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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	03.P049USC
	Application Number	
Title of Invention	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	03.P049USC
	Application Number	
Title of Invention	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS	

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Residence Information (Select One) ◉ US Residency Non US Residency Active US Military Service

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All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	136402		
Email Address	docketing@ghmip.com	Add Email	Remove Email

Application Information:

Title of the Invention	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS		
Attorney Docket Number	03.P049USC	Small Entity Status Claimed	☒
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	9	Suggested Figure for Publication (if any)	1

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Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
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Please Select One:	● Customer Number	US Patent Practitioner	◯ Limited Recognition (37 CFR 11.9)
Customer Number	136402		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	13995900	2014-07-08

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	03.P049USC
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Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
13995900	a 371 of international	PCT/US11/21003	2011-01-12
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Foreign Priority Information:

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			Remove
Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)
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Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

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Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

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☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	03.P049USC
	Application Number	
Title of Invention	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS	

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1 — Remove

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

● Assignee	Legal Representative under 35 U.S.C. 117	Joint Inventor
Person to whom the inventor is obligated to assign.	Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	Adaptive Spectrum and Signal Alignment, Inc.

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Phone Number		Fax Number	
Email Address	docketing@ghmip.com		

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Assignee Information including Non-Applicant Assignee Information:

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Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

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If the Assignee or Non-Applicant Assignee is an Organization check here. ☐

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Address 2			
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Country i		Postal Code	
Phone Number		Fax Number	
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Signature:

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This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Usman A. Mughal/			Date (YYYY-MM-DD)	2016-06-14
First Name	Usman	Last Name	Mughal	Registration Number	62887

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	03.P049USC
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Title of Invention	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS	

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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.

UNITED STATES PATENT APPLICATION

for

SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS

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Docket No.: 03.P049USC

SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS

CLAIM FOR PRIORITY

[0001] This application is a continuation of U.S. Patent Application Serial No. 13/995,900, filed on 08 July 2014, titled "SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS," which claims priority to PCT Patent Application Serial No. PCT/US2011/021003, filed on 12 January 2011, titled "SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS," both of which are incorporated herein by reference in their entirety for all purposes.

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TECHNICAL FIELD

[0003] The subject matter described herein relates generally to the field of computing, and more particularly, to systems and methods for jointly optimizing WAN and LAN network communications.

BACKGROUND

[0004] The subject matter discussed in the background section should not be assumed to be prior art merely as a result of its mention in the background section. Similarly, a problem mentioned in the background section or associated with the subject matter of the background section should not be assumed to have been previously recognized in the prior art. The subject matter in the background section merely represents different approaches, which in and of themselves may also correspond to embodiments of the claimed subject matter.

[0005] A Wide Area Network (WAN) provides interconnectivity amongst many diverse networks. The "Internet" is a Wide Area Network that joins together many other networks,

providing a communications path between devices operating within distinct and often geographically dispersed networks. A Local Area Network (LAN) enables multiple distinct devices within an end-user's premises to communicate amongst themselves locally. An end-user's LAN is often connected to the Internet via a WAN back-haul connection to an Internet Service Provider (ISP) that provides the end-user consumer with Internet connectivity and Internet Bandwidth. Devices within the end-user's LAN may communicate with devices external to the LAN over the WAN back-haul connection provided by the end-user's ISP.

[0006] Traditionally, the WAN is controlled, managed and maintained by service providers, such as Internet Service Providers, Telecommunications Operators, etc. Conversely, a LAN is typically managed and maintained at a customer's premises by end users/customers, which may be residential users or commercial/business customers. Moreover, operators and service providers typically refrain from addressing any LAN related problems, notwithstanding the fact that, at times, some problems and issues exhibited via the LAN may be related to WAN configurations and settings. Correspondingly, some problems and issues exhibited via the WAN may be related to configurations, settings or problems on the LAN side. Furthermore, the WAN might be operated by a reseller, which does not have access to all management functionalities (such as monitoring, provisioning, control) to which the owner or the wholesaler of the WAN system may have access. Access to such functionalities may be achieved by the embodiments described herein. Moreover, the means of control, monitoring and provisioning, as well as control channels on the two networks, WAN and LAN, are typically distinct and separate, even when the WAN and the LAN are interconnected.

