/ Declaration(s)

      iii. ☐ Information Disclosure Statement (IDS)

      iv. ☐ Other _____

2. Miscellaneous

   Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a

   a. ☐ period of _____ months. (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

   b. ☐ Other _____

3. 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 the following fees any underpayment of fees or credit any overpayments to

   a. ☒ Deposit Account No. 07-1896 .

      i. ☒ RCE fee required under 37 CFR 1.17(e)

      ii ☐ Extension of time fee (37 CFR 1.136 and 1.17)

      iii ☐ Other _____

   b. ☐ Check in the amount of $ _____ enclosed

   c. ☐ Payment by credit card (Form PTO-2038 enclosed)

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SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

Signature	/Timothy W. Lohse/	Date	April 29, 2013
Name (Print/Type)	Timothy W. Lohse	Registration No.	35,255

CERTIFICATE OF MAILING OR TRANSMISSION

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

Signature	/Timothy W. Lohse/		
Name (Print/Type)	Timothy W. Lohse	Date	April 29, 2013

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. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Certificate of Transmission Under 37 CFR 1.8
I hereby certify that this correspondence is being transmitted via electronic submission, attention Mail Stop: Amendment, Commissioner for Patents, Alexandria, VA 22313-1450 on:

April 29, 2013

/Timothy W. Lohse/
Timothy W. Lohse

Appl. No.	:	11/503,090	Confirmation No.	9855
Applicant	:	Vipul Pabari		
Filed	:	August 10, 2006		
TC/A.U.	:	2478		
Examiner	:	Abdelnabi Musa		
Docket No.	:	367894-000003		
Customer No.	:	26379		

Title: VIRTUAL SYSTEMS MANAGEMENT

RESPONSE TO FINAL OFFICE ACTION

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

Sir:

In response to the office action, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 8 of this paper.

1. Listing of the claims:

1. (Previously Presented) A method for automatic management of a virtualization environment in a computer network, the method comprising:

providing a virtualization environment that has a virtualization layer, network resources and virtual assets, the virtual assets including at least one software instantiations of equipment objects in the virtualization environment;

providing a controller coupled to the virtualization environment over a network;

determining, using the controller, an inventory of network resources and virtual assets available to the virtualization environment;

provisioning, by the controller, the virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment;

determining, at the controller, real time performance metrics for the provisioned virtualization environment;

automatically determining, for the provisioned virtualization environment under control of the controller, a reallocation of the virtual assets in response to the real time performance metrics;

initiating, by the controller, the reallocation of the virtual assets in the provisioned virtualization environment.

2. Cancelled.

3. Cancelled.

4. (Previously Presented) The method of claim 1 further comprising receiving user input that is a Knowledge Block that determines one or more of the reallocation parameters to be considered with the real time performance metrics in producing the reallocation of assets and wherein the received user input specifies parameters that detect operational degradation of a member of the available inventory.

5. (Original) The method of claim 4, wherein the available inventory member that is detected as degraded is removed from the available inventory.

6. (Original) The method of claim 4, wherein the available inventory that is detected as degraded is moved from the available inventory to a debug inventory pool.

7. (Original) The method of claim 4, wherein log files are retrieved from the available inventory that is detected as degraded.

8. (Original) The method of claim 7, wherein the log files are stored in an archive and an alert message is sent to a network administrator with an identification of the log file archive location.

9. (Original) The method of claim 4, wherein the available inventory that is detected as degraded is halted and is removed from the available inventory to a debug inventory pool.

10. (Original) The method of claim 9, wherein the halted available inventory is removed from the debug inventory pool.

11. (Previously Presented) The method of claim 4, wherein the Knowledge Block specifies parameters that send an alert message to an administrator of the network in response to an alert condition.

12. (Previously Presented) The method of claim 4, wherein the Knowledge Block specifies parameters that receive an instruction from an administrator of the network in response to an alert condition.

13. Cancelled.

14. (Previously Presented) The method of claim 4, wherein the Knowledge Block specifies parameters that deploy an instance of an application selected from among the available inventory.

15. (Previously Presented) The method of claim 4, wherein the received user input specifies a priority for one or more of the available inventory.

16. (Previously Presented) The method of claim 4, wherein the user input specifies a time period during which the reallocation will be applied.

17. (Original) The method of claim 1, further comprising: providing a user interface through which user input can be received and wherein the user input adjusts scheduling of producing the reallocation.

18. (Original) The method of claim 1, wherein producing a reallocation comprises adding a new application instance to the available inventory.

19. (Original) The method of claim 1, wherein producing a reallocation comprises updating the available inventory to include any changes made by the reallocation.

20. (Original) The method of claim 1, wherein the inventory of available inventory includes one or more application programs.

21. (Original) The method of claim 20, wherein one of the application programs comprises a network load balancer.

22. (Original) The method of claim 20, wherein one of the application programs comprises a network server.

23. (Original) The method of claim 1, wherein: determining, by an Asset Manager Component, an inventory of available network resources and virtual assets; assigning prioritization to the available inventory and provisioning virtual assets from among the available inventory, performed by a Provisioning Manager component; determining, by a Performance Manager component, a real time performance metrics; and automatically producing and initializing, by an Optimizer component, a reallocation of the virtual assets.

24. (Original) The method of claim 23, wherein automatically producing a reallocation of the virtual assets comprises forecasting future system needs, which is performed by a Capacity Planning Manager component.

25. (Previously Presented) A method for automatic management of a virtualization environment in a computer network, the method comprising:

providing a virtualization environment that has a virtualization layer, network resources and virtual assets, the virtual assets including at least one software instantiations of equipment objects in the virtualization environment;

providing a controller coupled to the virtualization environment over a network;

performing one or more functions by the controller from the group of functions consisting of

(1) identification and management of network resources and virtual assets,

(2) provisioning of virtual assets in response to network workflow demands,

(3) dynamic deployment of virtual assets across the computer network,

(4) performance measurement and reporting of resources and virtual assets, and

(5) planning and forecasting of resource demands and virtual asset utilization of the virtualization environment;

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment.

26. Cancelled.

27. (Previously Presented) An apparatus that performs automatic management of a virtualization environment in a computer network comprising:

a network communications unit that enables communications between the apparatus and a virtualization environment over a computer network;

an operating system of the apparatus that supports a virtualization environment in communication with the apparatus over the computer network; and

a Virtual Mapping layer that determines an inventory of network resources and virtual assets available to the virtualization environment, wherein the Virtual Mapping layer determines the inventory without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment, wherein the virtual assets comprise at least one software instantiations of equipment objects in the virtualization environment; and

a controller that provisions the virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment, determines real time performance metrics for the provisioned virtualization environment, automatically determines for the provisioned virtualization environment under control of the controller, a reallocation of the virtual assets in response to the real time performance metrics and initiates the reallocation of the virtual assets in the provisioned virtualization environment.

28. (Previously Presented) The apparatus of claim 27, further comprising one or more components that receive the inventory of available resources and assets from the Virtual Mapping layer and perform one or more functions from the group of functions consisting of:

identification and management of network resources and virtual assets,

dynamic deployment of virtual assets across the computer network,

performance measurement and reporting of resources and virtual assets, and

planning and forecasting of resource demands and asset utilization of the virtualization environment;

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment.

29. (Original) The apparatus of claim 27, further comprising a component selected from a group consisting of: an Asset Manager component that determines an inventory of available network resources and virtual assets;

a Provisioning Manager component that assigns a prioritization to the available inventory and provisions virtual assets from among the available inventory;

a Performance Manager component that determines real time performance metrics; and

an Optimizer component that automatically produces a reallocation of the virtual assets and initiates the reallocation.

30. (Previously Presented) The method of claim 1 wherein the virtual assets further comprise a second virtual machine which comprises virtual assets, and the at least one virtual machine and the second virtual machine each run their own respective operating systems which are a different type of operating system from each other.

31. -35. Canceled

36. (Previously Presented) The method of claim 1 wherein provisioning virtual assets from among the available inventory further comprises routing an application running on a first virtual machine to run on a second virtual machine.

37. Cancelled.

38. Cancelled.

39. (Previously Presented) The method of claim 25 wherein provisioning virtual assets from among the available inventory further comprises creating a new virtual machine on the single physical host.

40. (Previously Presented) The method of claim 1 wherein provisioning virtual assets from among the available inventory further comprises communicating provisioning instructions from a control agent comprising at least one virtualization platform adapter to a virtualization layer in the single physical host.

REMARKS

In response to the rejection of claims 1, 4-6 and 9-12, 14-25, 27-30, 36 and 39-40 under 35 U.S.C. 103 as being unpatentable over US Patent Application 2008/0086731 to Trossman et al. ("Trossman") in view of US Patent Application 2006/0149842 to Dawson et al. ("Dawson"), Applicant respectfully traverses the rejections since the combination of prior art cited by the examiner does not disclose or suggest each claim element of the amended claims.

Independent Claim 1

Independent claim 1 recite claim elements that are not disclosed or suggested by the combination of Trossman and Dawson.

Providing a Virtualization Environment Claim Element

Claim 1 also recites "providing a virtualization environment that has a virtualization layer, network resources and virtual assets, the virtual assets including at least one software instantiations of equipment objects in the virtualization environment" which is not disclosed or suggested by Trossman and Dawson.

Trossman does not disclose this claim element as admitted by the examiner. *See Final Office Action at 4.*

The examiner cites to paragraphs 0012-0014 and 0042-0045 of Dawson as disclosing this claim element.

Dawson is a grid computing system that has one or more resources in the grid environment as shown in Figure 2. An architecture 300 of a grid environment is shown in Figure 3 that is reproduced below.

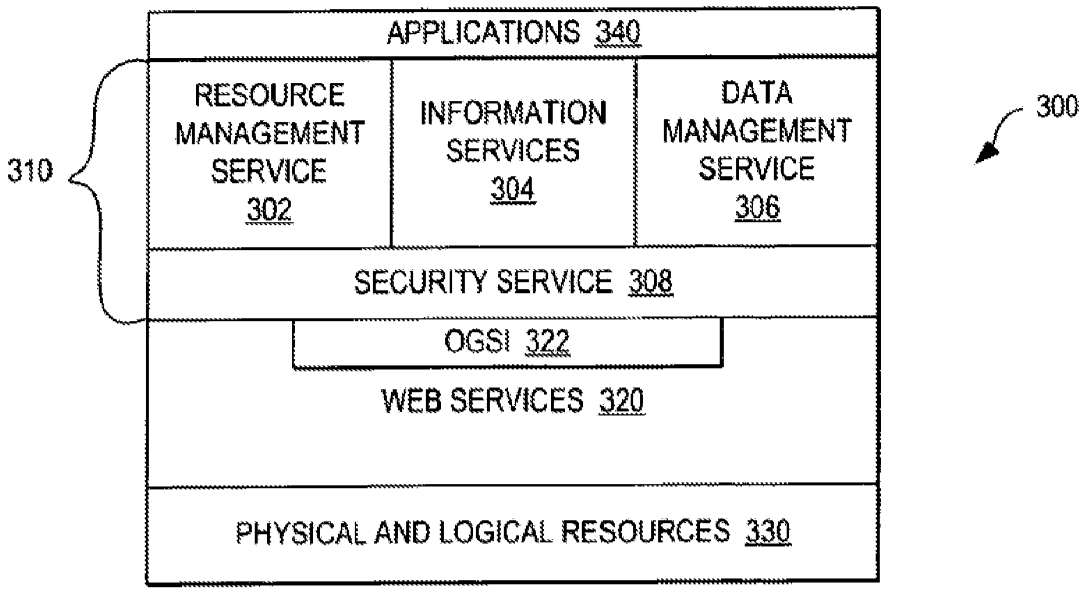


Fig. 3

The examiner alleges that Dawson teaches us about "virtualization environment that includes multiple resource nodes in paragraphs 0012-14. However, there is no mention of a virtualization environment in whole of Dawson since it is a "grid environment".

Furthermore, the grid environment 300 above has physical and logical resources 330 in which the "logical resources virtualize and aggregate the physical layer into usable resources such as operating systems, processing power, memory, I/O processing, file systems, database managers, directories, memory managers, and other resources." *See Dawson at 0042*. Dawson also discloses that the physical and logical resources may include processing resources, memory resources and storage resources. *See Dawson at 0045*. Thus, Dawson teaches a **grid environment** where logical grouping of resources across physical nodes as virtual node grouping. However, there is no disclosure of "virtualization environment" (and/or "virtual assets" and/or "at least one software instantiations of equipment objects in the virtualization environment") as set forth in claim 1. Thus, Dawson does not disclose or suggest this claim element.

Providing a Controller Claim Element

Claim 1 recites "providing a controller coupled to the virtualization environment over a network", "determining, using the controller, an inventory of network resources and virtual assets available to the virtualization environment", "provisioning, by the controller, the virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment", "determining, at the controller, real time performance metrics for the provisioned virtualization environment", "automatically determining, for the provisioned virtualization environment under control of the controller, a reallocation of the virtual assets in response to the real time performance metrics" and "initiating, by the controller, the reallocation of the virtual assets in the provisioned virtualization environment" which are not disclosed or suggested by Trossman and Dawson.

Dawson does not disclose or suggest this claim element.

Trossman also does not disclose or suggest this claim element. The examiner cites to paragraph 0045 and 0052 and the controller 102 in Trossman as meeting this claim element. *See Final Office action at 2.*

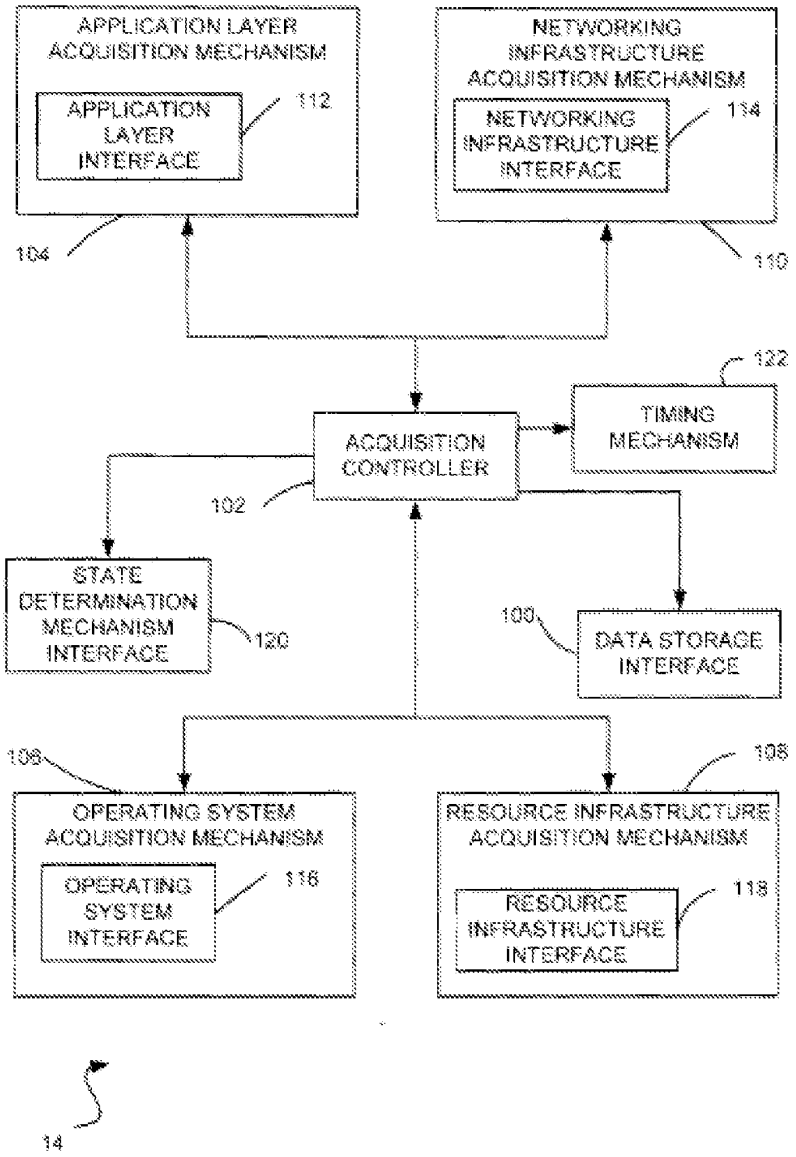


FIG. 2

However, as shown in Figure 2 of Trossman (reproduced above), the controller 102 is part of the data acquisition mechanism 14 of Trossman. The controller 102 is an acquisition controller 102 that controls the data acquisition from each layer of the application environment. *See Trossman at 0045.* This controller 102 of Trossman thus is a data acquisition controller that does not perform the claimed processes of "determining, using the controller, an inventory of network resources

and virtual assets available to the virtualization environment", "provisioning, by the controller, the virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment", "determining, at the controller, real time performance metrics for the provisioned virtualization environment", "automatically determining, for the provisioned virtualization environment under control of the controller, a reallocation of the virtual assets in response to the real time performance metrics" and "initiating, by the controller, the reallocation of the virtual assets in the provisioned virtualization environment." Thus, this claim element is not disclosed or suggested in Trossman.

Furthermore, the claimed process of "determining, using the controller, an inventory of network resources and virtual assets available to the virtualization environment" is not disclosed by Trossman.

Thus, this claim element is not disclosed or suggested by Trossman and Dawson and the obviousness rejection should be withdrawn.

Claim 1 is therefore not obvious over Trossman and Dawson.

Dependent Claims 4-12, 14-24, 30, 36 and 40

These dependent claims, that depend from claim 1, are not obvious over Trossman and Dawson for the same reasons as independent claim 1 above.

Independent Claim 25

Independent claim 25 recite claim elements that are not disclosed or suggested by the combination of Trossman and Dawson.

Providing a Virtualization Environment Claim Element

Claim 25 also recites "providing a virtualization environment that has a virtualization layer, network resources and virtual assets, the virtual assets including at least one software instantiations of equipment objects in the virtualization environment" which is not disclosed or suggested by Trossman and Dawson.

Trossman does not disclose this claim element as admitted by the examiner. *See Final Office Action at 4.*

The examiner cites to paragraphs 0012-0014 and 0042-0045 of Dawson as disclosing this claim element.

Dawson is a grid computing system that has one or more resources in the grid environment as shown in Figure 2. An architecture 300 of a grid environment is shown in Figure 3 that is reproduced below.

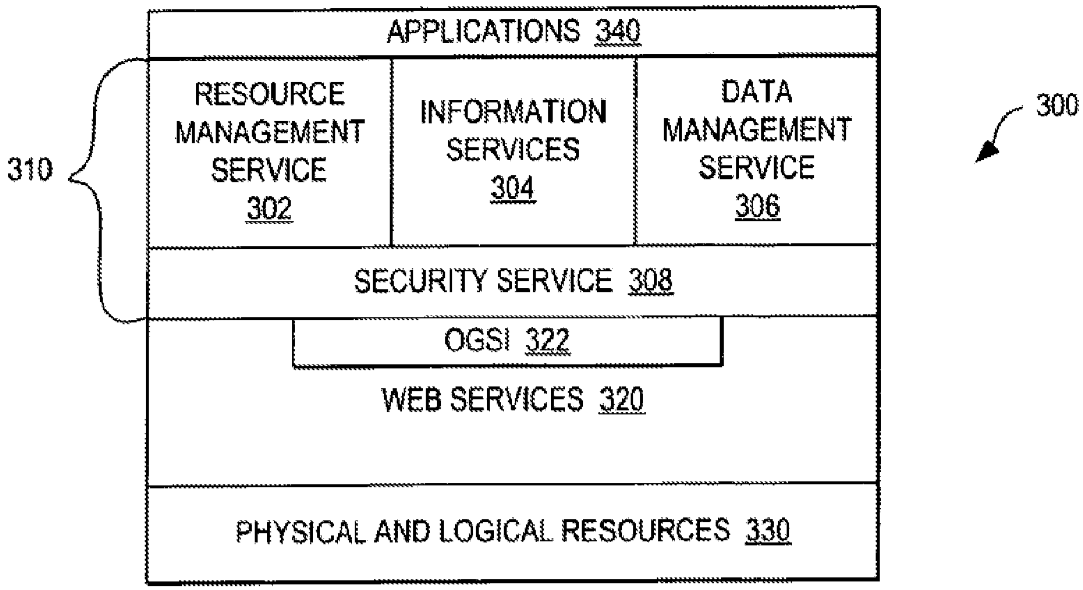


Fig. 3

The examiner alleges that Dawson teaches us about "virtualization environment that includes multiple resource nodes in paragraphs 0012-14. However, there is no mention of a virtualization environment in whole of Dawson since it is a "grid environment".

Furthermore, the grid environment 300 above has physical and logical resources 330 in which the "logical resources virtualize and aggregate the physical layer into usable resources such as operating systems, processing power, memory, I/O processing, file systems, database managers, directories, memory managers, and other resources." *See Dawson at 0042*. Dawson also discloses that the physical and logical resources may include processing resources, memory resources and storage resources. *See Dawson at 0045*. Thus, Dawson teaches a **grid environment** where logical grouping of resources across physical nodes as virtual node grouping. However, there is no disclosure of "virtualization environment" (and/or "virtual

assets" and/or "at least one software instantiations of equipment objects in the virtualization environment") as set forth in claim 25. Thus, Dawson does not disclose or suggest this claim element.

Providing a Controller Claim Element

Claim 25 recites "providing a controller coupled to the virtualization environment over a network" and "performing one or more functions by the controller from the group of functions consisting of (1) identification and management of network resources and virtual assets, (2) provisioning of virtual assets in response to network workflow demands, (3) dynamic deployment of virtual assets across the computer network, (4) performance measurement and reporting of resources and virtual assets, and (5) planning and forecasting of resource demands and virtual asset utilization of the virtualization environment" which are not disclosed or suggested by Trossman and Dawson.

Dawson does not disclose or suggest this claim element.

Trossman also does not disclose or suggest this claim element. The examiner cites to paragraph 0045 and 0052 and the controller 102 in Trossman as meeting this claim element. *See Final Office action at 2.*

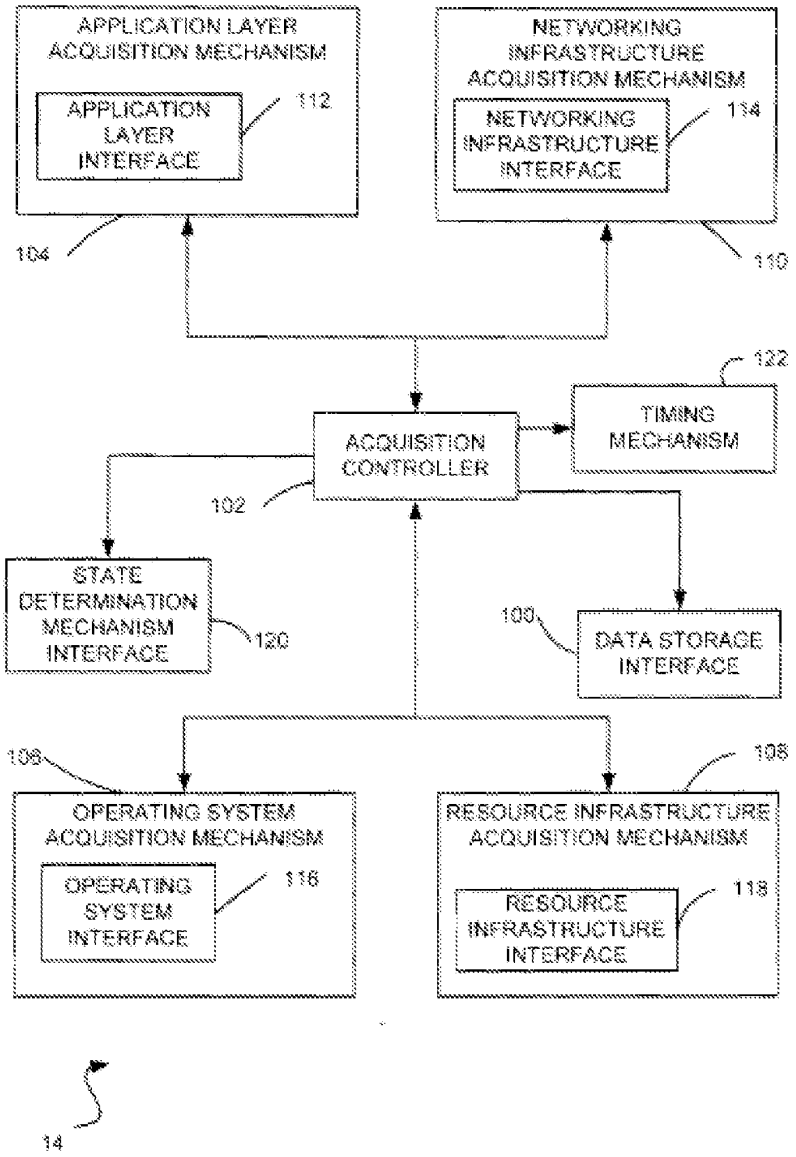


FIG. 2

However, as shown in Figure 2 of Trossman (reproduced above), the controller 102 is part of the data acquisition mechanism 14 of Trossman. The controller 102 is an acquisition controller 102 that controls the data acquisition from each layer of the application environment. *See Trossman at 0045.* This controller 102 of Trossman thus is a data acquisition controller that does not perform the claimed processes of "determining, using the controller, an inventory of network resources

and virtual assets available to the virtualization environment", "provisioning, by the controller, the virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment", "determining, at the controller, real time performance metrics for the provisioned virtualization environment", "automatically determining, for the provisioned virtualization environment under control of the controller, a reallocation of the virtual assets in response to the real time performance metrics" and "initiating, by the controller, the reallocation of the virtual assets in the provisioned virtualization environment." Thus, this claim element is not disclosed or suggested in Trossman.

Furthermore, the claimed process of "determining, using the controller, an inventory of network resources and virtual assets available to the virtualization environment" is not disclosed by Trossman.

Thus, this claim element is not disclosed or suggested by Trossman and Dawson and the obviousness rejection should be withdrawn.

Independent Claim 27

Independent claim 27 recites "a controller that provisions the virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment, determines real time performance metrics for the provisioned virtualization environment, automatically determines for the provisioned virtualization environment under control of the controller, a reallocation of the virtual assets in response to the real time performance metrics and initiates the reallocation of the virtual assets in the provisioned virtualization environment" which is not disclosed in Trossman and Dawson.

Dawson does not disclose or suggest this claim element.

Trossman also does not disclose or suggest this claim element. The examiner cites to paragraph 0045 and 0052 and the controller 102 in Trossman as meeting this claim element. *See Final Office action at 2.*

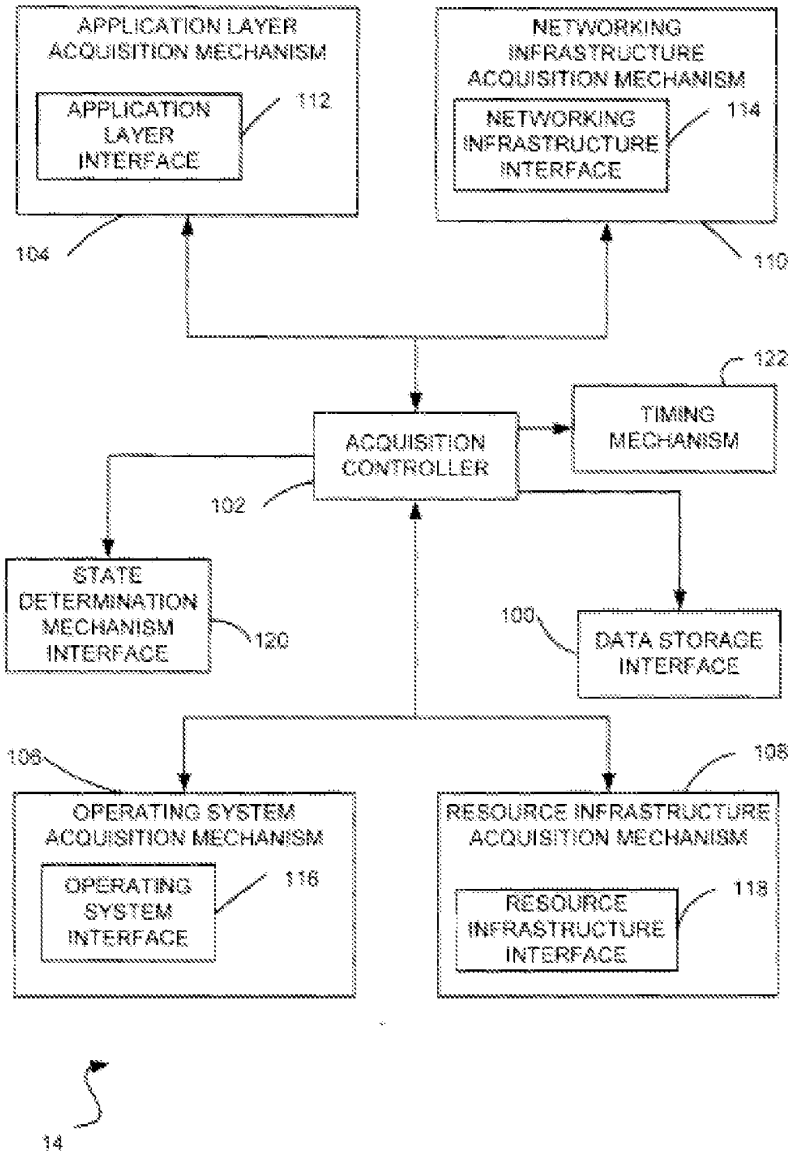


FIG. 2

However, as shown in Figure 2 of Trossman (reproduced above), the controller 102 is part of the data acquisition mechanism 14 of Trossman. The controller 102 is an acquisition controller 102 that controls the data acquisition from each layer of the application environment. *See Trossman at 0045.* This controller 102 of Trossman thus is a data acquisition controller that does not perform the claimed processes of "determining, using the controller, an inventory of network resources

and virtual assets available to the virtualization environment", "provisioning, by the controller, the virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment", "determining, at the controller, real time performance metrics for the provisioned virtualization environment", "automatically determining, for the provisioned virtualization environment under control of the controller, a reallocation of the virtual assets in response to the real time performance metrics" and "initiating, by the controller, the reallocation of the virtual assets in the provisioned virtualization environment." Thus, this claim element is not disclosed or suggested in Trossman.