[0007] The present state of the art may benefit from systems and methods for jointly monitoring, provisioning and optimizing WAN and LAN network communications which are described herein.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] Embodiments are illustrated by way of example, and not by way of limitation, and can be more fully understood with reference to the following detailed description when considered in connection with the figures in which:

[0009] **Figure 1** illustrates an exemplary architecture in which embodiments may operate;

[00010] **Figure 2** illustrates an alternative exemplary architecture in which embodiments may operate;

[00011] **Figure 3** illustrates an alternative exemplary architecture in which embodiments may operate;

[00012] **Figure 4** illustrates an alternative exemplary architecture in which embodiments may operate;

[00013] **Figure 5** shows a diagrammatic representation of a system in which embodiments may operate, be installed, integrated, or configured;

[00014] **Figures 6A, 6B**, and **6C** are flow diagrams illustrating methods for jointly optimizing WAN and LAN network communications in accordance with described embodiments; and

[00015] **Figure 7** illustrates a diagrammatic representation of a machine in the exemplary form of a computer system, in accordance with one embodiment.

DETAILED DESCRIPTION

[00016] Described herein are systems and methods for jointly optimizing WAN and LAN network communications. In accordance with embodiments described herein, end-user consumers, including residential consumers and business consumers, may connect to the Internet by way of a Wide Area Network (WAN) back-haul connection to an Internet Service Provider (ISP). Such Internet Service Providers may include a Digital Subscriber Line (DSL) internet service provider which provides its subscribing end-users with Internet bandwidth at least partially over copper twisted pair telephone lines, such as that conventionally utilized to carry analog telephone service (e.g., Plain Old Telephone Service (POTS); a coaxial cable internet service provider which provides end-users with Internet bandwidth at least partially over coaxial cable, such as that conventionally utilized to carry "cable" television signals; or a fiber optics internet service provider which provides end-users with Internet bandwidth at over fiber optic cable that terminates at a customer's premises. Other variants exist as well, such as ISPs that provide Internet bandwidth as an analog signal over an analog telephone based connection, ISPs that provide Internet bandwidth over a one-way or two-way satellite connection, and ISPs that provide Internet bandwidth at least partially over power lines, such as power lines conventionally utilized to transmit utility power (e.g., electricity) to an end-user's premises, or ISPs that provide Internet bandwidth at least partially over wireless

channels, such as WiFi connectivity at hotspots, or mobile data connectivity via technologies and standards such as WiMax, 3G/4G, LTE, etc.

[00017] At an end-user's premises, Internet bandwidth provided via a WAN back-haul connection to an ISP is commonly distributed amongst multiple devices within the end-user's premises via a Local Area Network (LAN), which may be established via a LAN device. Distribution of the Internet Bandwidth provided via the WAN back-haul may further extend to an area around an end-user's premises, such as to an area outside a home, to a space or area outside of or around a business in which the Internet Bandwidth is accessible via the end-user's LAN wirelessly. At the end-user's premises, network traffic may be distributed within the LAN via wired connections or wireless connections, for example, over coaxial wiring, electrical wiring, twisted-pair telephone wiring, variants of Ethernet/Category-5 type wiring, and various types of wireless radio signals using licensed and unlicensed spectrum and various protocols.

[00018] Some network traffic associated with the end-user's premises remains local to the LAN, while other traffic destined for locations external to the LAN traverse the LAN onto the WAN interface and onto the Internet via the WAN backhaul.

[00019] Besides network traffic traversing the WAN and LAN networks and interfaces, various types of information are available, retrievable, or observable from each of the distinct WAN and LAN networks. The management device described herein collects information collected from the WAN and LAN networks via respective WAN and LAN interfaces to such networks, jointly analyzes the collected WAN information and the collected LAN information to identify an operational condition, and initiates a management event responsive to the operational condition being identified. For example, in some embodiments, the operational condition identified corresponds to a fault within the LAN which is identified based at least in part on the collected WAN information or alternatively, a fault within the WAN which is identified based at least in part on the collected LAN information. In some embodiments, the management event initiated responsive to the operational condition being identified may include generating and transmitting a diagnostic report, conducting additional diagnostics and/or analysis, issuing probes to trigger the output and collection of output from connected devices, such as a LAN device, WAN device, or a network element connected with the management device. In some embodiments, the management device generates and implements instructions responsive to the operational condition being identified, such as corrective actions to remedy a fault or instructions to trigger the adoption of a new device

configuration. Network elements and networked devices may include one or more devices such as network gateways, DSL/CPE modems, Cable modems, WAN/LAN gateways, ONT devices, or any other network device which is communicatively interfaced with the WAN or LAN.

[00020] Using the systems and methodologies described herein, a management device having access and authority to collect information from a WAN connected network and also a LAN connected network is capable of collecting and jointly analyzing information from the WAN and LAN networks to jointly optimize WAN and LAN network communications.

[00021] In the following description, numerous specific details are set forth such as examples of specific systems, languages, components, etc., in order to provide a thorough understanding of the various embodiments. It will be apparent, however, to one skilled in the art that these specific details need not be employed to practice the disclosed embodiments. In other instances, well known materials or methods have not been described in detail in order to avoid unnecessarily obscuring the disclosed embodiments.