Furthermore, the claimed process of "determining, using the controller, an inventory of network resources and virtual assets available to the virtualization environment" is not disclosed by Trossman since the controller 102 performs data acquisition only.

Thus, this claim element is not disclosed or suggested by Trossman and Dawson and the obviousness rejection should be withdrawn.

CONCLUSION

In view of the above, it is respectfully submitted that the claims are allowable over the prior art cited by the Examiner and early allowance of these claims and the application is respectfully requested.

The Examiner is invited to call Applicant's attorney at the number below in order to speed the prosecution of this application.

The Commissioner is authorized to charge any deficiencies in fees and credit any overpayment of fees to Deposit Account No. 07-1896.

Respectfully submitted,

DLA PIPER US LLP

Dated: April 29, 2013

By /Timothy W. Lohse/
Timothy W. Lohse
Reg. No. 35,255
Attorney for Applicant

DLA PIPER US LLP
2000 University Avenue
East Palo Alto, CA 94303
Telephone: (650) 833-2055

Electronic Patent Application Fee Transmittal	
Application Number:	11503090
Filing Date:	10-Aug-2006
Title of Invention:	Virtual systems management
First Named Inventor/Applicant Name:	Vipul Pabari
Filer:	Timothy W. Lohse
Attorney Docket Number:	367894-000003
Filed as Small 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($)
Miscellaneous:				
Request for Continued Examination	2801	1	600	600
		Total in USD ($)		**600**

Electronic Acknowledgement Receipt	
EFS ID:	15639115
Application Number:	11503090
International Application Number:	
Confirmation Number:	9855
Title of Invention:	Virtual systems management
First Named Inventor/Applicant Name:	Vipul Pabari
Customer Number:	26379
Filer:	Timothy W. Lohse
Filer Authorized By:	
Attorney Docket Number:	367894-000003
Receipt Date:	29-APR-2013
Filing Date:	10-AUG-2006
Time Stamp:	19:39:20
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$600
RAM confirmation Number	7055
Deposit Account	071896
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	Request for Continued Examination (RCE)	367894-000003_RCE-4-29-13.pdf	19762 bd886551a07a192de3ac9d9e1385d2de31441299	no	1
Warnings:					
This is not a USPTO supplied RCE SB30 form.					
Information:					
2		367894-000003_Response_to_FOA-4-29-13.pdf	125249 0775b052abd4c70c18ad2bd708879aee1a9fa8f5	yes	18

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment After Final	1	1
	Claims	2	7
	Applicant Arguments/Remarks Made in an Amendment	8	18

Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	29994 515c7ecaacfadf91026866 4f93b0809c77965209	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	175005		

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 (09-11)
Approved for use through 1/31/2014. 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 11/503,090	Filing Date 08/10/2006	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)		
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	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 $310 ($155 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	

APPLICATION AS AMENDED – PART II

AMENDMENT	04/29/2013	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 29	Minus	** 35	= 0	X $40 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	***4	= 0	X $210 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	0

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						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.

LIE
/VIOLA ROGERS/

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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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/503,090	08/10/2006	Vipul Pabari	367894-000003	9855

26379 7590 06/26/2013

DLA PIPER LLP (US)
2000 UNIVERSITY AVENUE
EAST PALO ALTO, CA 94303-2248

EXAMINER	
MUSA, ABDELNABI O	
ART UNIT	PAPER NUMBER
2478	

NOTIFICATION DATE	DELIVERY MODE
06/26/2013	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):

PatentDocketingUS-PaloAlto@dlapiper.com

Applicant-Initiated Interview Summary	Application No.	Applicant(s)	
	11/503,090	PABARI, VIPUL	
	Examiner	Art Unit	
	KENNY LIN	2478	

All participants (applicant, applicant's representative, PTO personnel):

(1) *KENNY LIN*.

(2) *Abdelnabi Musa*.

(3) *Timothy Lohse, Reg. 35,255*.

(4) *Vipul Pabari - inventor*.

Date of Interview: *18 June 2013*.

Type: ☐ Telephonic ☐ Video Conference
☒ Personal [copy given to: ☒ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☒ No.
If Yes, brief description: _____.

Issues Discussed ☐101 ☐112 ☐102 ☐103 ☐Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: *1 and 23*.

Identification of prior art discussed: *Trossman*.

Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

Brief explanation of the invention was given by the inventor. Examiner provided suggestions on amending the claim language to further define virtualization layer with management functions and possibly include the limition of claim 23 to further define the metrics performance measured.

Applicant recordation instructions: The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☐ Attachment

/Kenny S Lin/ Primary Examiner, Art Unit 2478	

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record
A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews
Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.
All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

———

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:
- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:
1) A brief description of the nature of any exhibit shown or any demonstration conducted,
2) an identification of the claims discussed,
3) an identification of the specific prior art discussed,
4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
5) a brief identification of the general thrust of the principal arguments presented to the examiner,
   (The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
6) a general indication of any other pertinent matters discussed, and
7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

Certificate of Transmission Under 37 CFR 1.8
I hereby certify that this correspondence is being transmitted via electronic submission, attention Mail Stop: Amendment, Commissioner for Patents, Alexandria, VA 22313-1450 on:

July 11, 2013

/Timothy W. Lohse/
Timothy W. Lohse

Appl. No.	:	11/503,090	Confirmation No.	9855
Applicant	:	Vipul Pabari		
Filed	:	August 10, 2006		
TC/A.U.	:	2478		
Examiner	:	Abdelnabi Musa		
Docket No.	:	367894-000003		
Customer No.	:	26379		

Title: VIRTUAL SYSTEMS MANAGEMENT

SUPPLEMENTAL RESPONSE TO FINAL OFFICE ACTION

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

Sir:

In response to the office action, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 8 of this paper.

1. Listing of the claims:

1. (Currently Amended) A method for automatic management of a virtualization environment in a computer network, the method comprising:

providing a virtualization environment that has a virtualization layer, network resources and virtual assets, the virtual assets including at least one software instantiations of equipment objects in the virtualization environment, the virtualization layer managing the virtual assets;

providing a controller coupled to the virtualization environment over a network that communicates with the virtualization layer;

determining, using the controller that communicates with the virtualization layer, an inventory of network resources and virtual assets available to the virtualization environment;

provisioning, by the controller that communicates with the virtualization layer, the virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment;

determining, at the controller, real time performance metrics for the provisioned virtualization environment;

automatically determining, for the provisioned virtualization environment under control of the controller, a reallocation of the virtual assets in response to the real time performance metrics;

initiating, by the controller that communicates with the virtualization layer, the reallocation of the virtual assets in the provisioned virtualization environment.

2. Cancelled.

3. Cancelled.

4. (Previously Presented) The method of claim 1 further comprising receiving user input that is a Knowledge Block that determines one or more of the reallocation parameters to be considered with the real time performance metrics in producing the reallocation of assets and wherein the received user input specifies parameters that detect operational degradation of a member of the available inventory.

5. (Original) The method of claim 4, wherein the available inventory member that is detected as degraded is removed from the available inventory.

6. (Original) The method of claim 4, wherein the available inventory that is detected as degraded is moved from the available inventory to a debug inventory pool.

7. (Original) The method of claim 4, wherein log files are retrieved from the available inventory that is detected as degraded.

8. (Original) The method of claim 7, wherein the log files are stored in an archive and an alert message is sent to a network administrator with an identification of the log file archive location.

9. (Original) The method of claim 4, wherein the available inventory that is detected as degraded is halted and is removed from the available inventory to a debug inventory pool.

10. (Original) The method of claim 9, wherein the halted available inventory is removed from the debug inventory pool.

11. (Previously Presented) The method of claim 4, wherein the Knowledge Block specifies parameters that send an alert message to an administrator of the network in response to an alert condition.

12. (Previously Presented) The method of claim 4, wherein the Knowledge Block specifies parameters that receive an instruction from an administrator of the network in response to an alert condition.

13. Cancelled.

14. (Previously Presented) The method of claim 4, wherein the Knowledge Block specifies parameters that deploy an instance of an application selected from among the available inventory.

15. (Previously Presented) The method of claim 4, wherein the received user input specifies a priority for one or more of the available inventory.

16. (Previously Presented) The method of claim 4, wherein the user input specifies a time period during which the reallocation will be applied.

17. (Original) The method of claim 1, further comprising: providing a user interface through which user input can be received and wherein the user input adjusts scheduling of producing the reallocation.

18. (Original) The method of claim 1, wherein producing a reallocation comprises adding a new application instance to the available inventory.

19. (Original) The method of claim 1, wherein producing a reallocation comprises updating the available inventory to include any changes made by the reallocation.

20. (Original) The method of claim 1, wherein the inventory of available inventory includes one or more application programs.

21. (Original) The method of claim 20, wherein one of the application programs comprises a network load balancer.

22. (Original) The method of claim 20, wherein one of the application programs comprises a network server.

23. (Original) The method of claim 1, wherein: determining, by an Asset Manager Component, an inventory of available network resources and virtual assets; assigning prioritization to the available inventory and provisioning virtual assets from among the available inventory, performed by a Provisioning Manager component; determining, by a Performance Manager component, a real time performance metrics; and automatically producing and initializing, by an Optimizer component, a reallocation of the virtual assets.

24. (Original) The method of claim 23, wherein automatically producing a reallocation of the virtual assets comprises forecasting future system needs, which is performed by a Capacity Planning Manager component.

25. (Currently Amended) A method for automatic management of a virtualization environment in a computer network, the method comprising:

providing a virtualization environment that has a virtualization layer, network resources and virtual assets, the virtual assets including at least one software instantiations of equipment objects in the virtualization environment, the virtualization layer managing the virtual assets;

providing a controller coupled to the virtualization environment over a network;

performing one or more functions by the controller that communicates with the virtualization layer from the group of functions consisting of

(1) identification and management of network resources and virtual assets,

(2) provisioning of virtual assets in response to network workflow demands,

(3) dynamic deployment of virtual assets across the computer network,

(4) performance measurement and reporting of resources and virtual assets, and

(5) planning and forecasting of resource demands and virtual asset utilization of the virtualization environment;

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment.

26. Cancelled.

27. (Currently Amended) An apparatus that performs automatic management of a virtualization environment in a computer network comprising:

a virtualization environment that has a virtualization layer, network resources and virtual assets, the virtual assets including at least one software instantiations of equipment objects in the virtualization environment, the virtualization layer managing the virtual assets;

a network communications unit that enables communications between the apparatus and the ~~a~~ virtualization environment over a computer network;

an operating system of the apparatus that supports the ~~a~~ virtualization environment in communication with the apparatus over the computer network; and

a Virtual Mapping layer that determines an inventory of network resources and virtual assets available to the virtualization environment, wherein the Virtual Mapping layer determines the inventory without regard to processors, operating systems, virtualization platforms, and

application software of the virtualization environment~~, wherein the virtual assets comprise at least one software instantiations of equipment objects in the virtualization environment~~; and

a controller that communicates with the virtualization layer and provisions the virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment, determines real time performance metrics for the provisioned virtualization environment, automatically determines for the provisioned virtualization environment ~~under control of the controller~~, a reallocation of the virtual assets in response to the real time performance metrics and initiates the reallocation of the virtual assets in the provisioned virtualization environment.

28. (Previously Presented) The apparatus of claim 27, further comprising one or more components that receive the inventory of available resources and assets from the Virtual Mapping layer and perform one or more functions from the group of functions consisting of:

identification and management of network resources and virtual assets,

dynamic deployment of virtual assets across the computer network,

performance measurement and reporting of resources and virtual assets, and

planning and forecasting of resource demands and asset utilization of the virtualization environment;

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment.

29. (Original) The apparatus of claim 27, further comprising a component selected from a group consisting of: an Asset Manager component that determines an inventory of available network resources and virtual assets;

a Provisioning Manager component that assigns a prioritization to the available inventory and provisions virtual assets from among the available inventory;

a Performance Manager component that determines real time performance metrics; and

an Optimizer component that automatically produces a reallocation of the virtual assets and initiates the reallocation.

30. (Previously Presented) The method of claim 1 wherein the virtual assets further comprise a second virtual machine which comprises virtual assets, and the at least one virtual machine and the second virtual machine each run their own respective operating systems which are a different type of operating system from each other.

31. -35. Canceled

36. (Previously Presented) The method of claim 1 wherein provisioning virtual assets from among the available inventory further comprises routing an application running on a first virtual machine to run on a second virtual machine.

37. Cancelled.

38. Cancelled.

39. (Previously Presented) The method of claim 25 wherein provisioning virtual assets from among the available inventory further comprises creating a new virtual machine on the single physical host.

40. (Previously Presented) The method of claim 1 wherein provisioning virtual assets from among the available inventory further comprises communicating provisioning instructions from a control agent comprising at least one virtualization platform adapter to a virtualization layer in the single physical host.

REMARKS

Applicant wishes to thank the examiner and his supervisor for the time spent during an in person interview that Applicant found to be extremely helpful. During that interview, suggestions were made about the virtualization layer element that would distinguish over the grid computing disclosed in Dawson and Applicant has amended the claims based on those suggestions.

PRIOR ART REJECTIONS

In response to the rejection of claims 1, 4-6 and 9-12, 14-25, 27-30, 36 and 39-40 under 35 U.S.C. 103 as being unpatentable over US Patent Application 2008/0086731 to Trossman et al. ("Trossman") in view of US Patent Application 2006/0149842 to Dawson et al. ("Dawson"), Applicant respectfully traverses the rejections since the combination of prior art cited by the examiner does not disclose or suggest each claim element of the amended claims.

Independent Claim 1

Independent claim 1 recite claim elements that are not disclosed or suggested by the combination of Trossman and Dawson.

Providing a Virtualization Environment Claim Element

Claim 1 recites "providing a virtualization environment on one or more computers, each computer having a virtualization layer, network resources and virtual assets, the virtual assets including at least one software instantiations of equipment objects in the virtualization environment, the virtualization layer managing the virtual assets" which is not disclosed or suggested by Trossman and Dawson.

Trossman does not disclose this claim element as admitted by the examiner. *See Final Office Action at 4.*

The examiner cites to paragraphs 0012-0014 and 0042-0045 of Dawson as disclosing this claim element.

Dawson is a grid computing system that has one or more resources in the grid environment as shown in Figure 2. An architecture 300 of a grid environment is shown in Figure 3 that is reproduced below.

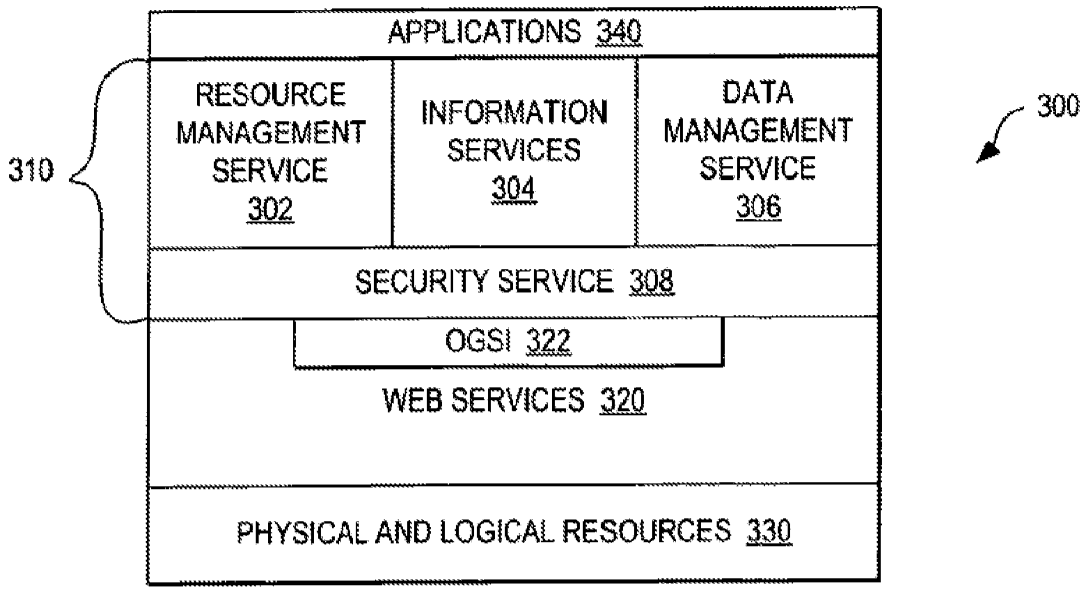


Fig. 3

The examiner alleges that Dawson teaches us about "virtualization environment that includes multiple resource nodes in paragraphs 0012-14. However, there is no mention of a virtualization environment in whole of Dawson since it is a "grid environment".

Furthermore, the grid environment 300 above has physical and logical resources 330 in which the "logical resources virtualize and aggregate the physical layer into usable resources such as operating systems, processing power, memory, I/O processing, file systems, database managers, directories, memory managers, and other resources." *See Dawson at 0042*. Dawson also discloses that the physical and logical resources may include processing resources, memory resources and storage resources. *See Dawson at 0045*.

Thus, Dawson teaches a **grid environment** where the word "virtualize" is used for logical grouping of resources across physical nodes as virtual node grouping. However, there is no disclosure in Dawson of the "virtualization environment" or "virtualization layer" where virtualization layer that manages the virtual assets" (and/or "virtual assets" and/or "at least one software instantiations of equipment objects in the virtualization environment") , or as set forth in claim 1. Thus, Dawson does not disclose or suggest this claim element since Dawson is only a grid computing system that does not have a virtualization layer.

Providing a Controller Claim Element

Claim 1 also recites "providing a controller coupled to the virtualization environment over a network that communicates with the virtualization layer", "determining, using the controller that communicates with the virtualization layer, an inventory of network resources and virtual assets available to the virtualization environment", "provisioning, by the controller that communicates with the virtualization layer, the virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment", "determining, at the controller, real time performance metrics for the provisioned virtualization environment", "automatically determining, for the provisioned virtualization environment under control of the controller, a reallocation of the virtual assets in response to the real time performance metrics" and "initiating, by the controller that communicates with the virtualization layer, the reallocation of the virtual assets in the provisioned virtualization environment" which are not disclosed or suggested by Trossman and Dawson.

Dawson does not disclose or suggest this claim element.

Trossman also does not disclose or suggest this claim element. The examiner cites to paragraph 0045 and 0052 and the controller 102 in Trossman as meeting this claim element. *See Final Office action at 2.*

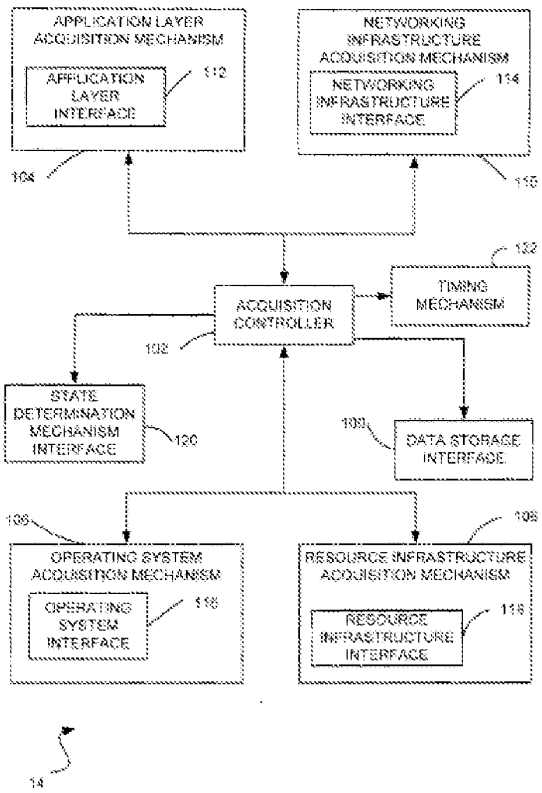


FIG. 2

However, as shown in Figure 2 of Trossman (reproduced above), the controller 102 is part of the data acquisition mechanism 14 of Trossman. The controller 102 is an acquisition controller 102 that controls the data acquisition from each layer of the application environment. *See Trossman at 0045.* This controller 102 of Trossman thus is a data acquisition controller that does not perform the claimed processes of "providing a controller coupled to the virtualization environment over a network that communicates with the virtualization layer", "determining, using the controller that communicates with the virtualization layer, an inventory of network resources and virtual assets available to the virtualization environment", "provisioning, by the controller that communicates with the virtualization layer, the virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment", "determining, at the controller, real time performance metrics for the provisioned virtualization environment", "automatically determining, for the provisioned virtualization environment under control of the controller, a reallocation of the virtual assets in response to the real time performance metrics" and "initiating, by the controller that communicates with the virtualization layer, the reallocation of the virtual

assets in the provisioned virtualization environment." Thus, this claim element is not disclosed or suggested in Trossman.

Furthermore, the claimed process of "determining, using the controller, an inventory of network resources and virtual assets available to the virtualization environment" is not disclosed by Trossman.

Thus, this claim element is not disclosed or suggested by Trossman and Dawson and the obviousness rejection should be withdrawn.

Claim 1 is therefore not obvious over Trossman and Dawson.

Dependent Claims 4-12, 14-24, 30, 36 and 40

These dependent claims, that depend from claim 1, are not obvious over Trossman and Dawson for the same reasons as independent claim 1 above.

Independent Claim 25

Independent claim 25 recite claim elements that are not disclosed or suggested by the combination of Trossman and Dawson.

Providing a Virtualization Environment Claim Element

Claim 25 also recites "providing a virtualization environment on one or more computers, each computer having a virtualization layer, network resources and virtual assets, the virtual assets including at least one software instantiations of equipment objects in the virtualization environment, the virtualization layer managing the virtual assets" which is not disclosed or suggested by Trossman and Dawson.

Trossman does not disclose this claim element as admitted by the examiner. *See Final Office Action at 4.*

The examiner cites to paragraphs 0012-0014 and 0042-0045 of Dawson as disclosing this claim element.

Dawson is a grid computing system that has one or more resources in the grid environment as shown in Figure 2. An architecture 300 of a grid environment is shown in Figure 3 that is reproduced below.

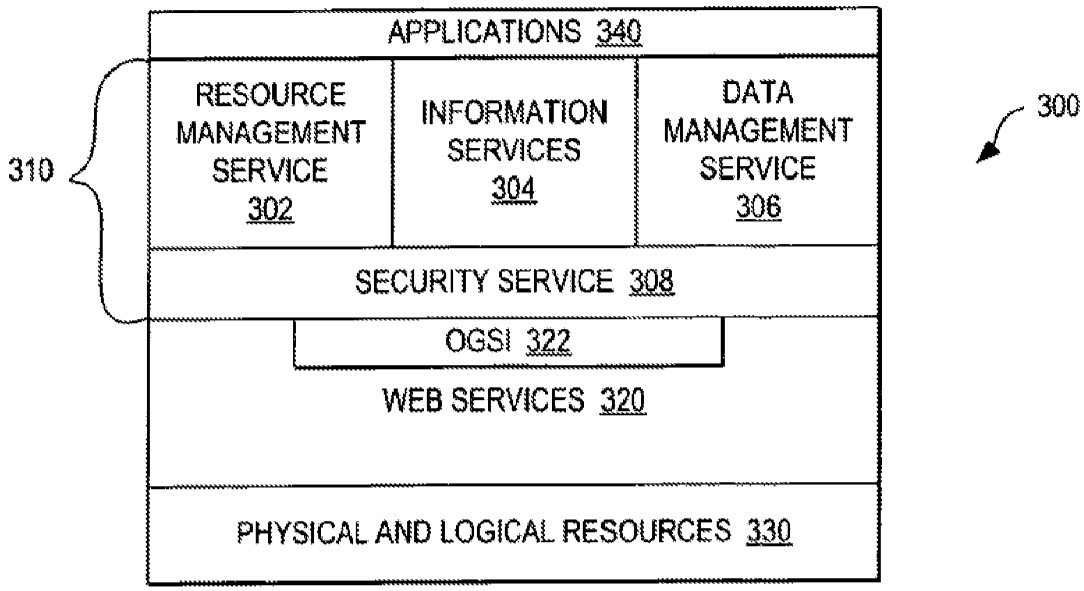


Fig. 3

The examiner alleges that Dawson teaches us about "virtualization environment that includes multiple resource nodes in paragraphs 0012-14. However, there is no mention of a virtualization environment in whole of Dawson since it is a "grid environment".

Furthermore, the grid environment 300 above has physical and logical resources 330 in which the "logical resources virtualize and aggregate the physical layer into usable resources such as operating systems, processing power, memory, I/O processing, file systems, database managers, directories, memory managers, and other resources." *See Dawson at 0042*. Dawson also discloses that the physical and logical resources may include processing resources, memory resources and storage resources. *See Dawson at 0045*.

Thus, Dawson teaches a **grid environment** where the word "virtualize" is used for logical grouping of resources across physical nodes as virtual node grouping. However, there is no disclosure in Dawson of the "virtualization environment" or "virtualization layer" where virtualization layer that manages the virtual assets" (and/or "virtual assets" and/or "at least one software instantiations of equipment objects in the virtualization environment") , or as set forth in claim 1. Thus, Dawson does not disclose or suggest this claim element since Dawson is only a grid computing system that does not have a virtualization layer.

Providing a Controller Claim Element

Claim 25 recites "providing a controller coupled to the virtualization environment over a network" and "performing one or more functions by the controller from the group of functions consisting of (1) identification and management of network resources and virtual assets, (2) provisioning of virtual assets in response to network workflow demands, (3) dynamic deployment of virtual assets across the computer network, (4) performance measurement and reporting of resources and virtual assets, and (5) planning and forecasting of resource demands and virtual asset utilization of the virtualization environment" which are not disclosed or suggested by Trossman and Dawson.

Dawson does not disclose or suggest this claim element.

Trossman also does not disclose or suggest this claim element. The examiner cites to paragraph 0045 and 0052 and the controller 102 in Trossman as meeting this claim element. *See Final Office action at 2*.

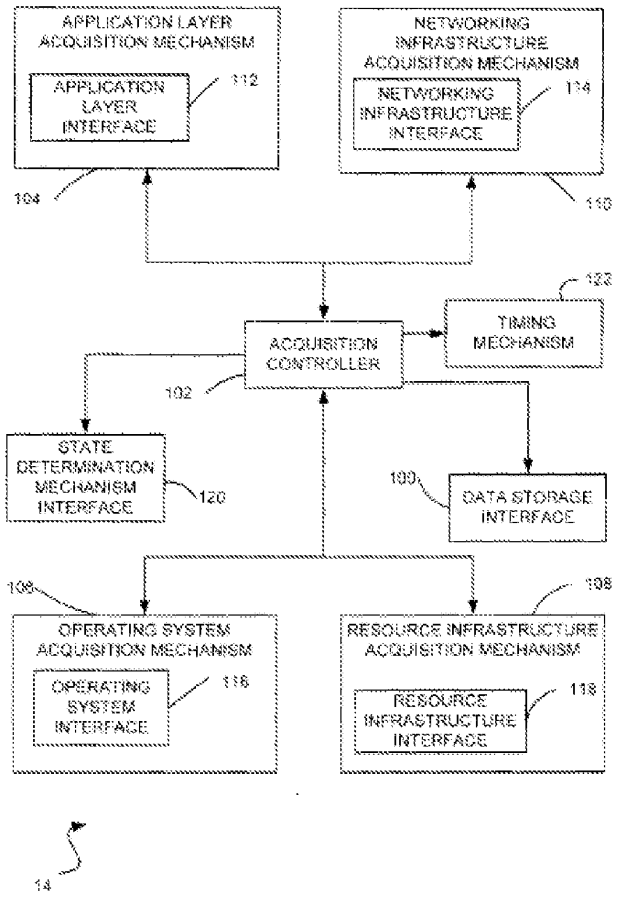


FIG. 2

However, as shown in Figure 2 of Trossman (reproduced above), the controller 102 is part of the data acquisition mechanism 14 of Trossman. The controller 102 is an acquisition controller 102 that controls the data acquisition from each layer of the application environment. *See Trossman at 0045.* This controller 102 of Trossman thus is a data acquisition controller that does not perform the claimed processes of "determining, using the controller, an inventory of network resources and virtual assets available to the virtualization environment", "provisioning, by the controller, the virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment", "determining, at the controller, real time performance metrics for the provisioned virtualization environment", "automatically determining, for the provisioned virtualization environment under control of the controller, a reallocation of the virtual assets in response to the real time performance metrics" and "initiating, by the controller, the reallocation

of the virtual assets in the provisioned virtualization environment." Thus, this claim element is not disclosed or suggested in Trossman.

Furthermore, the claimed process of "determining, using the controller, an inventory of network resources and virtual assets available to the virtualization environment" is not disclosed by Trossman.

Thus, this claim element is not disclosed or suggested by Trossman and Dawson and the obviousness rejection should be withdrawn.

Independent Claim 27

Independent claim 27 recites "a controller that communicates with the virtualization layer and provisions the virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment, determines real time performance metrics for the provisioned virtualization environment, automatically determines for the provisioned virtualization environment, a reallocation of the virtual assets in response to the real time performance metrics and initiates the reallocation of the virtual assets in the provisioned virtualization environment" which is not disclosed in Trossman and Dawson.

Dawson does not disclose or suggest this claim element.

Trossman also does not disclose or suggest this claim element. The examiner cites to paragraph 0045 and 0052 and the controller 102 in Trossman as meeting this claim element. *See Final Office action at 2.*

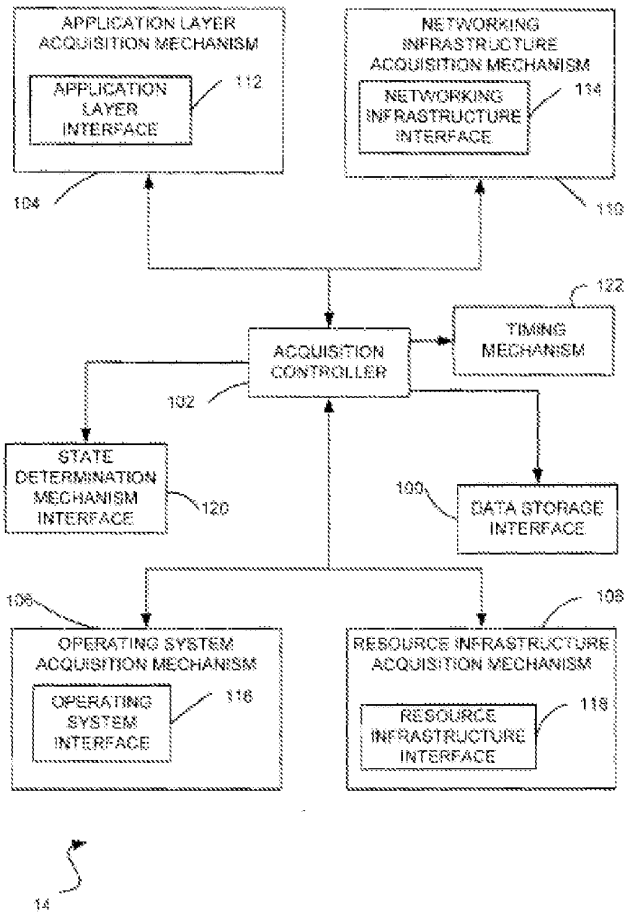


FIG. 2

However, as shown in Figure 2 of Trossman (reproduced above), the controller 102 is part of the data acquisition mechanism 14 of Trossman. The controller 102 is an acquisition controller 102 that controls the data acquisition from each layer of the application environment. *See Trossman at 0045*. This controller 102 of Trossman thus is a data acquisition controller that does not perform the claimed processes of "determining, using the controller, an inventory of network resources and virtual assets available to the virtualization environment", "provisioning, by the controller, the virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment", "determining, at the controller, real time performance metrics for the provisioned virtualization environment", "automatically determining, for the provisioned virtualization environment under control of the controller, a reallocation of the virtual assets in response to the real time performance metrics" and "initiating, by the controller, the reallocation

of the virtual assets in the provisioned virtualization environment." Thus, this claim element is not disclosed or suggested in Trossman.

Furthermore, the claimed process of "determining, using the controller, an inventory of network resources and virtual assets available to the virtualization environment" is not disclosed by Trossman since the controller 102 performs data acquisition only.

Thus, this claim element is not disclosed or suggested by Trossman and Dawson and the obviousness rejection should be withdrawn.

CONCLUSION

In view of the above, it is respectfully submitted that the claims are allowable over the prior art cited by the Examiner and early allowance of these claims and the application is respectfully requested.

The Examiner is invited to call Applicant's attorney at the number below in order to speed the prosecution of this application.

The Commissioner is authorized to charge any deficiencies in fees and credit any overpayment of fees to Deposit Account No. 07-1896.

Respectfully submitted,

DLA PIPER US LLP

Dated: July 11, 2013

By /Timothy W. Lohse/
Timothy W. Lohse
Reg. No. 35,255
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Electronic Acknowledgement Receipt

EFS ID:	16288720
Application Number:	11503090
International Application Number:	
Confirmation Number:	9855
Title of Invention:	Virtual systems management
First Named Inventor/Applicant Name:	Vipul Pabari
Customer Number:	26379
Filer:	Timothy W. Lohse
Filer Authorized By:	
Attorney Docket Number:	367894-000003
Receipt Date:	11-JUL-2013
Filing Date:	10-AUG-2006
Time Stamp:	14:34:48
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		Supplemental__response.pdf	127800 e007d82118c8c53d6d8efb7781cb3fbabe5d2a80	yes	18

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Supplemental Response or Supplemental Amendment	1	1
	Claims	2	7
	Applicant Arguments/Remarks Made in an Amendment	8	18
Warnings:			
Information:			
	Total Files Size (in bytes):	127800	

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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 (09-11)
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 11/503,090	Filing Date 08/10/2006	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)		
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	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 $310 ($155 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	

APPLICATION AS AMENDED – PART II

AMENDMENT	07/11/2013	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 29	Minus	** 35	= 0	X $40 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $210 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	0

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						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.

LIE
/DORIS BURNS/

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.
11/503,090	08/10/2006	Vipul Pabari	367894-000003	9855

26379 7590 09/12/2013

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2000 UNIVERSITY AVENUE
EAST PALO ALTO, CA 94303-2248

EXAMINER	
MUSA, ABDELNABI O	
ART UNIT	**PAPER NUMBER**
2478	

NOTIFICATION DATE	DELIVERY MODE
09/12/2013	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):

PatentDocketingUS-PaloAlto@dlapiper.com

Office Action Summary	Application No. 11/503,090	Applicant(s) PABARI, VIPUL	
	Examiner ABDELNABI MUSA	Art Unit 2478	AIA (First Inventor to File) Status No

-- 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 *26 April 2013*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

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

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ 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

5)☒ Claim(s) *1,4-12,14-25,27-30,36,39 and 40* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1,4-12,14-25,27-30,36,39 and 40* is/are rejected.

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

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

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

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

11)☒ The drawing(s) filed on *10 August 2006* 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).

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).

Certified copies:

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)).

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

Interim copies:

a)☐ All b)☐ Some c)☐ None of the: Interim copies of the priority documents have been received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

DETAILED ACTION

1. Acknowledgment is made for the applicant's response and amendment filed on 07/11/2013.

Continued Examination Under 37 CFR 1.114

2. 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 04/29/2013 has been entered.

Remarks

3. The claims are presented as follows:

- Claims 1, 4, 11-12, 14-16, 25, 27 amended.
- Claims 2-3, 13, 26, 31-35, 37-38 canceled.
- Claims 1, 4-12, 14-25, 27-30, 36, 39-40 pending.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 27-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claim 27-29, the following limitations are recited:

- “a network communications unit that determines….” as recited in claim 27.

Dependent claims 28-29 are also rejected since they are depended upon rejection claims set forth above.

The limitations noted immediately above are means-plus-function limitations that invoke 35 U.S.C. 112, sixth paragraph. However, the written description fails to disclose the corresponding structure, material, or acts for the claimed function.

Applicant is required to:

(a) Amend the claim so that the claim limitation will no longer be a means (or step) plus function limitation under 35 U.S.C. 112, sixth paragraph; or

(b) Amend the written description of the specification such that it expressly recites what structure, material, or acts perform the claimed function without introducing any new matter (35 U.S.C. 132(a)).

If applicant is of the opinion that the written description of the specification already implicitly or inherently discloses the corresponding structure, material, or acts so that one of ordinary skill in the art would recognize what structure, material, or acts perform the claimed function, applicant is required to clarify the record by amending the written description of the specification such that it expressly recites the corresponding structure, material, or acts for performing the claimed function and clearly links or associates the structure, material, or acts to the claimed function, without introducing any new matter (35 U.S.C. 132(a)).

Claim Rejections - 35 USC § 103

5. 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 1, 4-12, 14-25, 27-30, 36, 39-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vasilevsky et al. Pub. No (US. 2005/0044301 A1) in view of Yan et al. Pub. No. (US 2003/0236882 A1).

As per **claim 1,** Vasilevsky teaches a method for automatic management of a virtualization environment in a computer network, the method comprising:

providing a virtualization environment (virtualization environment 100 FIG.1 [0058]) that has a virtualization layer (virtualization layer 104 FIG.1 [0058]), network resources (data center provides resources [0058] FIG.1) and virtual assets (operating system layer 103 FIG.1), the virtual assets including at least one software instantiations of equipment objects in the virtualization environment (the virtual assets including an operating system software 103 FIG.1 [0058]), the virtualization layer managing the virtual assets (the virtualization layer managing the execution of the operating system [0017] [0042] [0058] FIG.1);

providing a controller (Manager 212 FIG.2) coupled to the virtualization environment over a network that communicates with the virtualization layer (Manager 212 connected to the virtual computing system 201 over a network that communicates

with a management agent executed by one or more virtual servers of system 201 for the purpose of performing configuration changes, monitoring performance, and performing other administrative functions associated with system 201 [0070-71] FIG.2)

determining, using the controller that communicates with the virtualization layer (Manager 212 connected to the virtual computing system 201 FIG.2), an inventory of network resources and virtual assets available to the virtualization environment (Manager 212 has the ability for allocating or de-allocating resources both actual and virtual in real time 212 [0072-73])

provisioning, by the controller that communicates with the virtualization layer (Manager 212 connected to the virtual computing system 201 FIG.2), the virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment (An administrator through manger 212 is capable of provisioning resources in real time to support executing virtual servers [0076] [0082] FIG.2);

determining, at the controller, real time performance metrics for the provisioned virtualization environment (a virtual computing system is provided that allows a network administrator to provision computing resources in real-time ("on-the-fly") without a restart of a virtual computing system [0076-77]); charity organization

determining, for the provisioned virtualization environment under control of the controller (Manager 212 connected to the virtual computing system 201 FIG.2), a reallocation of the virtual assets in response to the real time performance metrics (a management agent 815 is responsible for handling dynamic reconfiguration functions as well as reporting status and logging to other entities and may receive commands from

the administrator (e.g., through Manager 212) for adding, deleting, and reallocation of resources from virtual servers in real time [0076] [0150]);

initiating, by the controller that communicates with the virtualization layer (Manager 212 connected to the virtual computing system 201 FIG.2), the reallocation of the virtual assets in the provisioned virtualization environment (the management agent 815 residing within the virtualization environment is responsible for handling dynamic reconfiguration functions by receiving commands from the administrator (through manager 212) for adding, deleting, and reallocating of resources from virtual servers [0150] [0154]).

Vasilevsky does not specifically teach an automatic determination of a reallocation of the virtual assets.

However, Yan teaches a resource system that provides a resource virtualization mechanism ([0026] FIG.6) a management system includes a set of auto-deployment components that receives requirement update requests from a corresponding virtual operating environment and in response automatically conduct resource allocation and service re-deployment to adjust behavior at runtime ([0030] [0062] FIG.6) in order to achieve an efficient virtualization management of network resources.

It would have been obvious to a person having ordinary skilled in the art at the time the invention was made to have modified Vasilevsky by the teaching of Yan to have an automatic determination of a reallocation of the virtual assets in order to achieve an efficient virtualization management of network resources.

As per **claim 4,** Vasilevsky teaches the method of claim 1 further comprising receiving user input that is a Knowledge Block that determines one or more of the reallocation parameters to be considered (I/O functions that may be performed by the distributed virtual machine monitor that may include I/O device configuration and discovery, initiation (for both data movement and control), and reallocating of resources from virtual servers [0112-114] [0150]) with the real time performance metrics in producing the reallocation of assets and wherein the received user input specifies parameters that detect operational degradation of a member of the available inventory (a management agent 815 residing within the virtualization environment is responsible for handling dynamic reconfiguration functions as well as reporting status 'e.g., operational degradation' and logging to other entities by receiving commands from the administrator for adding, deleting, and reallocating resources from virtual servers [0150] [0154]).

As per **claim 5,** Vasilevsky teaches the method of claim 4, wherein the available inventory member that is detected as degraded is removed from the available inventory (a management agent 815 residing within the virtualization environment is responsible for handling dynamic reconfiguration functions as well as reporting status 'e.g., operational degradation' and logging to other entities by receiving commands from the administrator for adding, deleting, and reallocating of resources from virtual servers [0150] [0154]).

As per **claim 6,** Vasilevsky teaches the method of claim 4, wherein the available inventory that is detected as degraded is moved from the available inventory to a debug

inventory pool (a management agent 815 residing within the virtualization environment for handling dynamic reconfiguration functions from the administrator for adding, deleting, and reallocating of resources from virtual servers [0150] [0154]).

As per **claim 7,** Vasilevsky teaches the method of claim 4, wherein log files are retrieved from the available inventory that is detected as degraded (the management agent may be responsible for a number of tasks, including configuration management of the system, virtual server management, logging, parameter management [0086] [0088]).

As per **claim 8,** Vasilevsky teaches the method of claim 7, wherein the log files are stored in an archive and an alert message is sent to a network administrator with an identification of the log file archive location (the management agent may be responsible for a number of tasks, including alarm propagation and alert messages [0086] [0088]).

As per **claim 9,** Vasilevsky teaches the method of claim 4, wherein the available inventory that is detected as degraded is halted and is removed from the available inventory to a debug inventory pool (a management agent 815 residing within the virtualization environment is responsible for handling dynamic reconfiguration functions as well as reporting status 'e.g., operational degradation' and logging to other entities by receiving commands from the administrator for adding, deleting, and reallocating resources from virtual servers [0150] [0154])

As per **claim 10,** Vasilevsky teaches the method of claim 9, wherein the halted available inventory is removed from the debug inventory pool (a management agent receiving commands from the administrator for adding, deleting, and reallocating resources from virtual servers [0150] [0154])

As per **claim 11,** Vasilevsky teaches the method of claim 4, wherein the Knowledge Block specifies parameters that send an alert message to an administrator of the network in response to an alert condition (the management agent may be responsible for a number of tasks, including alarm propagation and alert messages [0086] [0088])

As per **claim 12,** Vasilevsky teaches the method of claim 4, wherein the Knowledge Block specifies parameters that receive an instruction from an administrator of the network in response to an alert condition (the management agent may be responsible for a number of tasks, including alarm propagation and alert messages [0086] [0088])

As per **claim 14,** Vasilevsky teaches the method of claim 4, wherein the Knowledge Block specifies parameters that deploy an instance of an application selected from among the available inventory (specify an unassigned resources may be grouped into a "pool" of unassigned resources and presented to an administrator or program as being available for assignment [0082-83])

As per **claim 15,** Vasilevsky teaches the method of claim 4, wherein the received user input specifies a priority for one or more of the available inventory (the management agent may be executed as an overhead process at a different priority and at any level of a virtual computing system hierarchy and at any protection or priority level [0087])

As per **claim 16,** Vasilevsky teaches the method of claim 4, wherein the user input specifies a time period during which the reallocation will be applied (Instances of

server functions performed as part of the cluster include watchdog timers, page allocation, reallocation, and sharing, I/O virtualization and other services [0154]).

As per **claim 17,** Vasilevsky teaches the method of claim 1, further comprising: providing a user interface through which user input can be received and wherein the user input adjusts scheduling of producing the reallocation (a capability is provided to allocate and/or de-allocate resources from an administrator through an interface (e.g., a CLI, or GUI or a programmatic interface' [0074-75]).

As per **claim 18,** Vasilevsky teaches the method of claim 1, wherein producing a reallocation comprises adding a new application instance to the available inventory (a management agent receiving commands from the administrator for adding, deleting, and reallocating of resources from virtual servers [0150] [0154])

As per **claim 19,** Vasilevsky teaches the method of claim 1, wherein producing a reallocation comprises updating the available inventory to include any changes made by the reallocation (Manager 212 may communicate with a management agent executed by one or more virtual servers of system 201 for the purpose of performing configuration changes, monitoring performance, and performing other administrative functions associated with system 201 [0070] [0072])

As per **claim 20,** Vasilevsky teaches the method of claim 1, wherein the inventory of available inventory includes one or more application programs (resources include processing, memory, networking, storage, etc.) to a virtual computing system. Such control may be provide, for example, to an administrator through an interface

(e.g., via a CLI, or GUI) or to other programs (e.g., via a programmatic interface) [0074-75])

As per **claim 21,** Vasilevsky teaches the method of claim 20, wherein one of the application programs comprises a network load balancer (the virtual computing system may be scaled up/scaled down as necessary by the distributed server [0072] [0074])

As per **claim 22,** Vasilevsky teaches the method of claim 20, wherein one of the application programs comprises a network server (resources may be allocated or de-allocated a distributed server [0072])

As per **claim 23,** Vasilevsky teaches the method of claim 1, wherein: determining, by an Asset Manager Component (Manager 212 connected to the virtual computing system 201 FIG.2), an inventory of available network resources and virtual assets (specify an unassigned resources may be grouped into a "pool" of unassigned resources and presented to an administrator or program as being available for assignment [0082-83]); assigning prioritization to the available inventory and provisioning virtual assets from among the available inventory (the management agent may be executed as an overhead process at a different priority and at any level of a virtual computing system hierarchy and at any protection or priority level [0087]), performed by a Provisioning Manager component; determining, by a Performance Manager component (An administrator through manger 212 is capable of provisioning resources in real time to support executing virtual servers [0076] [0082] FIG.2), a real time performance metrics; and automatically producing and initializing, by an Optimizer component, a reallocation of the virtual assets (An administrator through manger 212 is

capable of provisioning resources in real time to support executing virtual servers [0076] [0082] FIG.2).

As per **claim 24,** Vasilevsky teaches the method of claim 23, but does not specifically teach wherein automatically producing a reallocation of the virtual assets comprises forecasting future system needs, which is performed by a Capacity Planning Manager component.

However, Yan teaches a resource system that provides a resource virtualization mechanism ([0026] FIG.6) a management system includes a set of auto-deployment components that receives requirement update requests from a corresponding virtual operating environment and in response automatically conduct resource allocation and service re-deployment to adjust behavior at runtime and prediction on distribution and dynamism of resource ([0030] [0053] [0062] FIG.6) in order to achieve an efficient virtualization management of network resources.

It would have been obvious to a person having ordinary skilled in the art at the time the invention was made to have modified Vasilevsky by the teaching of Yan to have an automatic determination of a reallocation of the virtual assets and forecasting future system needs in order to achieve an efficient virtualization management of network resources.

As per **claim 25,** Vasilevsky teaches a method for automatic management of a virtualization environment in a computer network, the method comprising:

providing a virtualization environment (virtualization environment 100 FIG.1 [0058]) that has a virtualization layer (virtualization layer 104 FIG.1 [0058]), network

resources (data center provides resources [0058] FIG.1) and virtual assets (operating system layer 103 FIG.1), the virtual assets including at least one software instantiations of equipment objects in the virtualization environment (the virtual assets including an operating system software 103 FIG.1 [0058]), the virtualization layer managing the virtual assets (the virtualization layer managing the execution of the operating system [0017] [0042] [0058] FIG.1);

providing a controller (Manager 212 FIG.2) coupled to the virtualization environment over a network (Manager 212 connected to the virtual computing system 201 over a network that communicates with a management agent executed by one or more virtual servers of system 201 for the purpose of performing configuration changes, monitoring performance, and performing other administrative functions associated with system 201 [0070-71] FIG.2);

performing one or more functions by the controller (Manager 212 has the ability for allocating or de-allocating resources both actual and virtual in real time 212 [0072-73]) that communicates with the virtualization layer from the group of functions consisting of:

(1) identification and management of network resources and virtual assets (Manager 212 manages the allocating or de-allocating resources for both actual and virtual in real time 212 [0073-74])

(2) provisioning of virtual assets in response to network workflow demands (An administrator through manger 212 is capable of provisioning resources in real time to support executing virtual servers [0076] [0082] FIG.2),

(3) dynamic deployment of virtual assets across the computer network (a management agent 815 residing within the virtualization environment for handling dynamic reconfiguration functions from the administrator for adding, deleting, and reallocating resources from virtual servers [0150] [0154]),

(4) performance measurement and reporting of resources and virtual assets (Manager 212 for the purpose of performing configuration changes, monitoring performance, and performing other administrative functions associated with system 201 [0070-71] FIG.2), and

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment (Manager 212 connected to the virtual computing system 201 over a network that communicates with a management agent executed by one or more virtual servers of system 201 for the purpose of performing configuration changes, monitoring performance, and performing other administrative functions associated with system 201 [0070-71] FIG.2).

Vasilevsky does not specifically teach planning and forecasting of resource demands and virtual asset utilization of the virtualization environment;

However, Yan teaches a resource system that provides a resource virtualization mechanism ([0026] FIG.6) a management system includes a set of auto-deployment components that receives requirement update requests from a corresponding virtual operating environment and in response automatically conduct resource allocation and service re-deployment to adjust behavior at runtime and prediction on distribution and

dynamism of resource ([0030] [0053] [0062] FIG.6) in order to achieve an efficient virtualization management of network resources.

It would have been obvious to a person having ordinary skilled in the art at the time the invention was made to have modified Vasilevsky by the teaching of Yan to have an automatic determination of a reallocation of the virtual assets and forecasting future system needs in order to achieve an efficient virtualization management of network resources.

As per **claim 27,** Vasilevsky teaches an apparatus that performs automatic management of a virtualization environment in a computer network comprising:

a virtualization environment (virtualization environment 100 FIG.1 [0058]) that has a virtualization layer (virtualization layer 104 FIG.1 [0058]), network resources (data center provides resources [0058] FIG.1) and virtual assets (operating system layer 103 FIG.1), the virtual assets including at least one software instantiations of equipment objects in the virtualization environment (the virtual assets including an operating system software 103 FIG.1 [0058]), the virtualization layer managing the virtual assets (the virtualization layer managing the execution of the operating system [0017] [0042] [0058] FIG.1);

a network communications unit ((Manager 212 FIG.2) that enables communications between the apparatus and the a virtualization environment over a computer network (Manager 212 connected to the virtual computing system 201 over a network that communicates with a management agent executed by one or more virtual servers of system 201 for the purpose of performing configuration changes, monitoring

performance, and performing other administrative functions associated with system 201 [0070-71] FIG.2);

an operating system of the apparatus that supports the a virtualization environment in communication with the apparatus over the computer network (the virtualization layer managing the execution of the operating system [0017] [0042] [0058] FIG.1); and

a Virtual Mapping layer (an abstraction layer 102 FIG.2) that determines an inventory of network resources and virtual assets available to the virtualization environment (an abstraction layer for mapping resources presented by each virtual server to other upper layer 202 programs [0065] [0077]), wherein the Virtual Mapping layer determines the inventory without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment (The interface may display a representation of an allocation of physical resources and mapping to virtual resources used by a virtual server. For example, the interface may provide an ability to map virtual servers to sets of physical resources, such as a virtual processor that is mapped to a physical processor [0077] [0079]); and

a controller (Manager 212 FIG.2) that communicates with the virtualization layer and provisions the virtual assets from among the available inventory (Manager 212 connected to the virtual computing system 201 over a network that communicates with a management agent executed by one or more virtual servers of system 201 for the purpose of performing configuration changes, monitoring performance, and performing other administrative functions associated with system 201 [0070-71] FIG.2), thereby

establishing a provisioned virtualization environment, determines real time performance metrics for the provisioned virtualization environment (An administrator through manger 212 is capable of provisioning resources in real time to support executing virtual servers [0076] [0082] FIG.2), determines for the provisioned virtualization environment (a management agent 815 residing within the virtualization environment for handling dynamic reconfiguration functions from the administrator for adding, deleting, and reallocating of resources from virtual servers [0150] [0154]), a reallocation of the virtual assets in response to the real time performance metrics (An administrator through manger 212 is capable of provisioning resources in real time to support executing virtual servers [0076] [0082] FIG.2) and initiates the reallocation of the virtual assets in the provisioned virtualization environment (the management agent 815 residing within the virtualization environment is responsible for handling dynamic reconfiguration functions by receiving commands from the administrator (through manager 212) for adding, deleting, and reallocating of resources from virtual servers [0150] [0154]).

Vasilevsky does not specifically teach an automatic determination of a reallocation of the virtual assets.

However, Yan teaches a resource system that provides a resource virtualization mechanism ([0026] FIG.6) a management system includes a set of auto-deployment components that receives requirement update requests from a corresponding virtual operating environment and in response automatically conduct resource allocation and service re-deployment to adjust behavior at runtime ([0030] [0062] FIG.6) in order to achieve an efficient virtualization management of network resources.

It would have been obvious to a person having ordinary skilled in the art at the time the invention was made to have modified Vasilevsky by the teaching of Yan to have an automatic determination of a reallocation of the virtual assets in order to achieve an efficient virtualization management of network resources.

As per **claim 28,** Vasilevsky teaches the apparatus of claim 27, further comprising one or more components that receive the inventory of available resources and assets from the Virtual Mapping layer and perform one or more functions from the group of functions consisting of:

identification and management of network resources and virtual assets, dynamic deployment of virtual assets across the computer network (a management agent 815 residing within the virtualization environment for handling dynamic reconfiguration functions from the administrator for adding, deleting, and reallocating resources from virtual servers [0150] [0154]), performance measurement and reporting of resources and virtual assets (Manager 212 for the purpose of performing configuration changes, monitoring performance, and performing other administrative functions associated with system 201 [0070-71] FIG.2), and

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment (Manager 212 connected to the virtual computing system 201 over a network that communicates with a management agent executed by one or more virtual servers of system 201 for the purpose of performing configuration changes, monitoring

performance, and performing other administrative functions associated with system 201 [0070-71] FIG.2).

Vasilevsky does not specifically teach planning and forecasting of resource demands and asset utilization of the virtualization environment;

However, Yan teaches a resource system that provides a resource virtualization mechanism ([0026] FIG.6) a management system includes a set of auto-deployment components that receives requirement update requests from a corresponding virtual operating environment and in response automatically conduct resource allocation and service re-deployment to adjust behavior at runtime and prediction on distribution and dynamism of resource ([0030] [0053] [0062] FIG.6) in order to achieve an efficient virtualization management of network resources.

It would have been obvious to a person having ordinary skilled in the art at the time the invention was made to have modified Vasilevsky by the teaching of Yan to have an automatic determination of a reallocation of the virtual assets and forecasting future system needs in order to achieve an efficient virtualization management of network resources.