[00022] In addition to various hardware components depicted in the figures and described herein, embodiments further include various operations which are described below. The operations described in accordance with such embodiments may be performed by hardware components or may be embodied in machine-executable instructions, which may be used to cause a general-purpose or special-purpose processor programmed with the instructions to perform the operations. Alternatively, the operations may be performed by a combination of hardware and software, including software instructions that perform the operations described herein via memory and one or more processors of a computing platform.

[00023] Embodiments also relate to a system or apparatus for performing the operations herein. The disclosed system or apparatus may be specially constructed for the required purposes, or it may comprise a general purpose computer selectively activated or reconfigured by a computer program stored in the computer. Such a computer program may be stored in a non-transitory computer readable storage medium, such as, but not limited to, any type of disk including floppy disks, optical disks, CD-ROMs, and magnetic-optical disks, read-only memories (ROMs), random access memories (RAMs), EPROMs, EEPROMs, magnetic or optical cards, or any type of media suitable for storing non-transitory electronic instructions, each coupled to a computer system bus. In one embodiment, a non-transitory computer readable storage medium having instructions stored thereon, causes one or more processors within a Management Device to perform the methods and operations which are

described herein. In another embodiment, the instructions to perform such methods and operations are stored upon a non-transitory computer readable medium for later execution.

[00024] The algorithms and displays presented herein are not inherently related to any particular computer or other apparatus nor are embodiments described with reference to any particular programming language. It will be appreciated that a variety of programming languages may be used to implement the teachings of the embodiments as described herein.

[00025] **Figure 1** illustrates an exemplary architecture 100 in which embodiments may operate in compliance with the G.997.1 standard (also known as G.ploam). Asymmetric Digital Subscriber Line (ADSL) systems (one form of Digital Subscriber Line (DSL) systems), which may or may not include splitters, operate in compliance with the various applicable standards such as ADSL1 (G.992.1), ADSL-Lite (G.992.2), ADSL2 (G.992.3), ADSL2-Lite G.992.4, ADSL2+ (G.992.5) and the G.993.x emerging Very-high-speed Digital Subscriber Line or Very high-bitrate Digital Subscriber Line (VDSL) standards, as well as the G.991.1 and G.991.2 Single-Pair High-speed Digital Subscriber Line (SHDSL) standards, all with and without bonding.

[00026] The G.997.1 standard specifies the physical layer management for ADSL transmission systems based on the clear, Embedded Operation Channel (EOC) defined in G.997.1 and use of indicator bits and EOC messages defined in G.992.x standards. Moreover, G.997.1 specifies network management elements content for configuration, fault and performance management. In performing these functions, the system utilizes a variety of operational data (which includes performance data) that is available at an Access Node (AN).

[00027] In **Figure 1**, users terminal equipment 102 (e.g., a Customer Premises Equipment (CPE) device or a remote terminal device) is coupled to a home network 104, which in turn is coupled to a Network Termination (NT) Unit 108. ADSL Transceiver Units (ATU) are further depicted (e.g., a device that provides ADSL modulation of a DSL loop or line). In one embodiment, NT unit 108 includes an ATU-R (ATU Remote), 122 (for example, a transceiver defined by one of the ADSL standards) or any other suitable network termination modem, transceiver or other communication unit. NT unit 108 also includes a Management Entity (ME) 124. Management Entity 124 can be any suitable hardware device, such as a microprocessor, microcontroller, or circuit state machine in firmware or hardware, capable of performing as required by any applicable standards and/or other criteria. Management Entity 124 collects and stores, among other things, operational data in its Management Information Base (MIB), which is a database of information maintained by each ME capable of being

accessed via network management protocols such as Simple Network Management Protocol (SNMP), an administration protocol used to gather information from a network device to provide to an administrator console/program or via Transaction Language 1 (TL1) commands, TL1 being a long-established command language used to program responses and commands between telecommunication network elements. In one embodiment, Network Termination Unit 108 is communicably interfaced with a management device 170 as described herein. In another embodiment, ATU-R 122 is communicably interfaced with management device 170.

[00028] Each ATU-R 122 in a system may be coupled with an ATU-C (ATU Central) in a Central Office (CO) or other central location. ATU-C 142 is located at an Access Node (AN) 114 in Central Office 146. A Management Entity 144 likewise maintains an MIB of operational data pertaining to ATU-C 142. The Access Node 114 may be coupled to a broadband network 106 or other network, as will be appreciated by those skilled in the art. ATU-R 122 and ATU-C 142 are coupled together by a loop 112, which in the case of ADSL may be a twisted pair line, such as a telephone line, which may carry other communication services besides DSL based communications. Either management entity 124 or management entity 144 may implement and incorporate a management device 170 as described herein. Management entity 124 or management entity 144 may further store collected WAN information and collected LAN information within an associated MIB.