As per **claim 29,** Vasilevsky teaches the apparatus of claim 27, further comprising a component selected from a group consisting of: an Asset Manager component that determines an inventory of available network resources and virtual assets;

a Provisioning Manager component that assigns a prioritization to the available inventory and provisions virtual assets from among the available inventory (the

management agent may be executed as an overhead process at a different priority and at any level of a virtual computing system hierarchy and at any protection or priority level [0087]);

a Performance Manager component that determines real time performance metrics (An administrator through manger 212 is capable of provisioning resources in real time to support executing virtual servers [0076] [0082] FIG.2); and

an Optimizer component that automatically produces a reallocation of the virtual assets and initiates the reallocation (a management agent 815 residing within the virtualization environment for handling dynamic reconfiguration functions from the administrator for adding, deleting, and reallocating of resources from virtual servers [0150] [0154]).

As per **claim 30,** Vasilevsky teaches the method of claim 1 wherein the virtual assets further comprise a second virtual machine which comprises virtual assets, and the at least one virtual machine and the second virtual machine each run their own respective operating systems which are a different type of operating system from each other (the virtual assets comprises first virtual machine and second virtual machine wherein the VMA I/O component routes the request to the proper distributed virtual machine monitor (DVMM) drivers for processing [0065] [0128]).

As per **claim 36,** Vasilevsky teaches the method of claim 1 wherein provisioning virtual assets from among the available inventory further comprises routing an application running on a first virtual machine to run on a second virtual machine (the virtual assets comprises first virtual machine and second virtual machine wherein the

VMA I/O component routes the request to the proper distributed virtual machine monitor (DVMM) drivers for processing [0065] [0128]).

As per **claim 39,** Vasilevsky teaches the method of claim 25 wherein provisioning virtual assets from among the available inventory further comprises creating a new virtual machine on the single physical host (creating new virtual machine on the single physical host [0082-83] FIG.3).

As per **claim 40,** Vasilevsky teaches the method of claim 1 wherein provisioning virtual assets from among the available inventory further comprises communicating provisioning instructions from a control agent comprising at least one virtualization platform adapter to a virtualization layer in the single physical host (a control agent comprising a virtualization platform in a single physical host server [0082-83] [0090] FIG.3)

Response to Argument

6. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

7. When responding to this office action, Applicant is advised to clearly point out the patentable novelty which he or she thinks the claims present, in view of the state of the art disclosed by the references cited or the objections made. He or she must also show how the amendments avoid such references or objections See 37 CFR 1.111(c).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abdelnabi O. Musa whose telephone number is 571-

2701901. and email address is abdelnabi.musa@uspto.gov 'preferred'. The examiner can normally be reached on Monday thru Friday: 7:30am to 5:00pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ferris Derrick can be reached on 571-2723123. 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.

/Abdelnabi O Musa/
Examiner, Art Unit 2478
/Derrick W Ferris/
Supervisory Patent Examiner, Art Unit 2478

Notice of References Cited	Application/Control No. 11/503,090	Applicant(s)/Patent Under Reexamination PABARI, VIPUL	
	Examiner ABDELNABI MUSA	Art Unit 2478	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2005/0044301	02-2005	Vasilevsky et al.	711/001
*	B	US-2006/0069761	03-2006	Singh et al.	709/222
*	C	US-2006/0184937	08-2006	Abels et al.	718/001
*	D	US-2003/0236882	12-2003	Yan et al.	709/225
*	E	US-2003/0236956	12-2003	Grubbs et al.	711/162
*	F	US-2002/0166117	11-2002	Abrams et al.	717/177
	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.

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
		l3 and (forecast$4 or predict$4 or estimat$4 or project$4 or anticipat$4 or guess$4	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/08/29 18:57
		(virtualization with layer) controller (resourc$2 or inventory$1 or assent$2) virtualization near4 environment$1 (allocat$4 or re$allocat$4) (erorr$1 or debug$2 or degrad$3 or corrupt$4 or bad$2) log$2 near4 fil$2 and @ad=<"20050815"	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/28 21:12
		(knowledge near block re$allocat$4 (real$time or real near time) virtual$2 image application$2 (inventory or resource$2) prioriti$6 (peer$2 or member$2 physical).clm.	US-PGPUB; USPAT; USOCR	AND	OFF	2012/04/10 14:21
L3	16	(US-20080086731-$ or US-20050155033-$ or US-20060149842-$ or US-20050125537-$ or US-20040015600-$ or US-20060069761-$ or US-20050044301-$ or US-20060184937-$ or US-20050223221-$ or US-20030236956-$ or US-20020166117-$ or US-20050198062-$).did. or (US-7512769-$ or US-7577722-$ or US-6490620-$ or US-7330858-$).did.	US-PGPUB; USPAT	AND	OFF	2013/08/29 18:33
L4	2748	"l13" and automatic$5	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/29 18:33
L5	9	l3and automatic$5	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/29 18:34
L6	12	l3 and automatic$5	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/29 18:34
L7	1	l3 and automatic$5 same (allocat$4 or re$allocat$4)	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/29 18:34
L8	259	automatic$5 same (allocat$4 or re$allocat$4) and debug$4 and forecast$4	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/29 18:36
L9	69	automatic$5 same (allocat$4 or re$allocat$4) and debug$4 same (inventory or resourc$2) and forecast$4 virtual$4	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/29 18:37
L10	62	automatic$5 same (allocat$4 or re$allocat$4) and debug$4 same (inventory or resourc$2) and forecast$4 virtual$4 and	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/29 18:38

		@ad<="20050815"				
L11	3	automatic$5 near4 (allocat$4 or re$allocat$4) and debug$4 same (inventory or resourc$2) and forecast$4 virtual$4 and @ad<="20050815"	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/29 18:41
L12	128	automatic$5 near4 (allocat$4 or re$allocat$4) and forecast$4 virtual$4 and @ad<="20050815"	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/29 18:42
L13	0	automatic$4 (allocat$4 or reallocation) virtual (asset$2 or resourc$2 or inventory) (fore$cast$3 or futur$3) Capacity Planning Manager and @ad<="20050815"	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/08/29 18:44
L14	1	automatic$4 (allocat$4 or reallocation) virtual (asset$2 or resourc$2 or inventory) (fore$cast$3 or futur$3) Capacity Planning and @ad<="20050815"	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/08/29 18:44
L15	15	automatic$4 (allocat$4 or reallocation) virtual (asset$2 or resourc$2 or inventory) (fore$cast$3 or futur$3) and @ad<="20050815"	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/08/29 18:45
L16	3	automatic$4 (allocat$4 or reallocation) virtual (asset$2 or resourc$2 or inventory) (fore$cast$3) and @ad<="20050815"	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/08/29 18:46
L17	613	automatic$4 near4 (allocat$4 or reallocation) near4 (asset$2 or resourc$2 or inventory) and @ad<="20050815"	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/08/29 18:51
L18	30	automatic$4 near4 (reallocation) near4 (asset$2 or resourc$2 or inventory) and @ad<="20050815"	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/08/29 18:51
L19	0	automatic$4 near4 (reallocation) near4 (asset$2 or resourc$2 or inventory) and @ad<="20050815" and forcasting	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/08/29 18:51
L20	1	automatic$4 near4 (reallocation) near4 (asset$2 or resourc$2 or inventory) and @ad<="20050815" and forecasting	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/08/29 18:51
L21	27	automatic$4 near4 (reallocation) near4 (asset$2 or resourc$2 or inventory) and @ad<="20050815" and (forecast$4 or predict$4 or estimat$4 or project$4 or anticipat$4 or guess$4)	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/08/29 18:54
L22	3	automatic$4 near4 (reallocation) near4 (asset$2 or resourc$2 or inventory) and @ad<="20050815" and (forecast$4 or predict$4 or estimat$4 or project$4 or anticipat$4 or guess$4) virtual$4	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/08/29 18:55
L23	0	l3 and (forecast$4 or predict$4 or estimat$4 or project$4 or anticipat$4 or guess$4) virtual$4	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/08/29 18:56
L24	7	l3 and (forecast$4 or predict$4 or estimat$4 or project$4 or anticipat$4 or guess$4)	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/08/29 18:57

L25	2	l3 and (forecast$4 or predict$4 or estimat$4 or project$4 or anticipat$4 or guess$4) automatic$6	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/08/29 18:58
L26	7	l3 and (forecast$4 or predict$4 or estimat$4 or project$4 or anticipat$4 or guess$4) and automatic$6	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/08/29 18:58
S1	7	("20050138165" | "20050155033" | "20060294238" | "20070067435" | "20080086731" | "7463648" | "7512769").PN.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 11:51
S2	19897	709/223.ccls. or 709/226.ccls. or 709/229.ccls.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:10
S3	16	pabari.in.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:10
S4	0	(manage$4 virtual$6 environment inventory resource$4 prioritiz$4 physical host).clm.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:12
S5	1094	(manage$4 virtual$6 environment inventory resource$4 prioritiz$4 physical host)	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:12
S6	1	S3 S5	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:12
S7	1	(virtual$ mange$4).ti.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:13
S8	82	(manage$4 virtual$6 environment resource$4).ab.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:14
S9	13	S2 S8	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:14
S10	2	(manage$4 virtual$6 environment resource$4 physical host).ab.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:17
S11	17572	(manage$4 virtual$6 environment (resource$4 or asset$2) physical host allocat$4)	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:10
S12	19897	709/223.ccls. or 709/226.ccls. or 709/229.ccls.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:11
S13	1084	S11 S12	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:11

S14	468	S13 (load adj (shar$4 or balanc$4))	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:11
S15	82	(manage$4 virtual$6 environment resource$4).ab.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:13
S16	4	S14 S15	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:13
S17	143	((virtual adj machine) or VM) same new same physical same host	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:18
S18	2	S15 S17	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:19
S19	2	S17 S15	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:19
S20	84	S17 S11	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:21
S21	9	S20 S12	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:22
S22	0	(knowledge near block re$allocat$4 (real$time or real near time) virtual$2 image application$2 (inventory or resource$2) prioriti$6 (peer$2 or member$2) physical).clm.	US-PGPUB; USPAT; USOCR	AND	OFF	2012/04/10 14:21
S23	2	(knowledge near block re$allocat$4 (real$time or real near time) virtual$2 image application$2 (inventory or resource$2) prioriti$6 (peer$2 or member$2) physical)	US-PGPUB; USPAT; USOCR	AND	OFF	2012/04/10 14:21
S24	156	(Automatic configuration management).ab.	US-PGPUB; USPAT; USOCR	AND	OFF	2012/04/10 14:29
S25	41755	709/223,224,226,229,220,221.ccls.	US-PGPUB; USPAT; USOCR	AND	OFF	2012/04/10 14:31
S26	29	S24 S25	US-PGPUB; USPAT; USOCR	AND	OFF	2012/04/10 14:31
S27	0	(10/460518).APP.	USPAT; USOCR	OR	OFF	2012/04/10 14:34
S28	7	("20050138165" | "20050155033" | "20060294238" | "20070067435" | "20080086731" | "7463648" | "7512769").PN.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S29	25092	709/223.ccls. or 709/226.ccls. or	US-PGPUB;	AND	OFF	2012/04/10

		709/229.ccls.	USPAT; USOCR; IBM_TDB			14:36
S30	20	pabari.in.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S31	0	(manage$4 virtual$6 environment inventory resource$4 prioritiz$4 physical host).clm.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S32	1541	(manage$4 virtual$6 environment inventory resource$4 prioritiz$4 physical host)	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S33	1	S30 S32	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S34	1	(virtual$ mange$4).ti.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S35	122	(manage$4 virtual$6 environment resource$4).ab.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S36	26	S29 S35	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S37	3	(manage$4 virtual$6 environment resource$4 physical host).ab.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S38	22641	(manage$4 virtual$6 environment (resource$4 or asset$2) physical host allocat$4)	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S39	25092	709/223.ccls. or 709/226.ccls. or 709/229.ccls.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S40	1484	S38 S39	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S41	637	S40 (load adj (shar$4 or balanc$4))	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S42	122	(manage$4 virtual$6 environment resource$4).ab.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S43	8	S41 S42	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36

S44	238	((virtual adj machine) or VM) same new same physical same host	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S45	7	S42 S44	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S46	7	S44 S42	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S47	141	S44 S38	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S48	18	S47 S39	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S49	166	(manage$4 virtual$6 resource$4 physical).ab.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:39
S50	118867	"709".clas.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:39
S51	49	S50 S49	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:39
S52	49	S51 not S26	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:39
S53	0	real near time matrics virtual physical	US-PGPUB; USPAT; USOCR; IBM_TDB	SAME	OFF	2012/04/10 14:43
S54	27	real near time metrics virtual physical	US-PGPUB; USPAT; USOCR; IBM_TDB	SAME	OFF	2012/04/10 14:43
S55	1	S39 and real near time metrics virtual physical	US-PGPUB; USPAT; USOCR; IBM_TDB	SAME	OFF	2012/04/10 14:44
S56	3	S50 S54	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:46
S57	9	pabari.in.	USPAT	AND	OFF	2012/04/10 14:50
S58	20	pabari.in.	US-PGPUB; USPAT	AND	OFF	2012/04/10 14:50
S59	1	S23 S58	US-PGPUB; USPAT	AND	OFF	2012/04/10 14:50

S60	0	S24 S58	USPAT	AND	OFF	2012/04/10 14:51
S78	3	"11503090"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/03/12 15:19
S79	8	(US-20080086731-$ or US-20050155033-$ or US-20060149842-$ or US-20050125537-$ or US-20040015600-$).did. or (US-7512769-$ or US-7577722-$ or US-6490620-$).did.	US-PGPUB; USPAT	OR	OFF	2013/03/12 15:52
S80	5	S79 and (virtual$7 environment layer network (resourc$2 or computer$2 or printer$2 or device$2) (asset$2 or sofware or program$2 or instruction$2))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2013/03/12 15:54
S81	1	(11/031542).APP.	USPAT; USOCR	OR	OFF	2013/03/12 16:04
S82	0	virtual$8 environment virtual$8 near2 laver$1 network resource$2d virtual asset$2 (software or instantiation$1) virtualization layer managing the virtual assets	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 10:45
S83	0	virtual$8 environment virtual$8 near2 laver$1 network resource$2d virtual asset$2 (software or instantiation$1)	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 10:45
S84	0	virtual$8 environment virtual$8 near2 laver$1 network resource$2d virtual asset$2	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 10:46
S85	0	virtual$8 environment virtual$8 near2 laver$1	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 10:46
S86	1	virtual$8 virtual$8 near2 laver$1	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 10:46
S87	858	virtualization layer manag$6 virtual (asset$2 or resourc$2)	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 10:47
S88	427	virtualization near layer manag$6 virtual (asset$2 or resourc$2)	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 10:47
S89	31	virtualization near layer near5 manag$6 near5 virtual (asset$2 or resourc$2)	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 10:47
S90	10	virtualization near layer near5 manag$6 near5 virtual (asset$2 or resourc$2) and ("709"/$.ccls.)	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 10:48
S91	3218	(virtual or virtualization) layer network (resourc$2 or assets)	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 10:49
S92	444	S91 and S87	US-PGPUB; USPAT;	SAME	OFF	2013/07/24 10:49

			USOCR			
S93	287	S91 and S88	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 10:50
S94	522	(virtual or virtualization) near layer network (resourc$2 or assets)	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 10:50
S95	259	S94 and S88	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 10:50
S96	258	(virtual or virtualization) near layer near4 (resourc$2 or assets)	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 10:54
S97	10	virtualization near layer near5 manag$6 near5 virtual (asset$2 or resourc$2) and ("709"/$.ccls.)	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 14:22
S98	37	(virtual or virtualization) near layer near3 manag$6 near4 (resourc$2 or assets)	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 14:22
S99	33	S98 not S97	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 14:22
S100	15	(virtualization near layer resourc$2).ab.	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 14:33
S101	12	S100 not S99	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 14:33
S102	29	virtualization near layer near2 manag$6 near4 (asset$1 or resourc$2)	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 14:36
S103	2	S102 not S99	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 14:37
S104	10	(US-20080086731-$ or US-20050155033-$ or US-20060149842-$ or US-20050125537-$ or US-20040015600-$ or US-20060069761-$ or US-20050044301-$).did. or (US-7512769-$ or US-7577722-$ or US-6490620-$).did.	US-PGPUB; USPAT	AND	OFF	2013/07/24 14:40
S105	2	S104 and (virtual or virtualization) near layer	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 14:40
S106	37	(virtual or virtualization) near layer near3 manag$6 near4 (resourc$2 or assets)	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 14:40
S107	0	(10/831973).APP.	USPAT; USOCR	AND	OFF	2013/07/24 14:41
S108	10	(US-20080086731-$ or US-20050155033-$ or US-20060149842-$ or US-20050125537-$ or US-20040015600-$ or US-20060069761-$ or US-20050044301-$).did. or (US-7512769-$ or US-7577722-$ or US-6490620-$).did.	US-PGPUB; USPAT	AND	OFF	2013/08/28 21:06
S109	0	S108 and (virtualization with layer) controller (resourc$2 or inventory or	US-PGPUB; USPAT;	AND	OFF	2013/08/28 21:09

		assents) virtualization near4 environment$1 (allocat$4 or re$allocat$4)	USOCR			
S110	403	(virtualization with layer) controller (resourc$2 or inventory or assents) virtualization near4 environment$1 (allocat$4 or re$allocat$4)	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/28 21:10
S111	32	(virtualization with layer) controller (resourc$2 or inventory$1 or assent$2) virtualization near4 environment$1 (allocat$4 or re$allocat$4) (erorr$1 or debug$2 or degrad$3 or corrupt$4 or bad$2) log$2 near4 fil$2	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/28 21:12
S112	0	(virtualization with layer) controller (resourc$2 or inventory$1 or assent$2) virtualization near4 environment$1 (allocat$4 or re$allocat$4) (erorr$1 or debug$2 or degrad$3 or corrupt$4 or bad$2) log$2 near4 fil$2 @ad<="20061218" and ("370"/$.ccls. or "455"/$.ccls.)	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/28 21:13
S113	1	(virtualization with layer) controller (resourc$2 or inventory$1 or assent$2) virtualization near4 environment$1 (allocat$4 or re$allocat$4) (erorr$1 or debug$2 or degrad$3 or corrupt$4 or bad$2) log$2 near4 fil$2 @ad<="20061218" and ("370"/$.ccls. or "455"/$.ccls. or "709".clas.)	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/28 21:13
S114	1	(virtualization with layer) controller (resourc$2 or inventory$1 or assent$2) virtualization near4 environment$1 (allocat$4 or re$allocat$4) (erorr$1 or debug$2 or degrad$3 or corrupt$4 or bad$2) log$2 near4 fil$2 @ad<="20061218"	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/28 21:14
S115	0	(virtualization with layer) controller (resourc$2 or inventory$1 or assent$2) virtualization near4 environment$1 (allocat$4 or re$allocat$4) (erorr$1 or debug$2 or degrad$3 or corrupt$4 or bad$2) log$2 near4 fil$2 @ad<="200508/15"	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/28 21:14
S116	0	(virtualization with layer) controller (resourc$2 or inventory$1 or assent$2) virtualization near4 environment$1 (allocat$4 or re$allocat$4) (erorr$1 or debug$2 or degrad$3 or corrupt$4 or bad$2) log$2 near4 fil$2 @ad<="20050815"	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/28 21:14
S117	7	((virtualization layer) (resourc$2 or inventory$1 or assent$2) (allocat$4 or re$allocat$4)).ab.	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/28 21:18
S118	2	S117 S110	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/28 21:18
S119	11	((virtualiz$5 layer) (resourc$2 or inventory$1 or assent$2) (allocat$4 or re$allocat$4)).ab.	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/28 21:19
S120	4	S119 not S117	US-PGPUB;	AND	OFF	2013/08/28

			USPAT; USOCR			21:21
S121	71	(virtualization near3 layer) (resourc$2 or inventory$1 or assent$2) (allocat$4 or re$allocat$4) (erorr$1 or debug$2 or degrad$3 or corrupt$4 or bad$2) @ad<="20050815"	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/28 21:24
S122	71	S121 not S119	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/28 21:24
S123	16	(US-20080086731-$ or US-20050155033-$ or US-20060149842-$ or US-20050125537-$ or US-20040015600-$ or US-20060069761-$ or US-20050044301-$ or US-20060184937-$ or US-20050223221-$ or US-20030236956-$ or US-20020166117-$ or US-20050198062-$).did. or (US-7512769-$ or US-7577722-$ or US-6490620-$ or US-7330858-$).did.	US-PGPUB; USPAT	AND	OFF	2013/08/28 21:50
S124	0	S123 and (virtualization with layer) controller (resourc$2 or inventory or assents) virtualization near4 environment$1 (allocat$4 or re$allocat$4)	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/28 21:52
S125	3	S123 and (virtualization with layer) controller (resourc$2 or inventory or asset$2) virtualization (allocat$4 or re$allocat$4)	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/28 21:53

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S61	10106	(manage$4 virtual$6 environment (resource$4 or asset$2) physical host allocat$4)	USPAT; UPAD	AND	OFF	2012/04/10 14:47
S62	76	((virtual adj machine) or VM) same new same physical same host	USPAT; UPAD	AND	OFF	2012/04/10 14:47
S63	206	"S13" (load adj (shar$4 or balanc$4))	USPAT; UPAD	AND	OFF	2012/04/10 14:47
S64	10106	(manage$4 virtual$6 environment (resource$4 or asset$2) physical host allocat$4)	USPAT; UPAD	AND	OFF	2012/04/10 14:47
S65	45876	"S2" "S8"	USPAT; UPAD	AND	OFF	2012/04/10 14:47
S66	78	(manage$4 virtual$6 resource$4 physical).ab.	USPAT; UPAD	AND	OFF	2012/04/10 14:47
S67	23872	709/223,224,226,229,220,221.ccls.	USPAT; UPAD	AND	OFF	2012/04/10 14:47
S68	21589	"I3" "I4"	USPAT; UPAD	AND	OFF	2012/04/10 14:47
S69	593	(manage$4 virtual$6 environment inventory resource$4 prioritiz$4 physical host)	USPAT; UPAD	AND	OFF	2012/04/10 14:47
S70	2	("20050138165" | "20050155033" | "20060294238" | "20070067435" | "20080086731" | "7463648" |	USPAT; UPAD	AND	OFF	2012/04/10 14:48

		"7512769").PN.				
S71	0	(manage$4 virtual$6 environment inventory resource$4 prioritiz$4 physical host).clm.	USPAT; UPAD	AND	OFF	2012/04/10 14:48
S72	593	(manage$4 virtual$6 environment inventory resource$4 prioritiz$4 physical host)	USPAT; UPAD	AND	OFF	2012/04/10 14:48
S73	497	"L26" "L18"	USPAT; UPAD	AND	OFF	2012/04/10 14:48
S74	0	S73 S72	USPAT; UPAD	AND	OFF	2012/04/10 14:48
S75	463	S69 S64	USPAT; UPAD	AND	OFF	2012/04/10 14:49
S76	0	S62 S72	USPAT; UPAD	AND	OFF	2012/04/10 14:49
S77	9	pabari.in.	USPAT; UPAD	AND	OFF	2012/04/10 14:49

8/29/2013 7:54:03 PM
H:\EAST\Workspaces\11503090.wsp

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11503090	PABARI, VIPUL
	Examiner	Art Unit
	Abdelnabi Musa	2478

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
709	223, 226	5/27/2008	DA
709	223,224,226	12/31/2008	DA
709	223	12/8/2009	DA
709	223, 226, 229	10/31/2010	AM
709	223, 226, 229	7/15/2011	AM
709	223,224,226,229,220,221	6/6/2012	AM
709	223,224,226,229,220,221	3/15/2013	AM
709	All with limitted search notes in east	7/24/2013	AM

SEARCH NOTES		
Search Notes	Date	Examiner
Text searched EAST databases	5/27/2008	DA
Updated EAST text search	12/31/2008	DA
limted class/sublcass search (709/201-202,223-224,226; 718/100-108)	12/31/2008	DA
Inventor name searched	12/31/2008	DA
Updated EAST text search	5/14/2009	DA
Updated Text search of East (USPat, USPG_Pub, JPO, EPO, Derwent, IBM_TDB) and Inventor search	12/8/2009	DA
Limited classification search 709/201,202,223,224,226 and 718/1,100-108	12/8/2009	DA
EAST (USPAT, US-PGPUB, EPO, JPO, DERWENT, IBM_TDB), see attached; NPL: IEEE; Inventor Search/DP	10/31/2010	AM
EAST (USPAT, US-PGPUB, EPO, JPO, DERWENT, IBM_TDB), see attached; NPL: IEEE; Inventor Search/DP	7/15/2011	AM

/ABDELNABI MUSA/ Examiner.Art Unit 2478	

SEARCH NOTES		
Search Notes	**Date**	**Examiner**
EAST (USPAT, US-PGPUB, EPO, JPO, DERWENT, IBM_TDB), see attached; NPL: IEEE; Inventor Search/DP	6/6/2012	AM
EAST (USPAT, US-PGPUB, EPO, JPO, DERWENT, IBM_TDB), see attached; NPL: IEEE; Inventor Search/DP	3/15/2013	AM
EAST (USPAT, US-PGPUB, EPO, JPO, DERWENT, IBM_TDB), see attached; NPL: IEEE; Inventor Search/DP	7/24/2013	AM

INTERFERENCE SEARCH			
US Class/ CPC Symbol	**US Subclass / CPC Group**	**Date**	**Examiner**
709	223,224,226,229,220,221	6/6/2012	AM

/ABDELNABI MUSA/ Examiner.Art Unit 2478	

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11503090	PABARI, VIPUL
	Examiner	Art Unit
	ABDELNABI MUSA	2478

✓	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	05/27/2008	12/31/2008	05/14/2009	12/08/2009	10/31/2010	07/15/2011	06/06/2012	03/15/2013	07/24/2013
	1	✓	✓	✓	✓	✓	✓	✓	✓	✓
	2	✓	✓	✓	✓	✓	✓	-	-	-
	3	✓	✓	✓	✓	✓	✓	-	-	-
	4	✓	✓	✓	✓	✓	✓	✓	✓	✓
	5	✓	✓	✓	✓	✓	✓	✓	✓	✓
	6	✓	✓	✓	✓	✓	✓	✓	✓	✓
	7	✓	✓	✓	✓	✓	✓	✓	✓	✓
	8	✓	✓	✓	✓	✓	✓	✓	✓	✓
	9	✓	✓	✓	✓	✓	✓	✓	✓	✓
	10	✓	✓	✓	✓	✓	✓	✓	✓	✓
	11	✓	✓	✓	✓	✓	✓	✓	✓	✓
	12	✓	✓	✓	✓	✓	✓	✓	✓	✓
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	14	✓	✓	✓	✓	✓	✓	✓	✓	✓
	15	✓	✓	✓	✓	✓	✓	✓	✓	✓
	16	✓	✓	✓	✓	✓	✓	✓	✓	✓
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	19	✓	✓	✓	✓	✓	✓	✓	✓	✓
	20	✓	✓	✓	✓	✓	✓	✓	✓	✓
	21	✓	✓	✓	✓	✓	✓	✓	✓	✓
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	24	✓	✓	✓	✓	✓	✓	✓	✓	✓
	25	✓	✓	✓	✓	✓	✓	✓	✓	✓
	26	✓	✓	✓	✓	✓	✓	✓	-	-
	27	✓	✓	✓	✓	✓	✓	✓	✓	✓
	28	✓	✓	✓	✓	✓	✓	✓	✓	✓
	29	✓	✓	✓	✓	✓	✓	✓	✓	✓
	30		✓	✓	✓	✓	✓	✓	✓	✓
	31		✓	-	-	-	-	-	-	-
	32		✓	-	-	-	-	-	-	-
	33		✓	✓	-	-	-	-	-	-
	34		✓	✓	-	-	-	-	-	-
	35		✓	✓	-	-	-	-	-	-
	36				✓	✓	✓	✓	✓	✓

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11503090	PABARI, VIPUL
	Examiner	**Art Unit**
	ABDELNABI MUSA	2478

✓	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	05/27/2008	12/31/2008	05/14/2009	12/08/2009	10/31/2010	07/15/2011	06/06/2012	03/15/2013	07/24/2013
	37				✓	✓	-	-	-	-
	38				✓	✓	-	-	-	-
	39				✓	✓	✓	✓	✓	✓
	40				✓	✓	✓	✓	✓	✓

Certificate of Transmission Under 37 CFR 1.8
I hereby certify that this correspondence is being transmitted via electronic submission, attention Mail Stop: Amendment, Commissioner for Patents, Alexandria, VA 22313-1450 on:

December 23, 2013

/Timothy W. Lohse/
Timothy W. Lohse

Appl. No.	:	11/503,090	Confirmation No.	9855
Applicant	:	Vipul Pabari		
Filed	:	August 10, 2006		
TC/A.U.	:	2478		
Examiner	:	Abdelnabi Musa		
Docket No.	:	367894-000003		
Customer No.	:	26379		

Title: VIRTUAL SYSTEMS MANAGEMENT

RESPONSE TO OFFICE ACTION

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

Sir:

In response to the office action, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 8 of this paper.

1. Listing of the claims:

1. (Currently Amended) A method for automatic management of a virtualization environment in a computer network, the method comprising:

providing a virtualization environment that has a virtualization layer, network resources and virtual assets, the virtual assets including at least one software instantiations of equipment objects in the virtualization environment, the virtualization layer managing the virtual assets;

providing a controller coupled to the virtualization environment over a network that communicates with the virtualization layer;

determining, using the controller that communicates with the virtualization layer, an inventory of network resources and virtual assets available to the virtualization environment;

provisioning, by the controller that communicates with the virtualization layer, the virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment;

determining, at the controller, real time performance metrics for the provisioned virtualization environment;

automatically determining at the controller based on business policies, for the provisioned virtualization environment under control of the controller, a reallocation of the virtual assets in response to the real time performance metrics;

initiating, by the controller that communicates with the virtualization layer, the reallocation of the virtual assets in the provisioned virtualization environment.

2. Cancelled.

3. Cancelled.

4. (Previously Presented) The method of claim 1 further comprising receiving user input that is a Knowledge Block that determines one or more of the reallocation parameters to be considered with the real time performance metrics in producing the reallocation of assets and wherein the received user input specifies parameters that detect operational degradation of a member of the available inventory.

5. (Original) The method of claim 4, wherein the available inventory member that is detected as degraded is removed from the available inventory.

6. (Original) The method of claim 4, wherein the available inventory that is detected as degraded is moved from the available inventory to a debug inventory pool.

7. (Original) The method of claim 4, wherein log files are retrieved from the available inventory that is detected as degraded.

8. (Original) The method of claim 7, wherein the log files are stored in an archive and an alert message is sent to a network administrator with an identification of the log file archive location.

9. (Original) The method of claim 4, wherein the available inventory that is detected as degraded is halted and is removed from the available inventory to a debug inventory pool.

10. (Original) The method of claim 9, wherein the halted available inventory is removed from the debug inventory pool.

11. (Previously Presented) The method of claim 4, wherein the Knowledge Block specifies parameters that send an alert message to an administrator of the network in response to an alert condition.

12. (Previously Presented) The method of claim 4, wherein the Knowledge Block specifies parameters that receive an instruction from an administrator of the network in response to an alert condition.

13. Cancelled.

14. (Previously Presented) The method of claim 4, wherein the Knowledge Block specifies parameters that deploy an instance of an application selected from among the available inventory.

15. (Previously Presented) The method of claim 4, wherein the received user input specifies a priority for one or more of the available inventory.

16. (Previously Presented) The method of claim 4, wherein the user input specifies a time period during which the reallocation will be applied.

17. (Original) The method of claim 1, further comprising: providing a user interface through which user input can be received and wherein the user input adjusts scheduling of producing the reallocation.

18. (Original) The method of claim 1, wherein producing a reallocation comprises adding a new application instance to the available inventory.

19. (Original) The method of claim 1, wherein producing a reallocation comprises updating the available inventory to include any changes made by the reallocation.

20. (Original) The method of claim 1, wherein the inventory of available inventory includes one or more application programs.

21. (Original) The method of claim 20, wherein one of the application programs comprises a network load balancer.

22. (Original) The method of claim 20, wherein one of the application programs comprises a network server.

23. (Original) The method of claim 1, wherein: determining, by an Asset Manager Component, an inventory of available network resources and virtual assets; assigning prioritization to the available inventory and provisioning virtual assets from among the available inventory, performed by a Provisioning Manager component; determining, by a Performance Manager component, a real time performance metrics; and automatically producing and initializing, by an Optimizer component, a reallocation of the virtual assets.

24. (Original) The method of claim 23, wherein automatically producing a reallocation of the virtual assets comprises forecasting future system needs, which is performed by a Capacity Planning Manager component.

25. (Currently Amended) A method for automatic management of a virtualization environment in a computer network, the method comprising:

providing a virtualization environment that has a virtualization layer, network resources and virtual assets, the virtual assets including at least one software instantiations of equipment objects in the virtualization environment, the virtualization layer managing the virtual assets;

providing a controller coupled to the virtualization environment over a network;

performing one or more functions by the controller that communicates with the virtualization layer from the group of functions consisting of

(1) identification and management of network resources and virtual assets,

(2) provisioning of virtual assets in response to network workflow demands,

(3) automatic dynamic deployment of virtual assets across the computer network based on business policies,

(4) performance measurement and reporting of resources and virtual assets, and

(5) planning and forecasting of resource demands and virtual asset utilization of the virtualization environment;

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment.

26. Cancelled.

27. (Currently Amended) An apparatus that performs automatic management of a virtualization environment in a computer network comprising:

a virtualization environment that has a virtualization layer, network resources and virtual assets, the virtual assets including at least one software instantiations of equipment objects in the virtualization environment, the virtualization layer managing the virtual assets;

~~a network communications unit that enables communications between the apparatus and the virtualization environment over a computer network;~~

an operating system of the apparatus that supports the virtualization environment in communication with the apparatus over the computer network; and

a Virtual Mapping layer that determines an inventory of network resources and virtual assets available to the virtualization environment, wherein the Virtual Mapping layer determines

the inventory without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment; and

a controller that communicates with the virtualization layer and provisions the virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment, determines real time performance metrics for the provisioned virtualization environment, automatically determines for the provisioned virtualization environment, a reallocation based on business policies of the virtual assets in response to the real time performance metrics and initiates the reallocation of the virtual assets in the provisioned virtualization environment.

28. (Previously Presented) The apparatus of claim 27, further comprising one or more components that receive the inventory of available resources and assets from the Virtual Mapping layer and perform one or more functions from the group of functions consisting of:

identification and management of network resources and virtual assets,

dynamic deployment of virtual assets across the computer network,

performance measurement and reporting of resources and virtual assets, and

planning and forecasting of resource demands and asset utilization of the virtualization environment;

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment.

29. (Original) The apparatus of claim 27, further comprising a component selected from a group consisting of: an Asset Manager component that determines an inventory of available network resources and virtual assets;

a Provisioning Manager component that assigns a prioritization to the available inventory and provisions virtual assets from among the available inventory;

a Performance Manager component that determines real time performance metrics; and

an Optimizer component that automatically produces a reallocation of the virtual assets and initiates the reallocation.

30. (Previously Presented) The method of claim 1 wherein the virtual assets further comprise a second virtual machine which comprises virtual assets, and the at least one virtual machine and the second virtual machine each run their own respective operating systems which are a different type of operating system from each other.

31. -35. Canceled

36. (Previously Presented) The method of claim 1 wherein provisioning virtual assets from among the available inventory further comprises routing an application running on a first virtual machine to run on a second virtual machine.

37. Cancelled.

38. Cancelled.

39. (Previously Presented) The method of claim 25 wherein provisioning virtual assets from among the available inventory further comprises creating a new virtual machine on the single physical host.

40. (Previously Presented) The method of claim 1 wherein provisioning virtual assets from among the available inventory further comprises communicating provisioning instructions from a control agent comprising at least one virtualization platform adapter to a virtualization layer in the single physical host.

REMARKS

Applicant has amended the claims to overcome the rejection of claims 27-29 under 35 USC 112, second paragraph.

Applicant has made minor changes to claims 1 and 27 that do not change of scope of the search or add new features into the claims so that a new search is not required. Specifically, claim 1 was amended to make a feature that was already in the claim clearer while the amendment to claim 27 removed the network communication unit that was being objected to by the examiner.

Business Policies

As discussed during the helpful interview, Applicant has amended the claims to recite automatically determining reallocation based on business policies that is supported by paragraph 0058 of US 2007/0043860 which is the published patent application of US Serial No. 11/503,090. The automatic determination of reallocation based on business policies clarifies that the claimed system and method distinguishes over Vasilevsky and Yan.

PRIOR ART REJECTIONS

In response to the rejection of claims 1, 4-12, 14-25, 27-30, 36 and 39-40 under 35 U.S.C. 103 as being unpatentable over US 2005/0044301 to Vasilevsky et al. ("Vasilevsky") in view of US 2003/0236882 to Yan et al. ("Yan"), Applicant respectfully traverses the rejections since the combination of prior art cited by the examiner does not disclose or suggest each claim element of the amended claims.

Independent Claim 1

Independent claim 1 recite claim elements that are not disclosed or suggested by the combination of Vasilevsky and Yan.

Claim 1 recites "A method for automatic management of a virtualization environment in a computer network" which is not found in Vasilevsky or Yan. In the office action, the examiner does not rely on Yan for this claim element. Vasilevsky also fails to disclose this claim element. Vasilevsky is focused on resource allocation to virtual servers and addresses the problem of horizontal virtualization architecture whereby applications are distributed across virtual servers. Vasilevsky provides administrators with a management system 212, but that management system 212 is used for manual allocation of resources to a virtual server. *See Vasilevsky at 0074.* Thus, this claim element is not disclosed by Vasilevsky or Yan, alone or in combination.

Providing a Virtualization Environment

Claim 1 recites "providing a virtualization environment that has a virtualization layer, network resources and virtual assets, **the virtual assets including at least one software instantiations of equipment objects in the virtualization environment**, the virtualization layer managing the virtual assets" which is not found in Vasilevsky or Yan. In the office action, the examiner does not rely on Yan for this claim element. Vasilevsky also fails to disclose this claim element. The examiner relies on an operating system layer 103 as meeting this claim element. However, the Operating System Layer 103 provides an indirect communication layer between virtualization layer 104 and application layer 102. *See Vasilevsky at 0058*. The operating system is a piece of software as is well known and is thus certainly not "**at least one software instantiations of equipment objects in the virtualization environment"** as set forth in claim 1.

Thus, this claim element is not disclosed by Vasilevsky or Yan, alone or in combination.

Determining Real Time Performance Metrics Claim Element

Claim 1 recites "determining, at the controller, real time performance metrics for the provisioned virtualization environment" which is not found in Vasilevsky or Yan. In the office action, the examiner does not rely on Yan for this claim element. Vasilevsky also does not disclose this claim element. Vasilevsky discloses that a network administrator provisions computing resources in real-time ("on-the-fly") without a restart of a virtual computing system. *See Vasilevsky at 0076-77.* An ability to provision computing resources to virtual servers in Vasilevsky is not the same as determining at the controller real-time performance metrics. Thus, Vasilevsky does not disclose this claim element.

Thus, this claim element is not disclosed by Vasilevsky or Yan, alone or in combination.

Automatically Determining, At the Controller, a Reallocation Claim Element

Claim 1 also recite "automatically determining at the controller based on business policies, for the provisioned virtualization environment under control of the controller, a reallocation of the virtual assets in response to the real time performance metrics" which is not found in Vasilevsky or Yan.

Vasilevsky does not disclose this claim element. In Vasilevsky, a management agent 815 is responsible for handling dynamic reconfiguration functions as well as reporting status and logging to other entities and may receive commands from the administrator (e.g. Manager 212)

for adding, deleting, and allocating of physical resources from virtual servers in real time. *See Vasilevsky at 0076 and 0150.* Furthermore, in Vasilevsky, manual administrator action is needed to trigger **allocation of physical resources from virtual servers** and thus Vasilevsky certainly does not take into account real time performance metrics to automatically trigger the **reallocation of virtual assets in a virtualization environment**. Thus, Vasilevsky does not disclose this claim element.

Yan discloses that the resource management system 316 **manages the physical resources** owned by the management system 200. *See Yan at 0032.* However, Yan fails to disclose: 1) the reallocation of virtual assets; and 2) the reallocation of virtual assets automatically based on business policies. Thus, Yan does not disclose or suggest this claim element.

Thus, this claim element is not disclosed by Vasilevsky or Yan, alone or in combination.

Initiating by the Controller the Reallocation Claim Element

Claim 1 also recites "initiating, by the controller that communicates with the virtualization layer, the reallocation of the virtual assets in the provisioned virtualization environment" which is not found in Vasilevsky or Yan. In the office action, the examiner admits that Vasilevsky does not disclose this claim element and relies on Yan. Yan discloses a **virtual operating environment (VOE) which is a logical partitioning of a management system** that is created when a client 280-282 opens an account with the management system 200. The VOEs 300-302 in Yan encapsulate the lifecycle of the corresponding e-services 210-212. The VOEs 300-302 enforce privacy protection because all activities and data in VOE are only accessible to the owner of the VOE. *See Yan at 0026.* Furthermore in response to a logic design, each auto-deployment component 320-322 builds a corresponding e-service 210-212 by allocating the appropriate **physical resources** and services. In Yan, the resource management system 316 **manages the physical resources** owned by the management system 200. *See Yan at 0032.* Thus, Yan does not disclose "initiating, by the controller that communicates with the virtualization layer, the reallocation of the virtual assets in the provisioned virtualization environment."

Dependent Claims 4-12, 14-24, 30, 36 and 40

These dependent claims, that depend from claim 1, are not obvious over Vasilevsky and Yan for the same reasons as independent claim 1 above.

Independent Claim 25

Independent claim 25 recite claim elements that are not disclosed or suggested by the combination of Vasilevsky or Yan.

Providing a Virtualization Environment

Claim 25 recites "providing a virtualization environment that has a virtualization layer, network resources and virtual assets, **the virtual assets including at least one software instantiations of equipment objects in the virtualization environment**, the virtualization layer managing the virtual assets" which is not found in Vasilevsky or Yan. In the office action, the examiner does not rely on Yan for this claim element. Vasilevsky also fails to disclose this claim element. The examiner relies on an operating system layer 103 as meeting this claim element. However, the Operating System Layer 103 provides an indirect communication layer between virtualization layer 104 and application layer 102. *See Vasilevsky at 0058*. The operating system is a piece of software as is well known and is thus certainly not "**at least one software instantiations of equipment objects in the virtualization environment"** as set forth in claim 25.

Thus, this claim element is not disclosed by Vasilevsky or Yan, alone or in combination.

Independent Claim 27

Claim 27 recites "an apparatus that performs automatic management of a virtualization environment in a computer network" which is not found in Vasilevsky or Yan. In the office action, the examiner does not rely on Yan for this claim element. Vasilevsky also fails to disclose this claim element. Vasilevsky is focused on physical resource allocation to virtual servers and addresses the problem of horizontal virtualization architecture whereby applications are distributed across virtual servers. Vasilevsky provides administrators with a management system 212, but that management system 212 is used for manual allocation of physical resources to a virtual server. *See Vasilevsky at 0074*. Thus, this claim element is not disclosed by Vasilevsky or Yan, alone or in combination.

Providing a Virtualization Environment

Claim 27 recites "a virtualization environment that has a virtualization layer, network resources and virtual assets, **the virtual assets including at least one software instantiations of**

equipment objects in the virtualization environment, the virtualization layer managing the virtual assets" which is not found in Vasilevsky or Yan. In the office action, the examiner does not rely on Yan for this claim element. Vasilevsky also fails to disclose this claim element. The examiner relies on an operating system layer 103 as meeting this claim element. However, the Operating System Layer 103 provides an indirect communication layer between virtualization layer 104 and application layer 102. *See Vasilevsky at 0058.* The operating system is a piece of software as is well known and is thus certainly not "**at least one software instantiations of equipment objects in the virtualization environment"** as set forth in claim 1.

Thus, this claim element is not disclosed by Vasilevsky or Yan, alone or in combination.

A Controller Claim Element

Claim 27 also recites "a controller that communicates with the virtualization layer and provisions the virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment, **determines real time performance metrics for the provisioned virtualization environment**, **automatically determines for the provisioned virtualization environment, a reallocation based on business policies of the virtual assets** in response to the real time performance metrics and initiates the reallocation of the virtual assets in the provisioned virtualization environment" which are not disclosed in Vasilevsky or Yan for the same reasons as the elements of claim 1 above.

CONCLUSION

In view of the above, it is respectfully submitted that the claims are allowable over the prior art cited by the Examiner and early allowance of these claims and the application is respectfully requested.

The Examiner is invited to call Applicant's attorney at the number below in order to speed the prosecution of this application.

The Commissioner is authorized to charge any deficiencies in fees and credit any overpayment of fees to Deposit Account No. 07-1896.

Respectfully submitted,

DLA PIPER LLP (US)

Dated: December 23, 2013

By /Timothy W. Lohse/
Timothy W. Lohse
Reg. No. 35,255
Attorney for Applicant

DLA PIPER LLP (US)
2000 University Avenue
East Palo Alto, CA 94303
Telephone: (650) 833-2055

Electronic Acknowledgement Receipt

EFS ID:	17749857
Application Number:	11503090
International Application Number:	
Confirmation Number:	9855
Title of Invention:	Virtual systems management
First Named Inventor/Applicant Name:	Vipul Pabari
Customer Number:	26379
Filer:	Timothy W. Lohse/Stacy Murray
Filer Authorized By:	Timothy W. Lohse
Attorney Docket Number:	367894-000003
Receipt Date:	23-DEC-2013
Filing Date:	10-AUG-2006
Time Stamp:	20:58:30
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		367894-000003_Response_to_NFOA-12-23-13.pdf	54014 926c2bbde1455ed4a4d626a9773233cfae003881	yes	13

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
	Claims	2	7
	Applicant Arguments/Remarks Made in an Amendment	8	13
Warnings:			
Information:			
	Total Files Size (in bytes):	54014	

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 (09-11)
Approved for use through 1/31/2014. 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 11/503,090	Filing Date 08/10/2006	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)		
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	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 $310 ($155 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	

APPLICATION AS AMENDED – PART II

AMENDMENT	12/23/2013	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 29	Minus	** 35	= 0	X $40 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $210 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	0

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						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.

LIE
/PAUL STANBACK/

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.

Document code: WFEE

United States Patent and Trademark Office
Sales Receipt for Accounting Date: 01/21/2014

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01 FC : 2251 100.00 DA

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.
11/503,090	08/10/2006	Vipul Pabari	367894-000003	9855

26379 7590 01/03/2014

DLA PIPER LLP (US)
2000 UNIVERSITY AVENUE
EAST PALO ALTO, CA 94303-2248

EXAMINER	
MUSA, ABDELNABI O	
ART UNIT	PAPER NUMBER
2478	

NOTIFICATION DATE	DELIVERY MODE
01/03/2014	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):

PatentDocketingUS-PaloAlto@dlapiper.com

Applicant-Initiated Interview Summary	Application No.	Applicant(s)	
	11/503,090	PABARI, VIPUL	
	Examiner	Art Unit	
	ABDELNABI MUSA	2478	

All participants (applicant, applicant's representative, PTO personnel):

(1) *ABDELNABI MUSA*. (3)_____.

(2) *Lohse Timothy Reg. No. 35,255*. (4)_____.

Date of Interview: *19 December 2013*.

Type: ☒ Telephonic ☐ Video Conference
☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☒ No.
If Yes, brief description: _____.

Issues Discussed ☐101 ☒112 ☐102 ☒103 ☒Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: *1,4-12,14-25,27-30,36,39 and 40*.

Identification of prior art discussed: *(US. 2005/0044301 A1) (US 2003/0236882 A1)*.

Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

Applicant explained the invention related to the claims whereas a discussion was made regarding the references in view of the written claim language. applicant explained that the claims now read automatically determining at the controller based on business policies, for the provisioned virtualization environment under control of the controller, which should overcome the cited art, the examiner explained that this newly added limitations suggested by the cited art. Examiner explained that further search and/or consideration will be required upon examining the amendment..

Applicant recordation instructions: The formal written reply to the last Office action must include the substance of the interview. (See MPEP section 713.04). If a reply to the last Office action has already been filed, applicant is given a non-extendable period of the longer of one month or thirty days from this interview date, or the mailing date of this interview summary form, whichever is later, to file a statement of the substance of the interview

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☐ Attachment

/ABDELNABI MUSA/ Examiner, Art Unit 2478	

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record
A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews
Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.
All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

———

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:
- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:
1) A brief description of the nature of any exhibit shown or any demonstration conducted,
2) an identification of the claims discussed,
3) an identification of the specific prior art discussed,
4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
5) a brief identification of the general thrust of the principal arguments presented to the examiner,
   (The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
6) a general indication of any other pertinent matters discussed, and
7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. 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 11/503,090	Filing Date 08/10/2006	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	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 $310 ($155 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	

APPLICATION AS AMENDED – PART II

AMENDMENT	03/17/2014	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 24	Minus	** 35	= 0	X $40 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $210 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	0

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						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.

LIE
/DONNA 1. SMALLS LOGAN/

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.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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NOTICE OF ALLOWANCE AND FEE(S) DUE

26379 7590 03/27/2014

DLA PIPER LLP (US)
2000 UNIVERSITY AVENUE
EAST PALO ALTO, CA 94303-2248

EXAMINER
MUSA, ABDELNABI O

ART UNIT	PAPER NUMBER
2478	

DATE MAILED: 03/27/2014

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/503,090	08/10/2006	Vipul Pabari	367894-000003	9855

TITLE OF INVENTION: Virtual systems management

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0	$0	$480	06/27/2014

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 ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

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.

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)

26379 7590 03/27/2014
DLA PIPER LLP (US)
2000 UNIVERSITY AVENUE
EAST PALO ALTO, CA 94303-2248

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.
11/503,090	08/10/2006	Vipul Pabari	367894-000003	9855

TITLE OF INVENTION: Virtual systems management

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0	$0	$480	06/27/2014

EXAMINER	ART UNIT	CLASS-SUBCLASS
MUSA, ABDELNABI O	2478	709-223000

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 _____
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 (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:
- ❑ 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 credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
- ❑ Applicant certifying micro entity status. See 37 CFR 1.29 — NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
- ❑ Applicant asserting small entity status. See 37 CFR 1.27 — NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
- ❑ Applicant changing to regular undiscounted fee status. — NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

PTOL-85 Part B (10-13) Approved for use through 10/31/2013. OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/503,090	08/10/2006	Vipul Pabari	367894-000003	9855

26379 7590 03/27/2014

DLA PIPER LLP (US)
2000 UNIVERSITY AVENUE
EAST PALO ALTO, CA 94303-2248

EXAMINER	
MUSA, ABDELNABI O	
ART UNIT	PAPER NUMBER
2478	

DATE MAILED: 03/27/2014

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 142 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 142 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.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B 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. 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.

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.

Examiner-Initiated Interview Summary	**Application No.** 11/503,090	**Applicant(s)** PABARI, VIPUL	
	Examiner ABDELNABI MUSA	**Art Unit** 2478	

All participants (applicant, applicant's representative, PTO personnel):

(1) *ABDELNABI MUSA*. (3)_____.

(2) *Timothy Lohse REG# 35,255*. (4)_____.

Date of Interview: *11 March 2014*.

Type: ☒ Telephonic ☐ Video Conference
☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☒ No.
If Yes, brief description: _____.

Issues Discussed ☐101 ☐112 ☐102 ☒103 ☒Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: *1-40*.

Identification of prior art discussed: *(US. 2005/0044301 A1) (US 2003/0236882 A1)*.

Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

Allowance, by amending some of the limitations into the independent claims to specifically point out the novelty of the invention. .

Applicant recordation instructions: It is not necessary for applicant to provide a separate record of the substance of interview.

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☐ Attachment

/NOEL BEHARRY/ Primary Examiner, Art Unit 2478	/ABDELNABI MUSA/ Examiner, Art Unit 2478

Notice of Allowability	Application No. 11/503,090	Applicant(s) PABARI, VIPUL	
	Examiner ABDELNABI MUSA	Art Unit 2478	AIA (First Inventor to File) Status No

-- 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 *12/23/2013*.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on_____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are *1,5-8,14-25,27-30,36,39-40 (renumbered 1-24)*. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov .
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   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.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ 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. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
4. ☒ Interview Summary (PTO-413), Paper No./Mail Date *03/11/2014* .
5. ☒ Examiner's Amendment/Comment
6. ☒ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/NOEL BEHARRY/ Primary Examiner, Art Unit 2478	/ABDELNABI MUSA/ Examiner, Art Unit 2478

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record as directed below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

This examiner amendment was authorization by Timothy Lohse, registration No. 35,255 in a telephone interview on 03/11/2014.

Claims

2. The claims have been amended as follows:

1. (Currently Amended) A method for automatic management of a virtualization environment in a computer network, the method comprising:

providing a virtualization environment that has a virtualization layer, network resources and virtual assets, the virtual assets including at least one software instantiations of equipment objects in the virtualization environment, the virtualization layer managing the virtual assets;

providing a controller coupled to the virtualization environment over a network that communicates with the virtualization layer;

determining, using the controller that communicates with the virtualization layer, an inventory of network resources and virtual assets available to the virtualization environment;

provisioning, by the controller that communicates with the virtualization layer, the virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment;

determining, at the controller, real time performance metrics for the provisioned virtualization environment;

receiving a Knowledge Block that specifies parameters that send an alert message to an administrator of the network in response to an alert condition and determines one or more reallocation parameters to be considered with the real time performance metrics in producing the reallocation of assets and wherein the Knowledge Block specifies parameters that detect operational degradation of a member of the available inventory which is halted and removed from the available inventory;

automatically determining at the controller ~~based on business policies,~~ for the provisioned virtualization environment under control of the controller, a reallocation of the virtual assets in response to the reallocation parameters and real time performance metrics;

initiating, by the controller that communicates with the virtualization layer, the reallocation of the virtual assets in the provisioned virtualization environment.

2. Cancelled.

3. Cancelled.

4. Cancelled.

5. (Currently Amended) The method of claim 1 [~~4~~], wherein the available inventory member that is detected as degraded is removed from the available inventory.

6. (Currently Amended) The method of claim 1 [4], wherein the available inventory that is detected as degraded is moved from the available inventory to a debug inventory pool.

7. (Currently Amended) The method of claim 1 [4], wherein log files are retrieved from the available inventory that is detected as degraded.

8. (Original) The method of claim 7, wherein the log files are stored in an archive and an alert message is sent to a network administrator with an identification of the log file archive location.

9-10. Cancelled.

11-12. Cancelled.

13. Cancelled.

14. (Currently Amended) The method of claim 1 [4], wherein the Knowledge Block specifies parameters that deploy an instance of an application selected from among the available inventory.

15. (Currently Amended) The method of claim 1 [4], wherein the received user input specifies a priority for one or more of the available inventory.

16. (Currently Amended) The method of claim 1 [4], wherein the user input specifies a time period during which the reallocation will be applied.

17. (Original) The method of claim 1, further comprising: providing a user interface through which user input can be received and wherein the user input adjusts scheduling of producing the reallocation.

18. (Original) The method of claim 1, wherein producing a reallocation comprises adding a new application instance to the available inventory.

19. (Original) The method of claim 1, wherein producing a reallocation comprises updating the available inventory to include any changes made by the reallocation.

20. (Original) The method of claim 1, wherein the inventory of available inventory includes one or more application programs.

21. (Original) The method of claim 20, wherein one of the application programs comprises a network load balancer.

22. (Original) The method of claim 20, wherein one of the application programs comprises a network server.

23. (Original) The method of claim 1, wherein: determining, by an Asset Manager Component, an inventory of available network resources and virtual assets; assigning prioritization to the available inventory and provisioning virtual assets from among the available inventory, performed by a Provisioning Manager component; determining, by a

Performance Manager component, a real time performance metrics; and automatically producing and initializing, by an Optimizer component, a reallocation of the virtual assets.

24. (Original) The method of claim 23, wherein automatically producing a reallocation of the virtual assets comprises forecasting future system needs, which is performed by a Capacity Planning Manager component.

25. (Currently Amended) A method for automatic management of a virtualization environment in a computer network, the method comprising:

providing a virtualization environment that has a virtualization layer, network resources and virtual assets, the virtual assets including at least one software instantiations of equipment objects in the virtualization environment, the virtualization layer managing the virtual assets;

providing a controller coupled to the virtualization environment over a network;

performing one or more functions by the controller that communicates with the virtualization layer from the group of functions consisting of

(1) identification and management of network resources and virtual assets,

(2) provisioning of virtual assets in response to network workflow demands,

(3) receiving a Knowledge Block that specifies parameters that send an alert message to an administrator of the network in response to an alert condition and determines one or more reallocation parameters to be considered with a performance measurement in producing the deployment of the assets and wherein the Knowledge Block specifies parameters that detect operational degradation of a member of the virtualization environment which is halted and removed,

(4 ~~3~~) automatic dynamic deployment of virtual assets across the computer network ~~based on business policies~~ based on the reallocation parameters,

(5 ~~4~~) performance measurement and reporting of resources and virtual assets, and

(6 ~~5~~) planning and forecasting of resource demands and virtual asset utilization of the virtualization environment;

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment.