[00029] Several of the interfaces shown in **Figure 1** are used for determining and collecting operational data. The Q interface 126 provides the interface between the Network Management System (NMS) 116 of the operator and ME 144 in Access Node 114. Parameters specified in the G.997.1 standard apply at the Q interface 126. The near-end parameters supported in Management Entity 144 may be derived from ATU-C 142, while far-end parameters from ATU-R 122 may be derived by either of two interfaces over the UA interface. Indicator bits and EOC messages may be sent using embedded channel 132 and provided at the Physical Medium Dependent (PMD) layer, and may be used to generate the required ATU-R 122 parameters in ME 144. Alternately, the operations, Administration and Maintenance (OAM) channel and a suitable protocol may be used to retrieve the parameters from ATU-R 122 when requested by Management Entity 144. Similarly, the far-end parameters from ATU-C 142 may be derived by either of two interfaces over the U-interface. Indicator bits and EOC message provided at the PMD layer may be used to generate the required ATU-C 142 parameters in Management Entity 124 of NT unit 108. Alternately, the

OAM channel and a suitable protocol may be used to retrieve the parameters from ATU-C 142 when requested by Management Entity 124.

[00030] At the U interface (also referred to as loop 112), there are two management interfaces, one at ATU-C 142 (the U-C interface 157) and one at ATU-R 122 (the U-R interface 158). Interface 157 provides ATU-C near-end parameters for ATU-R 122 to retrieve over the U interface/loop 112. Similarly, U-R interface 158 provides ATU-R near-end parameters for ATU-C 142 to retrieve over the U interface/loop 112. The parameters that apply may be dependent upon the transceiver standard being used (for example, G.992.1 or G.992.2). The G.997.1 standard specifies an optional Operation, Administration, and Maintenance (OAM) communication channel across the U interface. If this channel is implemented, ATU-C and ATU-R pairs may use it for transporting physical layer OAM messages. Thus, the ATU transceivers 122 and 142 of such a system share various operational data maintained in their respective MIBs.

[00031] Depicted within Figure 1 is management device 170 operating at various locations in accordance with several alternative embodiments. For example, management device 170 is located within home network 104, such as within a LAN. In an alternative embodiment, management device 170 is located at central office 146 and interfaced to home network 104 (e.g., a LAN) and broadband network 106 (e.g., a WAN) via NMS 116. In yet another embodiment, management device 170 operates on the broadband network 106 (e.g., on the WAN or Internet).

[00032] As used herein, the terms "user," "subscriber," and/or "customer" refer to a person, business and/or organization to which communication services and/or equipment are and/or may potentially be provided by any of a variety of service provider(s). Further, the term "customer premises" refers to the location to which communication services are being provided by a service provider. For an example Public Switched Telephone Network (PSTN) used to provide DSL services, customer premises are located at, near and/or are associated with the network termination (NT) side of the telephone lines. Example customer premises include a residence or an office building.

[00033] As used herein, the term "service provider" refers to any of a variety of entities that provide, sell, provision, troubleshoot and/or maintain communication services and/or communication equipment. Example service providers include a telephone operating company, a cable operating company, a wireless operating company, an internet service provider, or any service that may independently or in conjunction with a broadband

communications service provider offer services that diagnose or improve broadband communications services (DSL, DSL services, cable, etc.).

[00034] Additionally, as used herein, the term "DSL" refers to any of a variety and/or variant of DSL technology such as, for example, Asymmetric DSL (ADSL), High-speed DSL (HDSL), Symmetric DSL (SDSL), and/or Very high-speed/Very high-bit-rate DSL (VDSL). Such DSL technologies are commonly implemented in accordance with an applicable standard such as, for example, the International Telecommunications Union (I.T.U.) standard G.992.1 (a.k.a. G.dmt) for ADSL modems, the I.T.U. standard G.992.3 (a.k.a. G.dmt.bis, or G.adsl2) for ADSL2 modems, I.T.U. standard G.992.5 (a.k.a. G.adsl2plus) for ADSL2+ modems, I.T.U. standard G.993.1 (a.k.a. G.vdsl) for VDSL modems, I.T.U. standard G.993.2 for VDSL2 modems, I.T.U. standard G.994.1 (G.hs) for modems implementing handshake, and/or the I.T.U. G.997.1 (a.k.a. G.ploam) standard for management of DSL modems.

[00035] References to connecting a DSL modem and/or a DSL communication service to a customer are made with respect to exemplary Digital Subscriber Line (DSL) equipment, DSL services, DSL systems and/or the use of ordinary twisted-pair copper telephone lines for distribution of DSL services, it should be understood that the disclosed methods and apparatus to characterize and/or test a transmission medium for communication systems disclosed herein may be applied to many other types and/or variety of communication equipment, services, technologies and/or systems. For example, other types of systems include wireless distribution systems, wired or cable distribution systems, coaxial cable distribution systems, Ultra High Frequency (UHF) / Very High Frequency (VHF) radio frequency systems, satellite or other extra-terrestrial systems, cellular distribution systems, power-line broadcast systems and/or fiber optic networks. Additionally, combinations of these devices, systems and/or networks may also be used. For example, a combination of twisted-pair and coaxial cable interfaced via a balun connector, or any other physical-channel-continuing combination such as an analog fiber to copper connection with linear optical-to-electrical connection at an Optical Network Unit (ONU) may be used.

[00036] The phrases "coupled to," "coupled with," connected to," "connected with" and the like are used herein to describe a connection between two elements and/or components and are intended to mean coupled/connected either directly together, or indirectly, for example via one or more intervening elements or via a wired/wireless connection. References to a "communication system" are intended, where applicable, to include reference to any other type of data transmission system.

[00037] **Figure 2** illustrates an alternative exemplary architecture 200 in which embodiments may operate. Architecture 200 depicts a Wide Area Network (WAN) 205 and Local Area Network (LAN) 210, each communicatively interfaced with management device 170. WAN 205 and LAN 210 are also communicatively interfaced with each other directly via WAN/LAN connection 285, over which data may be communicated between WAN 205 and LAN 210 without having to engage or otherwise communicate with management device 170. For example, management device 170 may carry out WAN/LAN optimizations and communicate with various networked devices in the WAN or in the LAN or both, without serving as an interfacing gateway or as the sole communication link between the LAN and the WAN.

[00038] In accordance with one embodiment, management device 170 includes a Wide Area Network (WAN) interface 215 to communicably interface the management device 170 with the WAN 205 and a Local Area Network (LAN) interface 220 to communicably interface the management device 170 with the LAN 210. In one embodiment, management device 170 further includes a collection module 225 to collect LAN information 245 from the LAN 210 and to further collect WAN information 240 from the WAN 205.

[00039] In one embodiment, management device 170 includes an analysis module 230 to jointly analyze the collected WAN information 240 and the collected LAN information 245 to identify an operational condition. In one embodiment, management device 170 further includes an implementation module 235 to initiate a management event responsive to the operational condition being identified.

[00040] In accordance with various embodiments, the operational condition identified based on the collected WAN information 240 and the collected LAN information 245 may represent a variety of observable, detectable, or determinable operational conditions associated with the LAN 210, associated with the WAN 205, associated with the devices within either the WAN or the LAN, or associated with the communication channel 280 related to the WAN and the LAN.

[00041] For example, **Figure 2** depicts various types of information that may be collected from the WAN and/or the LAN. In accordance with certain embodiments, the collected WAN information 240 and/or the collected LAN information 245 may include faults or fault codes 255, configuration information 260, status information 265, and error information 270. The collected information (240 or 245) may take the form of codes, statistics, counters, message strings, and so forth. Other information types or sources of collected WAN and/or LAN

information include operational data; active configuration settings of the management device; active configuration settings of networked devices operating within the LAN; active configuration settings of WAN network elements communicatively interfaced with the management device; performance measurements, counters, and/or statistics; and diagnostic information.

[00042] WAN and or LAN information to be analyzed may further include historical margin performance of a WAN backhaul; historical performance data relating to a WAN modem; WAN modem retrain counts; WAN modem training data; WAN error metrics; LAN error metrics; WAN packet counts; LAN packet counts; LAN device resets; LAN transmit power levels; LAN transmit spectrums bands; LAN wireless transmission channels; LAN auto-select radio channels; LAN device Identifier; and LAN data collision counts.

[00043] Such information, data, and counters may correspond to a current configuration or status, or may instead correspond to historical data collected over a period of time. Thus, in accordance with one embodiment, the information analyzed to identify the operational condition includes historical WAN information or historical LAN information, or both. In accordance with one embodiment, historical WAN information and/or historical LAN information are stored within a storage module 295 of the management device 170. In one embodiment, the analysis module 230 analyzes current WAN information 240, current LAN information 245, historical WAN information, and historical LAN information in the process of identifying the operational condition.