26. Cancelled.

27. (Currently Amended) An apparatus that performs automatic management of a virtualization environment in a computer network comprising:

a virtualization environment that has a virtualization layer, network resources and virtual assets, the virtual assets including at least one software instantiations of equipment objects in the virtualization environment, the virtualization layer managing the virtual assets;

an operating system of the apparatus that supports the virtualization environment in communication with the apparatus over the computer network; and

a Virtual Mapping layer that determines an inventory of network resources and virtual assets available to the virtualization environment, wherein the Virtual Mapping layer determines the inventory without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment; and

a controller that communicates with the virtualization layer and provisions the virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment, determines real time performance metrics for the provisioned

virtualization environment, receives a Knowledge Block that specifies parameters that send an alert message to an administrator of the network in response to an alert condition and determines one or more reallocation parameters to be considered with the real time performance metrics in producing the reallocation of assets and wherein the Knowledge Block specifies parameters that detect operational degradation of a member of the available inventory which is halted and removed from the available inventory, automatically determines for the provisioned virtualization environment, a reallocation ~~based on business policies~~ of the virtual assets in response to the reallocation parameters and the real time performance metrics and initiates the reallocation of the virtual assets in the provisioned virtualization environment.

28. (Previously Presented) The apparatus of claim 27, further comprising one or more components that receive the inventory of available resources and assets from the Virtual Mapping layer and perform one or more functions from the group of functions consisting of:

identification and management of network resources and virtual assets,

dynamic deployment of virtual assets across the computer network,

performance measurement and reporting of resources and virtual assets, and

planning and forecasting of resource demands and asset utilization of the virtualization environment;

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment.

29. (Original) The apparatus of claim 27, further comprising a component selected from a group consisting of: an Asset Manager component that determines an inventory of available network resources and virtual assets;

a Provisioning Manager component that assigns a prioritization to the available inventory and provisions virtual assets from among the available inventory;

a Performance Manager component that determines real time performance metrics; and

an Optimizer component that automatically produces a reallocation of the virtual assets and initiates the reallocation.

30. (Previously Presented) The method of claim 1 wherein the virtual assets further comprise a second virtual machine which comprises virtual assets, and the at least one virtual machine and the second virtual machine each run their own respective operating systems which are a different type of operating system from each other.

31. -35. Canceled

36. (Previously Presented) The method of claim 1 wherein provisioning virtual assets from among the available inventory further comprises routing an application running on a first virtual machine to run on a second virtual machine.

37. Cancelled.

38. Cancelled.

39. (Previously Presented) The method of claim 25 wherein provisioning virtual assets from among the available inventory further comprises creating a new virtual machine on the single physical host.

40. (Previously Presented) The method of claim 1 wherein provisioning virtual assets from among the available inventory further comprises communicating provisioning instructions from a control agent comprising at least one virtualization platform adapter to a virtualization layer in the single physical host.

REASONS FOR ALLOWANCE

3. The following is an examiner's statement of reasons for allowance:

There is no teaching or suggestion in the prior art of the claim limitations, among other things, as presented in the independent claims, specifically wherein establishing a provisioned virtualization environment by a controller that communicates with the virtualization layer and determining, at the controller, real time performance metrics for the provisioned virtualization environment by receiving a Knowledge Block that specifies parameters that send an alert message to an administrator of the network in response to an alert condition and determines one or more reallocation parameters to be considered with the real time performance metrics in producing the reallocation of assets and wherein the Knowledge Block specifies parameters that detect operational degradation of a member of the available inventory which is halted and removed from the available inventory, and automatically determining a reallocation of the virtual assets in response to the reallocation parameters and real time performance metrics.

4. The closest prior art found by the Examiner is the previously cited references namely, Vasilevsky et al. Pub. No (US. 2005/0044301 A1) and Yan et al. Pub. No. (US 2003/0236882 A1).

However, the references alone and in combination do not teach or suggest the virtualization system management the way as claimed in the present application

For these reasons, in conjunction with the other claim limitations puts this case in condition for allowance

5. 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 submission should be clearly labeled "Comments on Statement of Reason for Allowance."

Correspondence Information

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abdelnabi O. Musa whose telephone number is 571-2701901. and email address is abdelnabi.musa@uspto.gov 'preferred'. The examiner can normally be reached on Monday thru Friday: 7:30am to 5:00pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ferris Derrick W. can be reached on 571-2723123. 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.

/A. O. M./
Examiner, Art Unit 2478

/NOEL BEHARRY/
Primary Examiner, Art Unit 2478

Examiner-Initiated Interview Summary	**Application No.** 11/503,090	**Applicant(s)** PABARI, VIPUL	
	Examiner ABDELNABI MUSA	**Art Unit** 2478	

All participants (applicant, applicant's representative, PTO personnel):

(1) *ABDELNABI MUSA*. (3)_____.

(2) *Timothy Lohse REG# 35,255*. (4)_____.

Date of Interview: *11 March 2014*.

Type: ☒ Telephonic ☐ Video Conference
☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☒ No.
If Yes, brief description: _____.

Issues Discussed ☐101 ☐112 ☐102 ☒103 ☒Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: *1-40*.

Identification of prior art discussed: *(US. 2005/0044301 A1) (US 2003/0236882 A1)*.

Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

Allowance, by amending some of the limitations into the independent claims to specifically point out the novelty of the invention. .

Applicant recordation instructions: It is not necessary for applicant to provide a separate record of the substance of interview.

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☐ Attachment

/NOEL BEHARRY/ Primary Examiner, Art Unit 2478	/ABDELNABI MUSA/ Examiner, Art Unit 2478

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11503090	PABARI, VIPUL
	Examiner	Art Unit
	Abdelnabi Musa	2478

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
709	223, 226	5/27/2008	DA
709	223,224,226	12/31/2008	DA
709	223	12/8/2009	DA
709	223, 226, 229	10/31/2010	AM
709	223, 226, 229	7/15/2011	AM
709	223,224,226,229,220,221	6/6/2012	AM
709	223,224,226,229,220,221	3/15/2013	AM
709	223,224,226,229,220,221	7/24/2013	AM
709	223,224,226,229,220,221	3/12/2014	AM

SEARCH NOTES		
Search Notes	Date	Examiner
Text searched EAST databases	5/27/2008	DA
Updated EAST text search	12/31/2008	DA
limted class/sublcass search (709/201-202,223-224,226; 718/100-108)	12/31/2008	DA
Inventor name searched	12/31/2008	DA
Updated EAST text search	5/14/2009	DA
Updated Text search of East (USPat, USPG_Pub, JPO, EPO, Derwent, IBM_TDB) and Inventor search	12/8/2009	DA
Limited classification search 709/201,202,223,224,226 and 718/1,100-108	12/8/2009	DA
EAST (USPAT, US-PGPUB, EPO, JPO, DERWENT, IBM_TDB), see attached; NPL: IEEE; Inventor Search/DP	10/31/2010	AM

/ABDELNABI MUSA/ Examiner.Art Unit 2478	

SEARCH NOTES		
Search Notes	**Date**	**Examiner**
EAST (USPAT, US-PGPUB, EPO, JPO, DERWENT, IBM_TDB), see attached; NPL: IEEE; Inventor Search/DP	7/15/2011	AM
EAST (USPAT, US-PGPUB, EPO, JPO, DERWENT, IBM_TDB), see attached; NPL: IEEE; Inventor Search/DP	6/6/2012	AM
EAST (USPAT, US-PGPUB, EPO, JPO, DERWENT, IBM_TDB), see attached; NPL: IEEE; Inventor Search/DP	3/15/2013	AM
EAST (USPAT, US-PGPUB, EPO, JPO, DERWENT, IBM_TDB), see attached; NPL: IEEE; Inventor Search/DP	7/24/2013	AM
EAST (USPAT, US-PGPUB, EPO, JPO, DERWENT, IBM_TDB), see attached; NPL: IEEE; Inventor Search/DP	3/12/2014	AM

INTERFERENCE SEARCH			
US Class/ CPC Symbol	**US Subclass / CPC Group**	**Date**	**Examiner**
709	223,224,226,229,220,221	3/12/2014	AM
	EAST (USPAT, US-PGPUB, UPAD)	3/12/2014	AM

/ABDELNABI MUSA/ Examiner.Art Unit 2478	

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11503090	PABARI, VIPUL
	Examiner	**Art Unit**
	ABDELNABI MUSA	2478

CPC		
Symbol	**Type**	**Version**

CPC Combination Sets				
Symbol	**Type**	**Set**	**Ranking**	**Version**

/ABDELNABI MUSA/ Examiner.Art Unit 2478 (Assistant Examiner)	03/12/2014 (Date)	**Total Claims Allowed:** 24	
/NOEL BEHARRY/ Primary Examiner.Art Unit 2478 (Primary Examiner)	03/17/2014 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11503090	PABARI, VIPUL
	Examiner	**Art Unit**
	ABDELNABI MUSA	2478

US ORIGINAL CLASSIFICATION		INTERNATIONAL CLASSIFICATION														
CLASS	SUBCLASS	CLAIMED									NON-CLAIMED					
709	223	G	0	6	F	15 / 173 (2006.0)										
CROSS REFERENCE(S)		G	0	6	F	15 / 177 (2006.0)										
		G	0	6	F	15 / 16 (2006.0)										
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)															
709	224	226	229	220	221											

/ABDELNABI MUSA/ Examiner.Art Unit 2478 (Assistant Examiner)	03/12/2014 (Date)	**Total Claims Allowed:** 24	
/NOEL BEHARRY/ Primary Examiner.Art Unit 2478 (Primary Examiner)	03/17/2014 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1

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☐ 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
1	1	9	17		33										
	2	10	18		34										
	3	11	19		35										
	4	12	20	18	36										
2	5	13	21		37										
3	6	14	22		38										
4	7	15	23	21	39										
5	8	16	24	19	40										
	9	20	25												
	10		26												
	11	22	27												
	12	23	28												
	13	24	29												
6	14	17	30												
7	15		31												
8	16		32												

/ABDELNABI MUSA/ Examiner.Art Unit 2478 (Assistant Examiner)	03/12/2014 (Date)	**Total Claims Allowed:** 24	
/NOEL BEHARRY/ Primary Examiner.Art Unit 2478 (Primary Examiner)	03/17/2014 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1

U.S. Patent and Trademark Office Part of Paper No. 20140311

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✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

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CLAIM		DATE								
Final	Original	05/27/2008	12/31/2008	05/14/2009	12/08/2009	10/31/2010	07/15/2011	06/06/2012	03/15/2013	03/12/2014
1	1	✓	✓	✓	✓	✓	✓	✓	✓	=
	2	✓	✓	✓	✓	✓	✓	-	-	-
	3	✓	✓	✓	✓	✓	✓	-	-	-
	4	✓	✓	✓	✓	✓	✓	✓	✓	-
2	5	✓	✓	✓	✓	✓	✓	✓	✓	=
3	6	✓	✓	✓	✓	✓	✓	✓	✓	=
4	7	✓	✓	✓	✓	✓	✓	✓	✓	=
5	8	✓	✓	✓	✓	✓	✓	✓	✓	=
	9	✓	✓	✓	✓	✓	✓	✓	✓	-
	10	✓	✓	✓	✓	✓	✓	✓	✓	-
	11	✓	✓	✓	✓	✓	✓	✓	✓	-
	12	✓	✓	✓	✓	✓	✓	✓	✓	-
	13	✓	✓	✓	✓	✓	✓	-	-	-
6	14	✓	✓	✓	✓	✓	✓	✓	✓	=
7	15	✓	✓	✓	✓	✓	✓	✓	✓	=
8	16	✓	✓	✓	✓	✓	✓	✓	✓	=
9	17	✓	✓	✓	✓	✓	✓	✓	✓	=
10	18	✓	✓	✓	✓	✓	✓	✓	✓	=
11	19	✓	✓	✓	✓	✓	✓	✓	✓	=
12	20	✓	✓	✓	✓	✓	✓	✓	✓	=
13	21	✓	✓	✓	✓	✓	✓	✓	✓	=
14	22	✓	✓	✓	✓	✓	✓	✓	✓	=
15	23	✓	✓	✓	✓	✓	✓	✓	✓	=
16	24	✓	✓	✓	✓	✓	✓	✓	✓	=
20	25	✓	✓	✓	✓	✓	✓	✓	✓	=
	26	✓	✓	✓	✓	✓	✓	✓	-	-
22	27	✓	✓	✓	✓	✓	✓	✓	✓	=
23	28	✓	✓	✓	✓	✓	✓	✓	✓	=
24	29	✓	✓	✓	✓	✓	✓	✓	✓	=
17	30		✓	✓	✓	✓	✓	✓	✓	=
	31		✓	-	-	-	-	-	-	-
	32		✓	-	-	-	-	-	-	-
	33		✓	✓	-	-	-	-	-	-
	34		✓	✓	-	-	-	-	-	-
	35		✓	✓	-	-	-	-	-	-
18	36				✓	✓	✓	✓	✓	=

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CLAIM		DATE								
Final	Original	05/27/2008	12/31/2008	05/14/2009	12/08/2009	10/31/2010	07/15/2011	06/06/2012	03/15/2013	03/12/2014
	37				✓	✓	-	-	-	-
	38				✓	✓	-	-	-	-
21	39				✓	✓	✓	✓	✓	=
19	40				✓	✓	✓	✓	✓	=

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L9	16	(US-20080086731-$ or US-20050155033-$ or US-20060149842-$ or US-20050125537-$ or US-20040015600-$ or US-20060069761-$ or US-20050044301-$ or US-20060184937-$ or US-20050223221-$ or US-20030236956-$ or US-20020166117-$ or US-20050198062-$).did. or (US-7512769-$ or US-7577722-$ or US-6490620-$ or US-7330858-$).did.	US-PGPUB; USPAT	AND	OFF	2014/03/12 15:01
L10	0	(manage$4 virtual$6 environment inventory resource$4 prioritiz$4 physical host).clm.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2014/03/12 15:01
L11	564	virtualization near layer manag$6 virtual (asset$2 or resourc$2)	US-PGPUB; USPAT; USOCR	SAME	OFF	2014/03/12 15:01
L12	1	(virtual$ mange$4).ti.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2014/03/12 15:01
L13	189	(Automatic configuration management).ab.	US-PGPUB; USPAT; USOCR	AND	OFF	2014/03/12 15:01
L14	2182	(manage$4 virtual$6 environment inventory resource$4 prioritiz$4 physical host)	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2014/03/12 15:02
L15	189	(Automatic configuration management).ab.	US-PGPUB; USPAT; USOCR	AND	OFF	2014/03/12 15:02
L16	129	automatic$5 near4 (allocat$4 or re$allocat$4) and forecast$4 virtual$4 and @ad<="20050815"	US-PGPUB; USPAT; USOCR	AND	OFF	2014/03/12 15:02
L17	2	L9 and (forecast$4 or predict$4 or estimat$4 or project$4 or anticipat$4 or guess$4) automatic$6	US-PGPUB; USPAT; USOCR	SAME	OFF	2014/03/12 15:02
L18	7	L9 and (forecast$4 or predict$4 or estimat$4 or project$4 or anticipat$4 or guess$4)	US-PGPUB; USPAT; USOCR	SAME	OFF	2014/03/12 15:02
L20	32483	709/223.ccls. or 709/226.ccls. or 709/229.ccls.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2014/03/12 15:03
L21	22	pabari.in.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2014/03/12 15:03

L22	0	(manage$4 virtual$6 environment inventory resource$4 prioritiz$4 physical host).clm.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2014/03/12 15:03
L23	2182	(manage$4 virtual$6 environment inventory resource$4 prioritiz$4 physical host)	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2014/03/12 15:03
L25	1	(virtual$ mange$4).ti.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2014/03/12 15:03
L26	205	(manage$4 virtual$6 environment resource$4).ab.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2014/03/12 15:03
L29	32190	(manage$4 virtual$6 environment (resource$4 or asset$2) physical host allocat$4)	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2014/03/12 15:03
L30	32483	709/223.ccls. or 709/226.ccls. or 709/229.ccls.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2014/03/12 15:03
L31	2255	L29 L30	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2014/03/12 15:03
L32	1031	L31 (load adj (shar$4 or balanc$4))	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2014/03/12 15:03
L33	205	(manage$4 virtual$6 environment resource$4).ab.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2014/03/12 15:03
L35	455	((virtual adj machine) or VM) same new same physical same host	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2014/03/12 15:03
S1	7	("20050138165" | "20050155033" | "20060294238" | "20070067435" | "20080086731" | "7463648" | "7512769").PN.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 11:51
S2	19897	709/223.ccls. or 709/226.ccls. or 709/229.ccls.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:10
S3	16	pabari.in.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:10
S4	0	(manage$4 virtual$6 environment inventory resource$4 prioritiz$4 physical host).clm.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:12
S5	1094	(manage$4 virtual$6 environment inventory resource$4 prioritiz$4 physical host)	US-PGPUB; USPAT; USOCR;	AND	OFF	2010/10/29 17:12

			IBM_TDB			
S6	1	S3 S5	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:12
S7	1	(virtual$ mange$4).ti.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:13
S8	82	(manage$4 virtual$6 environment resource$4).ab.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:14
S9	13	S2 S8	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:14
S10	2	(manage$4 virtual$6 environment resource$4 physical host).ab.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/29 17:17
S11	17572	(manage$4 virtual$6 environment (resource$4 or asset$2) physical host allocat$4)	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:10
S12	19897	709/223.ccls. or 709/226.ccls. or 709/229.ccls.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:11
S13	1084	S11 S12	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:11
S14	468	S13 (load adj (shar$4 or balanc$4))	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:11
S15	82	(manage$4 virtual$6 environment resource$4).ab.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:13
S16	4	S14 S15	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:13
S17	143	((virtual adj machine) or VM) same new same physical same host	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:18
S18	2	S15 S17	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:19
S19	2	S17 S15	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:19
S20	84	S17 S11	US-PGPUB;	AND	OFF	2010/10/30

			USPAT; USOCR; IBM_TDB			14:21
S21	9	S20 S12	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2010/10/30 14:22
S22	0	(knowledge near block re$allocat$4 (real$time or real near time) virtual$2 image application$2 (inventory or resource$2) prioriti$6 (peer$2 or member$2) physical).clm.	US-PGPUB; USPAT; USOCR	AND	OFF	2012/04/10 14:21
S23	2	(knowledge near block re$allocat$4 (real$time or real near time) virtual$2 image application$2 (inventory or resource$2) prioriti$6 (peer$2 or member$2) physical)	US-PGPUB; USPAT; USOCR	AND	OFF	2012/04/10 14:21
S24	156	(Automatic configuration management).ab.	US-PGPUB; USPAT; USOCR	AND	OFF	2012/04/10 14:29
S25	41755	709/223,224,226,229,220,221.ccls.	US-PGPUB; USPAT; USOCR	AND	OFF	2012/04/10 14:31
S26	29	S24 S25	US-PGPUB; USPAT; USOCR	AND	OFF	2012/04/10 14:31
S27	0	(10/460518).APP.	USPAT; USOCR	OR	OFF	2012/04/10 14:34
S28	7	("20050138165" | "20050155033" | "20060294238" | "20070067435" | "20080086731" | "7463648" | "7512769").PN.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S29	25092	709/223.ccls. or 709/226.ccls. or 709/229.ccls.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S30	20	pabari.in.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S31	0	(manage$4 virtual$6 environment inventory resource$4 prioritiz$4 physical host).clm.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S32	1541	(manage$4 virtual$6 environment inventory resource$4 prioritiz$4 physical host)	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S33	1	S30 S32	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S34	1	(virtual$ mange$4).ti.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S35	122	(manage$4 virtual$6 environment resource$4).ab.	US-PGPUB; USPAT;	AND	OFF	2012/04/10 14:36

			USOCR; IBM_TDB			
S36	26	S29 S35	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S37	3	(manage$4 virtual$6 environment resource$4 physical host).ab.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S38	22641	(manage$4 virtual$6 environment (resource$4 or asset$2) physical host allocat$4)	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S39	25092	709/223.ccls. or 709/226.ccls. or 709/229.ccls.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S40	1484	S38 S39	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S41	637	S40 (load adj (shar$4 or balanc$4))	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S42	122	(manage$4 virtual$6 environment resource$4).ab.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S43	8	S41 S42	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S44	238	((virtual adj machine) or VM) same new same physical same host	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S45	7	S42 S44	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S46	7	S44 S42	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S47	141	S44 S38	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S48	18	S47 S39	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:36
S49	166	(manage$4 virtual$6 resource$4 physical).ab.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:39

S50	118867	"709".clas.	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:39
S51	49	S50 S49	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:39
S52	49	S51 not S26	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:39
S53	0	real near time matrics virtual physical	US-PGPUB; USPAT; USOCR; IBM_TDB	SAME	OFF	2012/04/10 14:43
S54	27	real near time metrics virtual physical	US-PGPUB; USPAT; USOCR; IBM_TDB	SAME	OFF	2012/04/10 14:43
S55	1	S39 and real near time metrics virtual physical	US-PGPUB; USPAT; USOCR; IBM_TDB	SAME	OFF	2012/04/10 14:44
S56	3	S50 S54	US-PGPUB; USPAT; USOCR; IBM_TDB	AND	OFF	2012/04/10 14:46
S57	9	pabari.in.	USPAT	AND	OFF	2012/04/10 14:50
S58	20	pabari.in.	US-PGPUB; USPAT	AND	OFF	2012/04/10 14:50
S59	1	S23 S58	US-PGPUB; USPAT	AND	OFF	2012/04/10 14:50
S60	0	S24 S58	USPAT	AND	OFF	2012/04/10 14:51
S78	3	"11503090"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2013/03/12 15:19
S79	8	(US-20080086731-$ or US-20050155033-$ or US-20060149842-$ or US-20050125537-$ or US-20040015600-$).did. or (US-7512769-$ or US-7577722-$ or US-6490620-$).did.	US-PGPUB; USPAT	OR	OFF	2013/03/12 15:52
S80	5	S79 and (virtual$7 environment layer network (resourc$2 or computer$2 or printer$2 or device$2) (asset$2 or sofware or program$2 or instruction$2))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	AND	OFF	2013/03/12 15:54
S81	1	(11/031542).APP.	USPAT; USOCR	OR	OFF	2013/03/12 16:04

S82	0	virtual$8 environment virtual$8 near2 laver$1 network resource$2d virtual asset$2 (software or instantiation$1) virtualization layer managing the virtual assets	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 10:45
S83	0	virtual$8 environment virtual$8 near2 laver$1 network resource$2d virtual asset$2 (software or instantiation$1)	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 10:45
S84	0	virtual$8 environment virtual$8 near2 laver$1 network resource$2d virtual asset$2	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 10:46
S85	0	virtual$8 environment virtual$8 near2 laver$1	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 10:46
S86	1	virtual$8 virtual$8 near2 laver$1	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 10:46
S87	858	virtualization layer manag$6 virtual (asset$2 or resourc$2)	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 10:47
S88	427	virtualization near layer manag$6 virtual (asset$2 or resourc$2)	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 10:47
S89	31	virtualization near layer near5 manag$6 near5 virtual (asset$2 or resourc$2)	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 10:47
S90	10	virtualization near layer near5 manag$6 near5 virtual (asset$2 or resourc$2) and ("709"/$.ccls.)	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 10:48
S91	3218	(virtual or virtualization) layer network (resourc$2 or assets)	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 10:49
S92	444	S91 and S87	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 10:49
S93	287	S91 and S88	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 10:50
S94	522	(virtual or virtualization) near layer network (resourc$2 or assets)	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 10:50
S95	259	S94 and S88	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 10:50
S96	258	(virtual or virtualization) near layer near4 (resourc$2 or assets)	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 10:54
S97	10	virtualization near layer near5 manag$6 near5 virtual (asset$2 or resourc$2) and ("709"/$.ccls.)	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 14:22
S98	37	(virtual or virtualization) near layer near3 manag$6 near4 (resourc$2 or assets)	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 14:22
S99	33	S98 not S97	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 14:22
S100	15	(virtualization near layer	US-PGPUB;	SAME	OFF	2013/07/24

		resourc$2).ab.	USPAT; USOCR			14:33
S101	12	S100 not S99	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 14:33
S102	29	virtualization near layer near2 manag$6 near4 (asset$1 or resourc$2)	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 14:36
S103	2	S102 not S99	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 14:37
S104	10	(US-20080086731-$ or US-20050155033-$ or US-20060149842-$ or US-20050125537-$ or US-20040015600-$ or US-20060069761-$ or US-20050044301-$).did. or (US-7512769-$ or US-7577722-$ or US-6490620-$).did.	US-PGPUB; USPAT	AND	OFF	2013/07/24 14:40
S105	2	S104 and (virtual or virtualization) near layer	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 14:40
S106	37	(virtual or virtualization) near layer near3 manag$6 near4 (resourc$2 or assets)	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/07/24 14:40
S107	0	(10/831973).APP.	USPAT; USOCR	AND	OFF	2013/07/24 14:41
S108	10	(US-20080086731-$ or US-20050155033-$ or US-20060149842-$ or US-20050125537-$ or US-20040015600-$ or US-20060069761-$ or US-20050044301-$).did. or (US-7512769-$ or US-7577722-$ or US-6490620-$).did.	US-PGPUB; USPAT	AND	OFF	2013/08/28 21:06
S109	0	S108 and (virtualization with layer) controller (resourc$2 or inventory or assents) virtualization near4 environment$1 (allocat$4 or re$allocat$4)	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/28 21:09
S110	403	(virtualization with layer) controller (resourc$2 or inventory or assents) virtualization near4 environment$1 (allocat$4 or re$allocat$4)	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/28 21:10
S111	32	(virtualization with layer) controller (resourc$2 or inventory$1 or assent$2) virtualization near4 environment$1 (allocat$4 or re$allocat$4) (erorr$1 or debug$2 or degrad$3 or corrupt$4 or bad$2) log$2 near4 fil$2	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/28 21:12
S112	0	(virtualization with layer) controller (resourc$2 or inventory$1 or assent$2) virtualization near4 environment$1 (allocat$4 or re$allocat$4) (erorr$1 or debug$2 or degrad$3 or corrupt$4 or bad$2) log$2 near4 fil$2 @ad<="20061218" and ("370"/$.ccls. or "455"/$.ccls.)	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/28 21:13
S113	1	(virtualization with layer) controller (resourc$2 or inventory$1 or assent$2) virtualization near4 environment$1	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/28 21:13