[00044] In one embodiment, an analysis module 230 performs historical performance trending analysis based on the historical WAN information and the historical LAN information. In such an embodiment, implementation module 235 generates and transmits a historical performance trending report describing the historical operational performance of a communication channel 280 related to the WAN 205 and the LAN 210. In alternative embodiments, the historical performance trending reports describes the historical performance of a LAN device or the historical performance of a WAN device. For example, such a historical performance trending report may describe the volume of data, average data rates, and traffic class for a computer operating within the LAN over a specified time period. Such information may be of interest to a business consumer reviewing its data usage and costs. Such information may be based on data collected from the WAN but provide LAN specific metrics. Similarly, information collected from the LAN may be utilized to provide WAN specific metrics or WAN based trending. For example, errors, retrains, failed

connection requests, failed DNS (domain naming service) requests, and similar metrics available from the LAN may be utilized to provide quality trending metrics of the WAN based connectivity and traffic. Although failures may be exhibited and available from the LAN, many such failures may nevertheless be attributable to operational conditions (e.g., configurations, faults, congestion, etc.) within the WAN 205.

[00045] In one embodiment, the collection module collects or estimates one or more user preferences. For example, the one or more user preferences may be determinable based on user preference information 290 collected from the WAN or the LAN. In such an embodiment, the analysis module 230 analyzes the one or more user preferences and the implementation module 235 responsively initiates a management event. For example, implementation module 235 may generate instructions to change the operational condition based at least in part on the one or more user preferences. Changing the operational condition may constitute modifying a configuration of a LAN device or a WAN device based on the user preferences, or requesting a WAN operator to alter the configuration of a communication channel 280 related to the WAN and the LAN.

[00046] The management device may collect information from various information sources within the WAN and/or LAN. For example, in one embodiment, a collection module 225 of the management device 170 collects information from one or more sources including: a Digital Subscriber Line (DSL) Customer Premises Equipment (CPE) modem; an in-home powerline device; a Home Phoneline Network Alliance (HPNA) based device; an in-home coax distribution device; a G.hn (Global Home Networking Standard) compatible device; an in-home metering communication device; an in-home appliance communicatively interfaced with the LAN; a wireless femtocell base-station; a wireless WiFi compatible base-station; a wireless mobile device repeater; a wireless mobile device base-station; a set-top box (STB)/set-top unit (STU) customer electronics device; an Internet Protocol (IP) enabled television; an IP enabled media player; an IP enabled gaming console; an Ethernet gateway; a computing device connected to the LAN; an Ethernet connected computer peripheral device; an Ethernet connected router; an Ethernet connected wireless bridge; an Ethernet connected network bridge; and an Ethernet connected network switch.

[00047] In some embodiments, the operational condition identified based on the collected WAN information 240 and the collected LAN information 245 may represent a fault diagnosed within the WAN 205 based on the collected LAN information 245 or a fault diagnosed within the LAN 210 based on the collected WAN information 240. In such an

embodiment, the implementation module 235 initiating a management event responsive to the operational condition being identified includes the implementation module to generate, provide or transmit a diagnostic report and/or information identifying the fault diagnosed within the WAN or the fault diagnosed within the LAN. Such information may be accessed or provided via the Internet, a webpage, a Graphic User Interface (GUI), or any other suitable communication means similar to the means used by the management device 170 to access information.

[00048] For example, a diagnostics report may be generated and sent to a WAN operator, such a DSL or Cable internet service provider. Similarly, a diagnostics report and/or information may be generated, provided or sent to an end-user; accessible or provided via the Internet, a webpage, a Graphic User Interface (GUI), etc. An end-user may benefit from a diagnostic report indicating that a device operating within the end-user's LAN is triggering a large number of malformed packets, such as packets with undeliverable destination addresses. In such an example, the WAN information 240 collected may include counter or statistics information for malformed network traffic packets attributable to a device operating within LAN 210. Subsequent to analyzing the information collected from the WAN and the LAN, implementation module 235 may then generate a diagnostics report, provide or transmit the report to an end-user associated with LAN 210, thus alerting the end-user to the problem. Such a report may similarly be of interest to an operator of the WAN 205, notwithstanding the fact that the fault is attributable to a device operating upon LAN 210. For example, the WAN operator may undertake to filter or block the malformed network traffic, or assist its consumer in identifying and rectifying the source of the malformed packets within the consumer's LAN so as to improve overall network efficiency.

[00049] In one embodiment, the implementation module 235 initiating the management event responsive to the operational condition being identified includes the implementation module 235 to generate instructions to remedy a fault diagnosed within the WAN or to generate instructions to remedy a fault diagnosed within the LAN based on the joint analysis, or both. For example, in one embodiment, initiating the management event responsive to the operational condition being identified comprises the implementation module to alter one or more of the following: Forward Error Correction (FEC) parameters, a DSL transmission rate, implement a higher INP (Impulse Noise Protection) parameter setting, a higher margin parameter setting, and/or higher power parameter settings.