		(allocat$4 or re$allocat$4) (erorr$1 or debug$2 or degrad$3 or corrupt$4 or bad$2) log$2 near4 fil$2 @ad<="20061218" and ("370"/$.ccls. or "455"/$.ccls. or "709".clas.)				
S114	1	(virtualization with layer) controller (resourc$2 or inventory$1 or assent$2) virtualization near4 environment$1 (allocat$4 or re$allocat$4) (erorr$1 or debug$2 or degrad$3 or corrupt$4 or bad$2) log$2 near4 fil$2 @ad<="20061218"	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/28 21:14
S115	0	(virtualization with layer) controller (resourc$2 or inventory$1 or assent$2) virtualization near4 environment$1 (allocat$4 or re$allocat$4) (erorr$1 or debug$2 or degrad$3 or corrupt$4 or bad$2) log$2 near4 fil$2 @ad<="200508/15"	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/28 21:14
S116	0	(virtualization with layer) controller (resourc$2 or inventory$1 or assent$2) virtualization near4 environment$1 (allocat$4 or re$allocat$4) (erorr$1 or debug$2 or degrad$3 or corrupt$4 or bad$2) log$2 near4 fil$2 @ad<="20050815"	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/28 21:14
S117	7	((virtualization layer) (resourc$2 or inventory$1 or assent$2) (allocat$4 or re$allocat$4)).ab.	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/28 21:18
S118	2	S117 S110	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/28 21:18
S119	11	((virtualiz$5 layer) (resourc$2 or inventory$1 or assent$2) (allocat$4 or re$allocat$4)).ab.	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/28 21:19
S120	4	S119 not S117	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/28 21:21
S121	71	(virtualization near3 layer) (resourc$2 or inventory$1 or assent$2) (allocat$4 or re$allocat$4) (erorr$1 or debug$2 or degrad$3 or corrupt$4 or bad$2) @ad<="20050815"	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/28 21:24
S122	71	S121 not S119	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/28 21:24
S123	16	(US-20080086731-$ or US-20050155033-$ or US-20060149842-$ or US-20050125537-$ or US-20040015600-$ or US-20060069761-$ or US-20050044301-$ or US-20060184937-$ or US-20050223221-$ or US-20030236956-$ or US-20020166117-$ or US-20050198062-$).did. or (US-7512769-$ or US-7577722-$ or US-6490620-$ or US-7330858-$).did.	US-PGPUB; USPAT	AND	OFF	2013/08/28 21:50
S124	0	S123 and (virtualization with layer) controller (resourc$2 or inventory or assents) virtualization near4	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/28 21:52

		environment$1 (allocat$4 or re$allocat$4)				
S125	3	S123 and (virtualization with layer) controller (resourc$2 or inventory or asset$2) virtualization (allocat$4 or re$allocat$4)	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/28 21:53
S126	16	(US-20080086731-$ or US-20050155033-$ or US-20060149842-$ or US-20050125537-$ or US-20040015600-$ or US-20060069761-$ or US-20050044301-$ or US-20060184937-$ or US-20050223221-$ or US-20030236956-$ or US-20020166117-$ or US-20050198062-$).did. or (US-7512769-$ or US-7577722-$ or US-6490620-$ or US-7330858-$).did.	US-PGPUB; USPAT	AND	OFF	2013/08/29 18:33
S127	2748	"l13" and automatic$5	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/29 18:33
S128	9	l3and automatic$5	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/29 18:34
S129	12	S126 and automatic$5	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/29 18:34
S130	1	S126 and automatic$5 same (allocat$4 or re$allocat$4)	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/29 18:34
S131	259	automatic$5 same (allocat$4 or re$allocat$4) and debug$4 and forecast$4	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/29 18:36
S132	69	automatic$5 same (allocat$4 or re$allocat$4) and debug$4 same (inventory or resourc$2) and forecast$4 virtual$4	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/29 18:37
S133	62	automatic$5 same (allocat$4 or re$allocat$4) and debug$4 same (inventory or resourc$2) and forecast$4 virtual$4 and @ad<="20050815"	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/29 18:38
S134	3	automatic$5 near4 (allocat$4 or re$allocat$4) and debug$4 same (inventory or resourc$2) and forecast$4 virtual$4 and @ad<="20050815"	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/29 18:41
S135	128	automatic$5 near4 (allocat$4 or re$allocat$4) and forecast$4 virtual$4 and @ad<="20050815"	US-PGPUB; USPAT; USOCR	AND	OFF	2013/08/29 18:42
S136	0	automatic$4 (allocat$4 or reallocation) virtual (asset$2 or resourc$2 or inventory) (fore$cast$3 or futur$3) Capacity Planning Manager and @ad<="20050815"	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/08/29 18:44
S137	1	automatic$4 (allocat$4 or reallocation) virtual (asset$2 or resourc$2 or inventory) (fore$cast$3 or futur$3) Capacity Planning and @ad<="20050815"	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/08/29 18:44

S138	15	automatic$4 (allocat$4 or reallocation) virtual (asset$2 or resourc$2 or inventory) (fore$cast$3 or futur$3) and @ad<="20050815"	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/08/29 18:45
S139	3	automatic$4 (allocat$4 or reallocation) virtual (asset$2 or resourc$2 or inventory) (fore$cast$3) and @ad<="20050815"	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/08/29 18:46
S140	613	automatic$4 near4 (allocat$4 or reallocation) near4 (asset$2 or resourc$2 or inventory) and @ad<="20050815"	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/08/29 18:51
S141	30	automatic$4 near4 (reallocation) near4 (asset$2 or resourc$2 or inventory) and @ad<="20050815"	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/08/29 18:51
S142	0	automatic$4 near4 (reallocation) near4 (asset$2 or resourc$2 or inventory) and @ad<="20050815" and forcasting	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/08/29 18:51
S143	1	automatic$4 near4 (reallocation) near4 (asset$2 or resourc$2 or inventory) and @ad<="20050815" and forecasting	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/08/29 18:51
S144	27	automatic$4 near4 (reallocation) near4 (asset$2 or resourc$2 or inventory) and @ad<="20050815" and (forecast$4 or predict$4 or estimat$4 or project$4 or anticipat$4 or guess$4)	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/08/29 18:54
S145	3	automatic$4 near4 (reallocation) near4 (asset$2 or resourc$2 or inventory) and @ad<="20050815" and (forecast$4 or predict$4 or estimat$4 or project$4 or anticipat$4 or guess$4) virtual$4	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/08/29 18:55
S146	0	S126 and (forecast$4 or predict$4 or estimat$4 or project$4 or anticipat$4 or guess$4) virtual$4	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/08/29 18:56
S147	7	S126 and (forecast$4 or predict$4 or estimat$4 or project$4 or anticipat$4 or guess$4)	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/08/29 18:57
S148	2	S126 and (forecast$4 or predict$4 or estimat$4 or project$4 or anticipat$4 or guess$4) automatic$6	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/08/29 18:58
S149	7	S126 and (forecast$4 or predict$4 or estimat$4 or project$4 or anticipat$4 or guess$4) and automatic$6	US-PGPUB; USPAT; USOCR	SAME	OFF	2013/08/29 18:58

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	32155	709/223,224,226,229,220,221.ccls.	USPAT; UPAD	AND	OFF	2014/03/12 14:55
L2	0	(manage$4 virtual$6 environment inventory resource$4 prioritiz$4 physical host).clm.	USPAT; UPAD	AND	OFF	2014/03/12 14:55
L3	835	(manage$4 virtual$6 environment inventory resource$4 prioritiz$4 physical host)	USPAT; UPAD	AND	OFF	2014/03/12 14:55
L4	107	(manage$4 virtual$6 resource$4 physical).ab.	USPAT; UPAD	AND	OFF	2014/03/12 14:55

L5	13881	(manage$4 virtual$6 environment (resource$4 or asset$2) physical host allocat$4)	USPAT; UPAD	AND	OFF	2014/03/12 14:55
L6	13881	(manage$4 virtual$6 environment (resource$4 or asset$2) physical host allocat$4)	USPAT; UPAD	AND	OFF	2014/03/12 15:01
L7	53826	"S2" "S8"	USPAT; UPAD	AND	OFF	2014/03/12 15:01
L8	835	(manage$4 virtual$6 environment inventory resource$4 prioritiz$4 physical host)	USPAT; UPAD	AND	OFF	2014/03/12 15:01
S61	10106	(manage$4 virtual$6 environment (resource$4 or asset$2) physical host allocat$4)	USPAT; UPAD	AND	OFF	2012/04/10 14:47
S62	76	((virtual adj machine) or VM) same new same physical same host	USPAT; UPAD	AND	OFF	2012/04/10 14:47
S63	206	"S13" (load adj (shar$4 or balanc$4))	USPAT; UPAD	AND	OFF	2012/04/10 14:47
S64	10106	(manage$4 virtual$6 environment (resource$4 or asset$2) physical host allocat$4)	USPAT; UPAD	AND	OFF	2012/04/10 14:47
S65	45876	"S2" "S8"	USPAT; UPAD	AND	OFF	2012/04/10 14:47
S66	78	(manage$4 virtual$6 resource$4 physical).ab.	USPAT; UPAD	AND	OFF	2012/04/10 14:47
S67	23872	709/223,224,226,229,220,221.ccls.	USPAT; UPAD	AND	OFF	2012/04/10 14:47
S68	21589	"l3" "l4"	USPAT; UPAD	AND	OFF	2012/04/10 14:47
S69	593	(manage$4 virtual$6 environment inventory resource$4 prioritiz$4 physical host)	USPAT; UPAD	AND	OFF	2012/04/10 14:47
S70	2	("20050138165" | "20050155033" | "20060294238" | "20070067435" | "20080086731" | "7463648" | "7512769").PN.	USPAT; UPAD	AND	OFF	2012/04/10 14:48
S71	0	(manage$4 virtual$6 environment inventory resource$4 prioritiz$4 physical host).clm.	USPAT; UPAD	AND	OFF	2012/04/10 14:48
S72	593	(manage$4 virtual$6 environment inventory resource$4 prioritiz$4 physical host)	USPAT; UPAD	AND	OFF	2012/04/10 14:48
S73	497	"L26" "L18"	USPAT; UPAD	AND	OFF	2012/04/10 14:48
S74	0	S73 S72	USPAT; UPAD	AND	OFF	2012/04/10 14:48
S75	463	S69 S64	USPAT; UPAD	AND	OFF	2012/04/10 14:49
S76	0	S62 S72	USPAT; UPAD	AND	OFF	2012/04/10 14:49
S77	9	pabari.in.	USPAT; UPAD	AND	OFF	2012/04/10 14:49

3/12/2014 3:03:32 PM
H:\EAST\Workspaces\11503090.wsp

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)

26379 7590 03/27/2014
DLA PIPER LLP (US)
2000 UNIVERSITY AVENUE
EAST PALO ALTO, CA 94303-2248

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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.

Via Electronic Filing / Timothy W. Lohse	(Depositor's name)
Timothy W. Lohse	(Signature)
June 26, 2014	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/503,090	08/10/2006	Vipul Pabari	367894-000003	9855

TITLE OF INVENTION: Virtual systems management

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0	$0	$480	06/27/2014

EXAMINER	ART UNIT	CLASS-SUBCLASS
MUSA, ABDELNABI O	2478	709-223000

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 DLA Piper LLP (US)
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: TOUTVIRTUAL INC.
(B) RESIDENCE: (CITY and STATE OR COUNTRY): Carlsbad, CA

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 .....

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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 credits any overpayment, to Deposit Account Number 07-1896 (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
☐ Applicant certifying micro entity status. See 37 CFR 1.29
NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
☐ Applicant asserting small entity status. See 37 CFR 1.27
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
☐ Applicant changing to regular undiscounted fee status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Timothy W. Lohse/ Date June 26, 2014
Typed or printed name Timothy W. Lohse Registration No. 35,255

PTOL-85 Part B (10-13) Approved for use through 10/31/2013. OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Electronic Patent Application Fee Transmittal

Application Number:	11503090
Filing Date:	10-Aug-2006
Title of Invention:	Virtual systems management
First Named Inventor/Applicant Name:	Vipul Pabari
Filer:	Timothy W. Lohse
Attorney Docket Number:	367894-000003

Filed as Small 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	2501	1	480	480
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
		Total in USD ($)		**480**

Electronic Acknowledgement Receipt	
EFS ID:	19428380
Application Number:	11503090
International Application Number:	
Confirmation Number:	9855
Title of Invention:	Virtual systems management
First Named Inventor/Applicant Name:	Vipul Pabari
Customer Number:	26379
Filer:	Timothy W. Lohse
Filer Authorized By:	
Attorney Docket Number:	367894-000003
Receipt Date:	26-JUN-2014
Filing Date:	10-AUG-2006
Time Stamp:	18:55:13
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$480
RAM confirmation Number	5685
Deposit Account	071896
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)	367894-000003_Issue_Fee_Transmittal.pdf	163097 279997d5c137faaf69185f375c80dd510ef6a06c	no	1
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	29738 bf78dc8db4819e68695 32a2a8921bf43f44e97fd	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	192835		

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.

<u>New Applications Under 35 U.S.C. 111</u>
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.

<u>National Stage of an International Application under 35 U.S.C. 371</u>
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.

<u>New International Application Filed with the USPTO as a Receiving Office</u>
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.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/503,090	08/05/2014	8799431	367894-000003	9855

26379 7590 07/16/2014

DLA PIPER LLP (US)
2000 UNIVERSITY AVENUE
EAST PALO ALTO, CA 94303-2248

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 139 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):

Vipul Pabari, Carlsbad, CA;

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PTO/SB/44 (09-07)
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UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 8,799,431

APPLICATION NO.: 11/503,090

ISSUE DATE : August 5, 2014

INVENTOR(S) : Vipul Pabari

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:

Claim 24 should read "24. The apparatus of claim 22 further comprising a component selected from a group consisting of: an Asset Manager component that determines an inventory of available network resources and virtual assets; a Provisioning Manager component that assigns a prioritization to the available inventory and provisions virtual assets from among the available inventory; a Performance Manager component that determines real time performance metrics; and an Optimizer component that automatically produces a reallocation of the virtual assets and initiates the reallocation".

MAILING ADDRESS OF SENDER (Please do not use customer number below):

Timothy W. Lohse
DLA Piper US LLP
2000 University Avenue

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.

Certificate of Transmission Under 37 CFR 1.8
I hereby certify that this correspondence is being transmitted via electronic submission, attention Mail Stop: Amendment, Commissioner for Patents, Alexandria, VA 22313-1450 on:



July 7, 2015

Stacy Murray

Patent No.	8,799,431		
Appl. No.	: 11/503,090	Confirmation No.	9855
Applicant	: Vipul Pabari		
Filed	: August 10, 2006		
TC/A.U.	: 2478		
Examiner	: Abdelnabi Musa		
Docket No.	: 367894-000003		
Customer No.	: 26379		

Title: VIRTUAL SYSTEMS MANAGEMENT

REQUEST FOR EXPEDITED CERTIFICATE OF CORRECTION PURSUANT TO 37 CFR § 1.322 AND MPEP §§ 1480 AND 1480.01

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

Sir:

It has come to the attention of Applicant that a printing error occurred when U.S. Patent No. 8,799,431 was printed. Specifically, claim 24 (an apparatus claim) in the issued patent is incorrectly dependent on claim 12 (which is a method claim.) Claim 24 should properly depend from independent apparatus claim 22.

The error is a printing error made by the USPTO as evidenced by the documents attached as Exhibit A and Exhibit B. Specifically, attached Exhibit A is the last response filed on December 23, 3013 by Applicant prior to the Notice of Allowance. In that response, dependent claim 29 (claim 24 in the issued patent) properly depends from independent apparatus claim 27 (now independent apparatus claim 22 in the issued patent). Thus, the dependency of claim 24 is correct as of the last filed response by Applicant.

Furthermore, attached Exhibit B is the Notice of Allowance with an Examiner's Amendment issued on March 27, 2014. As shown in Exhibit B on pages 7-8 in the Examiner's Amendment, dependent claim 29 (claim 24 in the issued patent) properly depends from independent apparatus claim 27 (now independent apparatus claim 22 in the issued patent). Thus, the dependency of claim 24 is correct as of the issued Notice of Allowance and the Examiner's amendment.

At some point after the Notice of Allowance, the dependency of claim 24 was mistakenly changed to claim 12 as shown in the issued patent through no fault of the Applicant as evidenced by Exhibits A and B.

Thus, Applicant requests an expedited certificate of correction for this patent to correct the dependency of claim 24 as set forth in the attached Certificate of Correction form.

CONCLUSION

In view of the above, it is respectfully submitted that the Certificate of Correction should be expedited and granted to correct the dependency of issued claim 24 from claim 12 to claim 22.

The Examiner is invited to call Applicant's attorney at the number below in order to speed the prosecution of this application.

The Commissioner is authorized to charge any deficiencies in fees and credit any overpayment of fees to Deposit Account No. 07-1896.

Respectfully submitted,

DLA PIPER LLP (US)

Dated: July 7, 2015 By

Timothy W. Lohse
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EXHIBIT A

Certificate of Transmission Under 37 CFR 1.8
I hereby certify that this correspondence is being transmitted via electronic submission, attention Mail Stop: Amendment, Commissioner for Patents, Alexandria, VA 22313-1450 on:

December 23, 2013

/Timothy W. Lohse/
Timothy W. Lohse

Appl. No.	: 11/503,090	Confirmation No.	9855
Applicant	: Vipul Pabari		
Filed	: August 10, 2006		
TC/A.U.	: 2478		
Examiner	: Abdelnabi Musa		
Docket No.	: 367894-000003		
Customer No.	: 26379		

Title: VIRTUAL SYSTEMS MANAGEMENT

RESPONSE TO OFFICE ACTION

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

Sir:

In response to the office action, please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 8 of this paper.

1. Listing of the claims:

1. (Currently Amended) A method for automatic management of a virtualization environment in a computer network, the method comprising:

providing a virtualization environment that has a virtualization layer, network resources and virtual assets, the virtual assets including at least one software instantiations of equipment objects in the virtualization environment, the virtualization layer managing the virtual assets;

providing a controller coupled to the virtualization environment over a network that communicates with the virtualization layer;

determining, using the controller that communicates with the virtualization layer, an inventory of network resources and virtual assets available to the virtualization environment;

provisioning, by the controller that communicates with the virtualization layer, the virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment;

determining, at the controller, real time performance metrics for the provisioned virtualization environment;

automatically determining at the controller based on business policies, for the provisioned virtualization environment under control of the controller, a reallocation of the virtual assets in response to the real time performance metrics;

initiating, by the controller that communicates with the virtualization layer, the reallocation of the virtual assets in the provisioned virtualization environment.

2. Cancelled.

3. Cancelled.

4. (Previously Presented) The method of claim 1 further comprising receiving user input that is a Knowledge Block that determines one or more of the reallocation parameters to be considered with the real time performance metrics in producing the reallocation of assets and wherein the received user input specifies parameters that detect operational degradation of a member of the available inventory.

5. (Original) The method of claim 4, wherein the available inventory member that is detected as degraded is removed from the available inventory.

6. (Original) The method of claim 4, wherein the available inventory that is detected as degraded is moved from the available inventory to a debug inventory pool.

7. (Original) The method of claim 4, wherein log files are retrieved from the available inventory that is detected as degraded.

8. (Original) The method of claim 7, wherein the log files are stored in an archive and an alert message is sent to a network administrator with an identification of the log file archive location.

9. (Original) The method of claim 4, wherein the available inventory that is detected as degraded is halted and is removed from the available inventory to a debug inventory pool.

10. (Original) The method of claim 9, wherein the halted available inventory is removed from the debug inventory pool.

11. (Previously Presented) The method of claim 4, wherein the Knowledge Block specifies parameters that send an alert message to an administrator of the network in response to an alert condition.

12. (Previously Presented) The method of claim 4, wherein the Knowledge Block specifies parameters that receive an instruction from an administrator of the network in response to an alert condition.

13. Cancelled.

14. (Previously Presented) The method of claim 4, wherein the Knowledge Block specifies parameters that deploy an instance of an application selected from among the available inventory.

15. (Previously Presented) The method of claim 4, wherein the received user input specifies a priority for one or more of the available inventory.

16. (Previously Presented) The method of claim 4, wherein the user input specifies a time period during which the reallocation will be applied.

17. (Original) The method of claim 1, further comprising: providing a user interface through which user input can be received and wherein the user input adjusts scheduling of producing the reallocation.

18. (Original) The method of claim 1, wherein producing a reallocation comprises adding a new application instance to the available inventory.

19. (Original) The method of claim 1, wherein producing a reallocation comprises updating the available inventory to include any changes made by the reallocation.

20. (Original) The method of claim 1, wherein the inventory of available inventory includes one or more application programs.

21. (Original) The method of claim 20, wherein one of the application programs comprises a network load balancer.

22. (Original) The method of claim 20, wherein one of the application programs comprises a network server.

23. (Original) The method of claim 1, wherein: determining, by an Asset Manager Component, an inventory of available network resources and virtual assets; assigning prioritization to the available inventory and provisioning virtual assets from among the available inventory, performed by a Provisioning Manager component; determining, by a Performance Manager component, a real time performance metrics; and automatically producing and initializing, by an Optimizer component, a reallocation of the virtual assets.

24. (Original) The method of claim 23, wherein automatically producing a reallocation of the virtual assets comprises forecasting future system needs, which is performed by a Capacity Planning Manager component.

25. (Currently Amended) A method for automatic management of a virtualization environment in a computer network, the method comprising:

providing a virtualization environment that has a virtualization layer, network resources and virtual assets, the virtual assets including at least one software instantiations of equipment objects in the virtualization environment, the virtualization layer managing the virtual assets;

providing a controller coupled to the virtualization environment over a network;

performing one or more functions by the controller that communicates with the virtualization layer from the group of functions consisting of

(1) identification and management of network resources and virtual assets,

(2) provisioning of virtual assets in response to network workflow demands,

(3) automatic dynamic deployment of virtual assets across the computer network based on business policies,

(4) performance measurement and reporting of resources and virtual assets, and

(5) planning and forecasting of resource demands and virtual asset utilization of the virtualization environment;

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment.

26. Cancelled.

27. (Currently Amended) An apparatus that performs automatic management of a virtualization environment in a computer network comprising:

a virtualization environment that has a virtualization layer, network resources and virtual assets, the virtual assets including at least one software instantiations of equipment objects in the virtualization environment, the virtualization layer managing the virtual assets;

~~a network communications unit that enables communications between the apparatus and the virtualization environment over a computer network;~~

an operating system of the apparatus that supports the virtualization environment in communication with the apparatus over the computer network; and

a Virtual Mapping layer that determines an inventory of network resources and virtual assets available to the virtualization environment, wherein the Virtual Mapping layer determines

the inventory without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment; and

a controller that communicates with the virtualization layer and provisions the virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment, determines real time performance metrics for the provisioned virtualization environment, automatically determines for the provisioned virtualization environment, a reallocation based on business policies of the virtual assets in response to the real time performance metrics and initiates the reallocation of the virtual assets in the provisioned virtualization environment.

28. (Previously Presented) The apparatus of claim 27, further comprising one or more components that receive the inventory of available resources and assets from the Virtual Mapping layer and perform one or more functions from the group of functions consisting of:

identification and management of network resources and virtual assets,

dynamic deployment of virtual assets across the computer network,

performance measurement and reporting of resources and virtual assets, and

planning and forecasting of resource demands and asset utilization of the virtualization environment;

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment.

29. (Original) The apparatus of claim 27, further comprising a component selected from a group consisting of: an Asset Manager component that determines an inventory of available network resources and virtual assets;

a Provisioning Manager component that assigns a prioritization to the available inventory and provisions virtual assets from among the available inventory;

a Performance Manager component that determines real time performance metrics; and

an Optimizer component that automatically produces a reallocation of the virtual assets and initiates the reallocation.

30. (Previously Presented) The method of claim 1 wherein the virtual assets further comprise a second virtual machine which comprises virtual assets, and the at least one virtual machine and the second virtual machine each run their own respective operating systems which are a different type of operating system from each other.

31. -35. Canceled

36. (Previously Presented) The method of claim 1 wherein provisioning virtual assets from among the available inventory further comprises routing an application running on a first virtual machine to run on a second virtual machine.

37. Cancelled.

38. Cancelled.

39. (Previously Presented) The method of claim 25 wherein provisioning virtual assets from among the available inventory further comprises creating a new virtual machine on the single physical host.

40. (Previously Presented) The method of claim 1 wherein provisioning virtual assets from among the available inventory further comprises communicating provisioning instructions from a control agent comprising at least one virtualization platform adapter to a virtualization layer in the single physical host.

REMARKS

Applicant has amended the claims to overcome the rejection of claims 27-29 under 35 USC 112, second paragraph.

Applicant has made minor changes to claims 1 and 27 that do not change of scope of the search or add new features into the claims so that a new search is not required. Specifically, claim 1 was amended to make a feature that was already in the claim clearer while the amendment to claim 27 removed the network communication unit that was being objected to by the examiner.

Business Policies

As discussed during the helpful interview, Applicant has amended the claims to recite automatically determining reallocation based on business policies that is supported by paragraph 0058 of US 2007/0043860 which is the published patent application of US Serial No. 11/503,090. The automatic determination of reallocation based on business policies clarifies that the claimed system and method distinguishes over Vasilevsky and Yan.

PRIOR ART REJECTIONS

In response to the rejection of claims 1, 4-12, 14-25, 27-30, 36 and 39-40 under 35 U.S.C. 103 as being unpatentable over US 2005/0044301 to Vasilevsky et al. ("Vasilevsky") in view of US 2003/0236882 to Yan et al. ("Yan"), Applicant respectfully traverses the rejections since the combination of prior art cited by the examiner does not disclose or suggest each claim element of the amended claims.

Independent Claim 1

Independent claim 1 recite claim elements that are not disclosed or suggested by the combination of Vasilevsky and Yan.

Claim 1 recites "A method for automatic management of a virtualization environment in a computer network" which is not found in Vasilevsky or Yan. In the office action, the examiner does not rely on Yan for this claim element. Vasilevsky also fails to disclose this claim element. Vasilevsky is focused on resource allocation to virtual servers and addresses the problem of horizontal virtualization architecture whereby applications are distributed across virtual servers. Vasilevsky provides administrators with a management system 212, but that management system 212 is used for manual allocation of resources to a virtual server. *See Vasilevsky at 0074.* Thus, this claim element is not disclosed by Vasilevsky or Yan, alone or in combination.

Providing a Virtualization Environment

Claim 1 recites "providing a virtualization environment that has a virtualization layer, network resources and virtual assets, **the virtual assets including at least one software instantiations of equipment objects in the virtualization environment**, the virtualization layer managing the virtual assets" which is not found in Vasilevsky or Yan. In the office action, the examiner does not rely on Yan for this claim element. Vasilevsky also fails to disclose this claim element. The examiner relies on an operating system layer 103 as meeting this claim element. However, the Operating System Layer 103 provides an indirect communication layer between virtualization layer 104 and application layer 102. *See Vasilevsky at 0058.* The operating system is a piece of software as is well known and is thus certainly not "**at least one software instantiations of equipment objects in the virtualization environment**" as set forth in claim 1.

Thus, this claim element is not disclosed by Vasilevsky or Yan, alone or in combination.

Determining Real Time Performance Metrics Claim Element

Claim 1 recites "determining, at the controller, real time performance metrics for the provisioned virtualization environment" which is not found in Vasilevsky or Yan. In the office action, the examiner does not rely on Yan for this claim element. Vasilevsky also does not disclose this claim element. Vasilevsky discloses that a network administrator provisions computing resources in real-time ("on-the-fly") without a restart of a virtual computing system. *See Vasilevsky at 0076-77.* An ability to provision computing resources to virtual servers in Vasilevsky is not the same as determining at the controller real-time performance metrics. Thus, Vasilevsky does not disclose this claim element.

Thus, this claim element is not disclosed by Vasilevsky or Yan, alone or in combination.

Automatically Determining, At the Controller, a Reallocation Claim Element

Claim 1 also recite "automatically determining at the controller based on business policies, for the provisioned virtualization environment under control of the controller, a reallocation of the virtual assets in response to the real time performance metrics" which is not found in Vasilevsky or Yan.

Vasilevsky does not disclose this claim element. In Vasilevsky, a management agent 815 is responsible for handling dynamic reconfiguration functions as well as reporting status and logging to other entities and may receive commands from the administrator (e.g. Manager 212)

for adding, deleting, and allocating of physical resources from virtual servers in real time. *See Vasilevsky at 0076 and 0150.* Furthermore, in Vasilevsky, manual administrator action is needed to trigger **allocation of physical resources from virtual servers** and thus Vasilevsky certainly does not take into account real time performance metrics to automatically trigger the **reallocation of virtual assets in a virtualization environment.** Thus, Vasilevsky does not disclose this claim element.

Yan discloses that the resource management system 316 **manages the physical resources** owned by the management system 200. *See Yan at 0032.* However, Yan fails to disclose: 1) the reallocation of virtual assets; and 2) the reallocation of virtual assets automatically based on business policies. Thus, Yan does not disclose or suggest this claim element.

Thus, this claim element is not disclosed by Vasilevsky or Yan, alone or in combination.

Initiating by the Controller the Reallocation Claim Element

Claim 1 also recites "initiating, by the controller that communicates with the virtualization layer, the reallocation of the virtual assets in the provisioned virtualization environment" which is not found in Vasilevsky or Yan. In the office action, the examiner admits that Vasilevsky does not disclose this claim element and relies on Yan. Yan discloses a **virtual operating environment (VOE) which is a logical partitioning of a management system** that is created when a client 280-282 opens an account with the management system 200. The VOEs 300-302 in Yan encapsulate the lifecycle of the corresponding e-services 210-212. The VOEs 300-302 enforce privacy protection because all activities and data in VOE are only accessible to the owner of the VOE. *See Yan at 0026.* Furthermore in response to a logic design, each auto-deployment component 320-322 builds a corresponding e-service 210-212 by allocating the appropriate **physical resources** and services. In Yan, the resource management system 316 **manages the physical resources** owned by the management system 200. *See Yan at 0032.* Thus, Yan does not disclose "initiating, by the controller that communicates with the virtualization layer, the reallocation of the virtual assets in the provisioned virtualization environment."