[00050] In accordance with various embodiments, the operational condition identified based on the joint analysis may include one or more of: network congestion within the WAN; network congestion within the LAN; excess power consumption by communication elements within the LAN; excess power consumption by communication elements within the WAN; bandwidth utilization of the WAN in excess of a maximum threshold; bandwidth availability of the WAN below a minimum threshold; a security breach within the LAN which is determined by observing anomalies in data traffic; a network intrusion within the LAN; a fault on the WAN or the LAN; errors on the WAN or the LAN connection; usage patterns of the WAN or the LAN resources (e.g., bandwidth, power, etc.); bandwidth utilization on the WAN or the LAN; performance measures on the WAN or the LAN; and quality of the WAN or LAN connection, such as level of stability, rate sustainability, etc.

[00051] In some embodiments, the identified operational condition represents a configuration, such as an operational configuration of a communication channel 280 related to the WAN and the LAN based on the collected LAN information and the collected WAN information. In one embodiment, the implementation module 235 initiating the management event responsive to the operational condition being identified includes the implementation module 235 to generate and transmit an operational report describing the operational configuration of the communication channel 280 related to the WAN and the LAN. Such a configuration may describe the spectrum over which transceivers within the WAN and/or LAN are communicating, error correction policies or settings, latency policies or settings, data transfer speeds, transmit power levels, and so forth. Such an operational report may enable an end user to optimize LAN configuration settings based on complementary WAN settings, enable a WAN operator to optimize its WAN settings based on complementary LAN settings, or both. Identification of an operational condition need not necessarily correlate to a problem or a diagnosed fault, as the identified configurations or the identified network characteristics may be appropriate or acceptable for a WAN operator and/or an end-user's LAN.

[00052] **Figure 3** illustrates an alternative exemplary architecture 300 in which embodiments may operate. For example, responsive to an operational condition being identified, the implementation module 235 may initiate one or more complementary management events. For example, the responsive management event may be limited to reporting the identified operational condition by generating and sending an appropriate report. Alternatively, in accordance with certain embodiments, the implementation module

235 may undertake specific actions to modify the identified operational condition, such as initiating a configuration change or executing corrective action instructions to affect the identified operational condition.

[00053] Which management event is triggered by a management device 170 may depend on the type of operational condition identified and also on how the management device 170 relates operationally to the WAN 205, to the LAN 210 and/or to the source or location of the LAN and/or WAN information upon which the identified operational condition is based.

[00054] For example, in one embodiment, the management device is implemented within a Digital Subscriber Line (DSL) modem 305, operating as a Customer Premises Equipment (CPE) device to communicatively interface a DSL based backhaul 310 provided via the WAN 205 to the LAN 210. Such a DSL modem 305 may be accessible and at least partially configurable by an end-user consumer of the DSL service. In an alternative embodiment, the management device may be implemented within a DSL modem operating at a central office. In such an embodiment, the DSL modem may operate under the control of a DSL operator, yet nevertheless have access and authority to collect information from the LAN 210.

[00055] In one embodiment, the management device 170 is implemented within and operates as a cable modem 315 at an end-user consumer location. In such an embodiment, the cable modem 315 communicatively interfaces a cable network based backhaul 320 provided via the WAN 205 to the LAN 210.

[00056] In an alternative embodiment, the management device is implemented within a powerline modem at an end-user consumer location. In such an embodiment, the cable modem communicatively interfaces a powerline based (e.g., electric utility based backhaul) provided via the WAN 205 to the LAN 210. The management device may similarly be implemented within a wireless modem operating to communicatively interface a wireless based backhaul provided via the WAN to the LAN; or be implemented within an Optical Network Terminal (ONT) operating to communicatively interface a fiber optic based backhaul provided via the WAN to the LAN.

[00057] In accordance with disclosed embodiments, the WAN provides Internet connectivity to a Local Area Network via one of: a wireless network connection; a wired network connection; a Digital Subscriber Line (DSL) network connection; a powerline network connection; a Passive Optical Network (PON) based network connection; a fiber optic based network connection; a cable based network connection; and a wireless network connection, such as WiFi connectivity at hotspots, or mobile data connectivity via

technologies and standards such as WiMax, 3G/4G, LTE. The management device 170 may be implemented within and operate as an interfacing device between any such WAN based connection and a connected LAN, in which case the WAN provides Internet connectivity to the management device 170 which may additionally implement an appropriate WAN/LAN interface, such as a WAN to LAN gateway 330 or WAN/LAN bridge.