Dependent Claims 4-12, 14-24, 30, 36 and 40

These dependent claims, that depend from claim 1, are not obvious over Vasilevsky and Yan for the same reasons as independent claim 1 above.

Independent Claim 25

Independent claim 25 recite claim elements that are not disclosed or suggested by the combination of Vasilevsky or Yan.

Providing a Virtualization Environment

Claim 25 recites "providing a virtualization environment that has a virtualization layer, network resources and virtual assets, **the virtual assets including at least one software instantiations of equipment objects in the virtualization environment**, the virtualization layer managing the virtual assets" which is not found in Vasilevsky or Yan. In the office action, the examiner does not rely on Yan for this claim element. Vasilevsky also fails to disclose this claim element. The examiner relies on an operating system layer 103 as meeting this claim element. However, the Operating System Layer 103 provides an indirect communication layer between virtualization layer 104 and application layer 102. *See Vasilevsky at 0058.* The operating system is a piece of software as is well known and is thus certainly not "**at least one software instantiations of equipment objects in the virtualization environment**" as set forth in claim 25.

Thus, this claim element is not disclosed by Vasilevsky or Yan, alone or in combination.

Independent Claim 27

Claim 27 recites "an apparatus that performs automatic management of a virtualization environment in a computer network" which is not found in Vasilevsky or Yan. In the office action, the examiner does not rely on Yan for this claim element. Vasilevsky also fails to disclose this claim element. Vasilevsky is focused on physical resource allocation to virtual servers and addresses the problem of horizontal virtualization architecture whereby applications are distributed across virtual servers. Vasilevsky provides administrators with a management system 212, but that management system 212 is used for manual allocation of physical resources to a virtual server. *See Vasilevsky at 0074.* Thus, this claim element is not disclosed by Vasilevsky or Yan, alone or in combination.

Providing a Virtualization Environment

Claim 27 recites "a virtualization environment that has a virtualization layer, network resources and virtual assets, **the virtual assets including at least one software instantiations of**

equipment objects in the virtualization environment, the virtualization layer managing the virtual assets" which is not found in Vasilevsky or Yan. In the office action, the examiner does not rely on Yan for this claim element. Vasilevsky also fails to disclose this claim element. The examiner relies on an operating system layer 103 as meeting this claim element. However, the Operating System Layer 103 provides an indirect communication layer between virtualization layer 104 and application layer 102. *See Vasilevsky at 0058.* The operating system is a piece of software as is well known and is thus certainly not "**at least one software instantiations of equipment objects in the virtualization environment"** as set forth in claim 1.

Thus, this claim element is not disclosed by Vasilevsky or Yan, alone or in combination.

A Controller Claim Element

Claim 27 also recites "a controller that communicates with the virtualization layer and provisions the virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment, **determines real time performance metrics for the provisioned virtualization environment, automatically determines for the provisioned virtualization environment, a reallocation based on business policies of the virtual assets** in response to the real time performance metrics and initiates the reallocation of the virtual assets in the provisioned virtualization environment" which are not disclosed in Vasilevsky or Yan for the same reasons as the elements of claim 1 above.

CONCLUSION

In view of the above, it is respectfully submitted that the claims are allowable over the prior art cited by the Examiner and early allowance of these claims and the application is respectfully requested.

The Examiner is invited to call Applicant's attorney at the number below in order to speed the prosecution of this application.

The Commissioner is authorized to charge any deficiencies in fees and credit any overpayment of fees to Deposit Account No. 07-1896.

Respectfully submitted,

DLA PIPER LLP (US)

Dated: December 23, 2013

By /Timothy W. Lohse/
Timothy W. Lohse
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Electronic Acknowledgement Receipt

EFS ID:	17749857
Application Number:	11503090
International Application Number:	
Confirmation Number:	9855
Title of Invention:	Virtual systems management
First Named Inventor/Applicant Name:	Vipul Pabari
Customer Number:	26379
Filer:	Timothy W. Lohse/Stacy Murray
Filer Authorized By:	Timothy W. Lohse
Attorney Docket Number:	367894-000003
Receipt Date:	23-DEC-2013
Filing Date:	10-AUG-2006
Time Stamp:	20:58:30
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		367894-000003_Response_to_NFOA-12-23-13.pdf	54014 926c2bbde1455ed4a4d626a9773233cfac003881	yes	13

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
	Claims	2	7
	Applicant Arguments/Remarks Made in an Amendment	8	13
Warnings:			
Information:			
	Total Files Size (in bytes):	54014	

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 (09-11)
Approved for use through 1/31/2014. 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 11/503,090	Filing Date 08/10/2006	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 = *		X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 = *		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 $310 ($155 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	

APPLICATION AS AMENDED – PART II

AMENDMENT 12/23/2013

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 29	Minus	** 35	= 0	x $40 =	0
Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	x $210 =	0
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	0

AMENDMENT

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					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.

LIE
/PAUL STANBACK/

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.

EXHIBIT B

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

NOTICE OF ALLOWANCE AND FEE(S) DUE

26379 7590 03/27/2014

DLA PIPER LLP (US)
2000 UNIVERSITY AVENUE
EAST PALO ALTO, CA 94303-2248

EXAMINER	
MUSA, ABDELNABI O	
ART UNIT	**PAPER NUMBER**
2478	

DATE MAILED: 03/27/2014

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/503,090	08/10/2006	Vipul Pabari	367894-000003	9855

TITLE OF INVENTION: Virtual systems management

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0	$0	$480	06/27/2014

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 ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

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.

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)

26379 7590 03/27/2014
DLA PIPER LLP (US)
2000 UNIVERSITY AVENUE
EAST PALO ALTO, CA 94303-2248

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.
11/503,090	08/10/2006	Vipul Pabari	367894-000003	9855

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nonprovisional	SMALL	$480	$0	$0	$480	06/27/2014

EXAMINER	ART UNIT	CLASS-SUBCLASS
MUSA, ABDELNABI O	2478	709-223000

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 _____
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 (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:
- ☐ 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 credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
- ☐ Applicant certifying micro entity status. See 37 CFR 1.29 — NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
- ☐ Applicant asserting small entity status. See 37 CFR 1.27 — NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
- ☐ Applicant changing to regular undiscounted fee status. — NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

PTOL-85 Part B (10-13) Approved for use through 10/31/2013. OMB 0651-0033 U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER	
MUSA, ABDELNABI O	
ART UNIT	**PAPER NUMBER**
2478	

DATE MAILED: 03/27/2014

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 142 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 142 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.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B 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. 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.

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.

Examiner-Initiated Interview Summary	Application No.	Applicant(s)	
	11/503,090	PABARI, VIPUL	
	Examiner	Art Unit	
	ABDELNABI MUSA	2478	

All participants (applicant, applicant's representative, PTO personnel):

(1) *ABDELNABI MUSA*. (3)_____.

(2) *Timothy Lohse REG# 35,255*. (4)_____.

Date of Interview: *11 March 2014*.

Type: ☒ Telephonic ☐ Video Conference
☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☒ No.
If Yes, brief description: _____.

Issues Discussed ☐101 ☐112 ☐102 ☒103 ☒Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: *1-40*.

Identification of prior art discussed: *(US. 2005/0044301 A1) (US 2003/0236882 A1)*.

Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

Allowance, by amending some of the limitations into the independent claims to specifically point out the novelty of the invention..

Applicant recordation instructions: It is not necessary for applicant to provide a separate record of the substance of interview.

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☐ Attachment

/NOEL BEHARRY/	/ABDELNABI MUSA/
Primary Examiner, Art Unit 2478	Examiner, Art Unit 2478

Notice of Allowability	Application No. 11/503,090	Applicant(s) PABARI, VIPUL	
	Examiner ABDELNABI MUSA	Art Unit 2478	AIA (First Inventor to File) Status No

– 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 *12/23/2013*.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on_____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are *1,5-8,14-25,27-30,36,39-40 (renumbered 1-24)*. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov .
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   Certified copies:
   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.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ 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. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
4. ☒ Interview Summary (PTO-413), Paper No./Mail Date *03/11/2014* .
5. ☒ Examiner's Amendment/Comment
6. ☒ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/NOEL BEHARRY/	/ABDELNABI MUSA/
Primary Examiner, Art Unit 2478	Examiner, Art Unit 2478

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record as directed below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

This examiner amendment was authorization by Timothy Lohse, registration No. 35,255 in a telephone interview on 03/11/2014.

Claims

2. The claims have been amended as follows:

1. (Currently Amended) A method for automatic management of a virtualization environment in a computer network, the method comprising:

providing a virtualization environment that has a virtualization layer, network resources and virtual assets, the virtual assets including at least one software instantiations of equipment objects in the virtualization environment, the virtualization layer managing the virtual assets;

providing a controller coupled to the virtualization environment over a network that communicates with the virtualization layer;

determining, using the controller that communicates with the virtualization layer, an inventory of network resources and virtual assets available to the virtualization environment;

provisioning, by the controller that communicates with the virtualization layer, the virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment;

determining, at the controller, real time performance metrics for the provisioned virtualization environment;

receiving a Knowledge Block that specifies parameters that send an alert message to an administrator of the network in response to an alert condition and determines one or more reallocation parameters to be considered with the real time performance metrics in producing the reallocation of assets and wherein the Knowledge Block specifies parameters that detect operational degradation of a member of the available inventory which is halted and removed from the available inventory;

automatically determining at the controller ~~based on business policies,~~ for the provisioned virtualization environment under control of the controller, a reallocation of the virtual assets in response to the reallocation parameters and real time performance metrics;

initiating, by the controller that communicates with the virtualization layer, the reallocation of the virtual assets in the provisioned virtualization environment.

2. Cancelled.

3. Cancelled.

4. Cancelled.

5. (Currently Amended) The method of claim 1 ~~[4]~~, wherein the available inventory member that is detected as degraded is removed from the available inventory.

6. (Currently Amended) The method of claim 1 ~~[4]~~, wherein the available inventory that is detected as degraded is moved from the available inventory to a debug inventory pool.

7. (Currently Amended) The method of claim 1 ~~[4]~~, wherein log files are retrieved from the available inventory that is detected as degraded.

8. (Original) The method of claim 7, wherein the log files are stored in an archive and an alert message is sent to a network administrator with an identification of the log file archive location.

9-10. Cancelled.

11-12. Cancelled.

13. Cancelled.

14. (Currently Amended) The method of claim 1 ~~[4]~~, wherein the Knowledge Block specifies parameters that deploy an instance of an application selected from among the available inventory.

15. (Currently Amended) The method of claim 1 ~~[4]~~, wherein the received user input specifies a priority for one or more of the available inventory.

16. (Currently Amended) The method of claim 1 [4], wherein the user input specifies a time period during which the reallocation will be applied.

17. (Original) The method of claim 1, further comprising: providing a user interface through which user input can be received and wherein the user input adjusts scheduling of producing the reallocation.

18. (Original) The method of claim 1, wherein producing a reallocation comprises adding a new application instance to the available inventory.

19. (Original) The method of claim 1, wherein producing a reallocation comprises updating the available inventory to include any changes made by the reallocation.

20. (Original) The method of claim 1, wherein the inventory of available inventory includes one or more application programs.

21. (Original) The method of claim 20, wherein one of the application programs comprises a network load balancer.

22. (Original) The method of claim 20, wherein one of the application programs comprises a network server.

23. (Original) The method of claim 1, wherein: determining, by an Asset Manager Component, an inventory of available network resources and virtual assets; assigning prioritization to the available inventory and provisioning virtual assets from among the available inventory, performed by a Provisioning Manager component; determining, by a

Performance Manager component, a real time performance metrics; and automatically producing and initializing, by an Optimizer component, a reallocation of the virtual assets.

24. (Original) The method of claim 23, wherein automatically producing a reallocation of the virtual assets comprises forecasting future system needs, which is performed by a Capacity Planning Manager component.

25. (Currently Amended) A method for automatic management of a virtualization environment in a computer network, the method comprising:

providing a virtualization environment that has a virtualization layer, network resources and virtual assets, the virtual assets including at least one software instantiations of equipment objects in the virtualization environment, the virtualization layer managing the virtual assets;

providing a controller coupled to the virtualization environment over a network;

performing one or more functions by the controller that communicates with the virtualization layer from the group of functions consisting of

(1) identification and management of network resources and virtual assets,

(2) provisioning of virtual assets in response to network workflow demands,

(3) receiving a Knowledge Block that specifies parameters that send an alert message to an administrator of the network in response to an alert condition and determines one or more reallocation parameters to be considered with a performance measurement in producing the deployment of the assets and wherein the Knowledge Block specifies parameters that detect operational degradation of a member of the virtualization environment which is halted and removed,

(4 ~~3~~) automatic dynamic deployment of virtual assets across the computer network ~~based on business policies~~ based on the reallocation parameters,

(5 4) performance measurement and reporting of resources and virtual assets, and

(6 ~~5~~) planning and forecasting of resource demands and virtual asset utilization of the virtualization environment;

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment.

26. Cancelled.

27. (Currently Amended) An apparatus that performs automatic management of a virtualization environment in a computer network comprising:

a virtualization environment that has a virtualization layer, network resources and virtual assets, the virtual assets including at least one software instantiations of equipment objects in the virtualization environment, the virtualization layer managing the virtual assets;

an operating system of the apparatus that supports the virtualization environment in communication with the apparatus over the computer network; and

a Virtual Mapping layer that determines an inventory of network resources and virtual assets available to the virtualization environment, wherein the Virtual Mapping layer determines the inventory without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment; and

a controller that communicates with the virtualization layer and provisions the virtual assets from among the available inventory, thereby establishing a provisioned virtualization environment, determines real time performance metrics for the provisioned

virtualization environment, receives a Knowledge Block that specifies parameters that send an alert message to an administrator of the network in response to an alert condition and determines one or more reallocation parameters to be considered with the real time performance metrics in producing the reallocation of assets and wherein the Knowledge Block specifies parameters that detect operational degradation of a member of the available inventory which is halted and removed from the available inventory, automatically determines for the provisioned virtualization environment, a reallocation ~~based on business policies~~ of the virtual assets in response to the reallocation parameters and the real time performance metrics and initiates the reallocation of the virtual assets in the provisioned virtualization environment.

28. (Previously Presented) The apparatus of claim 27, further comprising one or more components that receive the inventory of available resources and assets from the Virtual Mapping layer and perform one or more functions from the group of functions consisting of:

identification and management of network resources and virtual assets,

dynamic deployment of virtual assets across the computer network,

performance measurement and reporting of resources and virtual assets, and

planning and forecasting of resource demands and asset utilization of the virtualization environment;

wherein such functions are carried out without regard to processors, operating systems, virtualization platforms, and application software of the virtualization environment.

29. (Original) The apparatus of claim 27, further comprising a component selected from a group consisting of: an Asset Manager component that determines an inventory of available network resources and virtual assets;

a Provisioning Manager component that assigns a prioritization to the available inventory and provisions virtual assets from among the available inventory;

a Performance Manager component that determines real time performance metrics; and

an Optimizer component that automatically produces a reallocation of the virtual assets and initiates the reallocation.

30. (Previously Presented) The method of claim 1 wherein the virtual assets further comprise a second virtual machine which comprises virtual assets, and the at least one virtual machine and the second virtual machine each run their own respective operating systems which are a different type of operating system from each other.

31. -35. Canceled

36. (Previously Presented) The method of claim 1 wherein provisioning virtual assets from among the available inventory further comprises routing an application running on a first virtual machine to run on a second virtual machine.

37. Cancelled.

38. Cancelled.

39. (Previously Presented) The method of claim 25 wherein provisioning virtual assets from among the available inventory further comprises creating a new virtual machine on the single physical host.

40. (Previously Presented) The method of claim 1 wherein provisioning virtual assets from among the available inventory further comprises communicating provisioning instructions from a control agent comprising at least one virtualization platform adapter to a virtualization layer in the single physical host.

REASONS FOR ALLOWANCE

3. The following is an examiner's statement of reasons for allowance:

There is no teaching or suggestion in the prior art of the claim limitations, among other things, as presented in the independent claims, specifically wherein establishing a provisioned virtualization environment by a controller that communicates with the virtualization layer and determining, at the controller, real time performance metrics for the provisioned virtualization environment by receiving a Knowledge Block that specifies parameters that send an alert message to an administrator of the network in response to an alert condition and determines one or more reallocation parameters to be considered with the real time performance metrics in producing the reallocation of assets and wherein the Knowledge Block specifies parameters that detect operational degradation of a member of the available inventory which is halted and removed from the available inventory, and automatically determining a reallocation of the virtual assets in response to the reallocation parameters and real time performance metrics.

4. The closest prior art found by the Examiner is the previously cited references namely, Vasilevsky et al. Pub. No (US. 2005/0044301 A1) and Yan et al. Pub. No. (US 2003/0236882 A1).

However, the references alone and in combination do not teach or suggest the virtualization system management the way as claimed in the present application

For these reasons, in conjunction with the other claim limitations puts this case in condition for allowance

5. 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 submission should be clearly labeled "Comments on Statement of Reason for Allowance."

Correspondence Information

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abdelnabi O. Musa whose telephone number is 571-2701901. and email address is abdelnabi.musa@uspto.gov 'preferred'. The examiner can normally be reached on Monday thru Friday: 7:30am to 5:00pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ferris Derrick W. can be reached on 571-2723123. 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.

/A. O. M./
Examiner, Art Unit 2478

/NOEL BEHARRY/
Primary Examiner, Art Unit 2478

OPAP AKIMA-11
JUL 10 2015
PATENT & TRADEMARK OFFICE

PTO/SB/21 (07-09)
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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number	11/503,090
Filing Date	August 10, 2006
First Named Inventor	Vipul Pabari
Art Unit	9855
Examiner Name	Musa Abdelnabi
Total Number of Pages in This Submission	39
Attorney Docket Number	367894-000003

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)
- ☐ Reply to Missing Parts/ Incomplete Application
  - ☐ Reply 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) _____
  - ☐ Landscape Table on CD
- ☐ After Allowance Communication to TC
- ☐ Appeal Communication to Board of Appeals and Interferences
- ☐ Appeal Communication to TC **(Appeal Notice, Brief, Reply Brief)**
- ☐ Proprietary Information
- ☐ Status Letter
- ☒ Other Enclosure(s) (please Identify below):
  1. Request for Expedited Certificate of Correction (37 pgs.)
  2. Certificate of Correction (1 pg.)
  3. Transmittal Form (1 pg.)
  4. Return Post Card.

Remarks

Commissioner is hereby authorized to charge any additional fees which may be required or credit any overpayment to Deposit Account 07-1896. Customer No. 26379

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	DLA Piper LLP (US)		
Signature			
Printed name	Timothy W. Lohse		
Date	July 7, 2015	Reg. No.	35,255

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:

Signature			
Typed or printed name	Stacy Murray	Date	July 7, 2015

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 1.11 and 1.14. This collection is estimated to 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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American LegalNet, Inc.
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UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO.	: 8,799,431 B2
APPLICATION NO.	: 11/503090
DATED	: August 5, 2014
INVENTOR(S)	: Vipul Pabari

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the Claims,

Col. 26, lines 27-38, Claim 24 should read "24. The apparatus of claim 22 further comprising a component selected from a group consisting of: an Asset Manager component that determines an inventory of available network resources and virtual assets; a Provisioning Manager component that assigns a prioritization to the available inventory and provisions virtual assets from among the available inventory; a Performance Manager component that determines real time performance metrics; and an Optimizer component that automatically produces a reallocation of the virtual assets and initiates the reallocation".

Signed and Sealed this
Eighth Day of September, 2015

Michelle K. Lee

Michelle K. Lee
Director of the United States Patent and Trademark Office

PATENT
Attorney Docket No.: TOUT-00101

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Art Unit: 2478
Vipul Pabari	Examiner: Abdelnabi O. Musa
Patent No.: 8,799,431 Serial No.: 11/503,090	**TRANSMITTAL LETTER**
Issued Date: August 5, 2014 Filed: August 10, 2006	162 N. Wolfe Road Sunnyvale, CA 94086 (408) 530-9700
For: **VIRTUAL SYSTEMS MANAGEMENT**	Customer No. 28,960

MS: Missing Parts
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Enclosed please find the Power of Attorney, and Statement 373 (c), for filing in the U.S. Patent and Trademark Office.

The Commissioner is hereby authorized to charge any additional fee or credit overpayment to our Deposit Account No. 08-1275.

Respectfully submitted,

HAVERSTOCK & OWENS

Dated: March 25, 2026

By: /Jonathan O. Owens/
Jonathan O. Owens
Reg No.: 37,902

Attorneys for Applicant

PTO/AIA/80 (07-17)
Approved for use through 09/30/2025. 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(c).

I hereby appoint:

[X] Practitioners associated with Customer Number: 28960

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(c).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(c) to:

[X] The address associated with Customer Number: 28960

OR

[ ]

Firm or individual name		
Address		
City	State	Zip
Country		
Telephone	Email	

Assignee name and address: YOUTVIRTUAL, INC.
7933 Llama Street
Carlsbad, CA 92009

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of the practitioners appointed in this form, 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	Date 3-11-2026
Name Jess Mariner	Telephone 619.993.7984
Title CEO	

A Federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with an information collection subject to the requirements of the Paperwork Reduction Act of 1995, unless the information collection has a currently valid OMB Control Number. The OMB Control Number for this information collection is 0651-0035. Public burden for this form is estimated to average 18 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection. Send comments regarding this burden estimate or any other aspect of this information collection, including suggestions for reducing this burden to the Chief Administrative Officer, United States Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450 or email InformationCollection@uspto.gov. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS.** If filing this completed form by mail, 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. The United States Patent and Trademark Office (USPTO) collects the information in this record under authority of 35 U.S.C. 2. The USPTO's system of records is used to manage all applicant and owner information including name, citizenship, residence, post office address, and other information with respect to inventors and their legal representatives pertaining to the applicant's/owner's activities in connection with the invention for which a patent is sought or has been granted. The applicable Privacy Act System of Records Notice for the information collected in this form is COMMERCE/PAT-TM-7 Patent Application Files, available in the Federal Register at 78 FR 19243 (March 29, 2013). https://www.govinfo.gov/content/pkg/FR-2013-03-29/pdf/2013-07341.pdf

Routine uses of the information in this record may include disclosure to: 1) law enforcement, in the event that the system of records indicates a violation or potential violation of law; 2) a Federal, state, local, or international agency, in response to its request; 3) a contractor of the USPTO having need for the information in order to perform a contract; 4) the Department of Justice for determination of whether the Freedom of Information Act (FOIA) requires disclosure of the record; 5) a Member of Congress submitting a request involving an individual to whom the record pertains, when the individual has requested the Member's assistance with respect to the subject matter of the record; 6) a court, magistrate, or administrative tribunal, in the course of presenting evidence, including disclosures to opposing counsel in the course of settlement negotiations; 7) the Administrator, General Services Administration (GSA), or their designee, during an inspection of records conducted by GSA under authority of 44 U.S.C. 2904 and 2906, in accordance with the GSA regulations and any other relevant (i.e., GSA or Commerce) directive, where such disclosure shall not be used to make determinations about individuals; 8) 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)); 9) the Office of Personnel Management (OPM) for personnel research purposes; and 9) the Office of Management and Budget (OMB) for legislative coordination and clearance.

If you do not furnish the information requested on this form, the USPTO may not be able to process and/or examine your submission, which may result in termination of proceedings, abandonment of the application, and/or expiration of the patent.

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Additional USPTO uses of the information in this record may include disclosure to: 1) the International Bureau of the World Intellectual Property Organization, if the record is related to an international application filed under the Patent Cooperation Treaty; 2) the public i) after publication of the application pursuant to 35 U.S.C. 122(b), ii) after issuance of a patent pursuant to 35 U.S.C. 151, iii) 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, or iv) without publication of the application or patent under the specific circumstances provided for by 37 CFR 1.14(a)(1)(v)-(vii); and/or 3) the National Archives and Records Administration, for inspection of records.

UNITED STATES
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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
11/503,090	**03/25/2026 12:45:42 PM Z ET**	**367894-000003**

Title of Invention

Virtual systems management

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	8799431
CONFIRMATION #	9855	FILED BY	OTTLY OWENS
PATENT CENTER #	75008254	FILING DATE	08/10/2006
CUSTOMER #	26379	FIRST NAMED INVENTOR	Vipul Pabari
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	-

Documents

TOTAL DOCUMENTS: 3

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
TOUT_00101_POA_Trans_3_25_2026.pdf	1	Transmittal Letter	35 KB
TOUT_00101_POA_3_25_2026.pdf	2	Power of Attorney	288 KB
TOUT_00101_STMT_373c_3_25_2026.pdf	3	Assignee showing of ownership per 37 CFR 3.73	191 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
TOUT_00101_POA_Trans_3_25_2026.pdf	B78AEE2FE4831E5E8AC4A83F48087B6F220437C73C58526A8D6638E9613B93C736DF629C90AA4CD84859CB02C682CFC46

	7C67E96126496B6102D8D31CD590B2B
TOUT_00101_POA_3_25_2026.pdf	EFB63B5358C659334A97BD96EFA12799CA95B3535C5A2AAEB158271C84265F2C9285B109AC980CCEA10BACCC177FF5739755C983399F5169ADB4B93EC2FF9215
TOUT_00101_STMT_373c_3_25_2026.pdf	A027645DB592E82232E68DC74BFD90528A4D9D0E9B497330C324E1C36E947E5F938AF360890B0F84B01FD967B76D4F4836DACBE13F15767299D684F63F3BE0FF

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 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/AIA/96 (11-23)
Approved for use through 11/30/2027. OMB 0651-0031
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STATEMENT UNDER 37 CFR 3.73(c)

First Named Inventor/Patent Owner: TOUTVIRTUAL, INC.

Application No./Patent No.: 15/503,090 // 11,503,090 B2 Filed/Issue Date: August 10, 2006 // August 5, 2014

Titled: VIRTUAL SYSTEMS MANAGMENT

TOUTVIRTUAL, INC., a Delaware Corporation

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

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 18446, Frame 0334, or for which a copy thereof is attached*.

B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

   1. From: _____ To: _____

      The document was recorded in the United States Patent and Trademark Office at

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STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

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Reel _____, Frame _____, or for which a copy thereof is attached*.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☐ *As required by 37 CFR 3.73(c)(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.

Jonathan O. Owens	March 25, 2026
Signature	Date
/Jonathan O. Owens/	37,902
Printed or Typed Name	Title or Registration Number

Privacy Act Statement

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Routine uses of the information in this record may include disclosure to:

1) law enforcement, in the event that the system of records indicates a violation or potential violation of law;

2) a federal, state, local, or international agency, in response to its request;

3) a contractor of the USPTO having need for the information in order to perform a contract;

4) the Department of Justice for determination of whether the Freedom of Information Act (FOIA) requires disclosure of the record;

5) a Member of Congress submitting a request involving an individual to whom the record pertains, when the individual has requested the Member's assistance with respect to the subject matter of the record;

6) a court, magistrate, or administrative tribunal, in the course of presenting evidence, including disclosures to opposing counsel in the course of settlement negotiations;

7) the Administrator, General Services Administration (GSA), or their designee, during an inspection of records conducted by GSA under authority of 44 U.S.C. 2904 and 2906, in accordance with the GSA regulations and any other relevant (i.e., GSA or Commerce) directive, where such disclosure shall not be used to make determinations about individuals;

8) 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));

9) the Office of Personnel Management (OPM) for personnel research purposes; and

10) the Office of Management and Budget (OMB) for legislative coordination and clearance.

If you do not furnish the information requested on this form, the USPTO may not be able to process and/or examine your submission, which may result in termination of proceedings, abandonment of the application, and/or expiration of the patent.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/503,090	08/10/2006	Vipul Pabari	367894-000003

CONFIRMATION NO. 9855

28960
Haverstock & Owens, A Law Corporation
162 NORTH WOLFE ROAD
SUNNYVALE, CA 94086

POA ACCEPTANCE LETTER

OC000000103678065

Date Mailed: 03/31/2026

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 03/25/2026.

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**.

/sltorres/

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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/503,090	08/10/2006	Vipul Pabari	367894-000003

CONFIRMATION NO. 9855

26379
DLA PIPER LLP (US)
3203 Hanover Street
Suite 100
PALO ALTO, CA 94304

POWER OF ATTORNEY NOTICE

OC000000103677866

Date Mailed: 03/31/2026

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 03/25/2026.

- 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**.

/sltorres/