[00058] The management device 170 need not necessarily operate within a modem or within a device interfacing the respective WAN and LAN networks. For example, in one embodiment, the management device is implemented within a router 335 operating to communicatively interface a WAN backhaul 325 with the LAN. In such an embodiment, the router 335 may operate within the LAN 210 and connect with the WAN back-haul 325 through a WAN/LAN gateway 330 as depicted, or alternatively, the router 335 implementing the functionality and capabilities of the management device (e.g., 170) may connect directly with a WAN back-haul 325. In some embodiments, a WAN/LAN gateway 330 device is combined with a LAN based router 335 and implements the management device capabilities.

[00059] In one embodiment, management device 170 is implemented separately from a router 335, gateway device 330, computing device 370, DSL/CPE modem device 305, and cable modem 315, for example, management device 170 may operate as a standalone unit. Figure 3 depicts various alternative deployment examples of management device 170 being implemented separately from such devices and operating within WAN 205 or within LAN 210, thus enabling management device 170 to collect information from the respective networks. Alternatively, management device 170 may be implemented separately from such devices but interface directly to another device, such as to the WAN/LAN gateway 330 as depicted or to a modem (e.g., 305, 315) or as a peripheral device attached to a computing device (e.g., 370), thus enabling management device to collect information from the respective networks and perform other operations as described herein. Other combinations are also feasible where the management device 170 is enabled to collect information from each of a WAN 205 and a LAN 210 as described herein.

[00060] In accordance with disclosed embodiments the LAN interfaces one or more networked devices operating within the LAN to the management device via one or more of: an Ethernet based network connection; a wireless based network connection; an Institute of Electrical and Electronics Engineers (IEEE) 802.11 standards based network connection; an 802.11a, 802.11b, 802.11g, and/or 802.11n WiFi compatible network connection; a femto network connection transmitting via a mobile cellular compatible protocol including at least

one of a third generation (3G) compatible protocol, a fourth generation (4G) compatible protocol, and a Long Term Evolution (LTE) compatible protocol; a powerline connection; a telephone system connection; a Plain Old Telephone Service (POTS) connection; an ITU G.hn connection; a Coax cable connection; and a wireless network connection, such as WiFi connectivity at hotspots, or mobile data connectivity via technologies and standards such as WiMax, 3G/4G, LTE. The management device 170 may be implemented within and operate as one of the networked devices operating within the LAN, for example, as a computer communicatively interfaced with the LAN 210.

[00061] In some embodiments, the management device does not operate inline with the communication channel related to the WAN and the LAN in the way that a WAN/LAN gateway 330 or a modem operating between the WAN and the LAN operates. Instead, the management device may be implemented within a computing device 370 remotely located from a WAN/LAN interface through which a communication channel related to the WAN 205 and the LAN 210 is connected. Such a computing device may provide remote monitoring and management functionality for the WAN/LAN interface, such as monitoring, collecting, and analyzing data associated with an ISP's WAN back-haul 325 or associated with a WAN/LAN gateway 330 device.

[00062] Computing device 370 may operate within the LAN 210 and communicate with LAN devices over LAN 210 connections and protocols and additionally communicate with WAN based devices over a WAN back-haul 325 connecting the LAN to the WAN. Computing device 370 may alternatively operate within the WAN 205. In such an embodiment, the computing device 370 need not necessarily be associated with a WAN operator, such as an ISP, providing internet services to an end-user consumer. For example, a computing device 370 that implements the management device functionality may operate on the Internet beyond the infrastructure owned or operated by an ISP providing the WAN back-haul 325, but nevertheless communicate with WAN based devices over the ISP's network via WAN 205 and communicate with LAN based devices via a WAN/LAN gateway 330 which connects LAN 210 to the WAN 205. In an alternative embodiment, computing device 370 may communicate with WAN based devices and/or LAN based devices via an out-of-band interface. For example, rather than communicating with LAN/WAN based devices over the WAN 205 or LAN 210 networks, a computing device 370 implementing the management device capabilities may communicate over a management interface that connects over a separate communication channel, such as over a wireless cellular connection or by

establishing a separate dial-up modem connection over an analog telephone line. In one embodiment, the management devices 170 or multiple management devices 170 are controlled by a third party operator, other than the owner/operator of the LAN and other than an owner/operator of the WAN. For example, a service provider may provide management, support, provisioning, and distribution services for multiple management devices so as to jointly optimize WAN/LAN network communications. Such a third party operator may contract with either a LAN owner/operator or a WAN owner/operator to provide such joint WAN/LAN network optimization services via one or more management devices 170.

[00063] In one embodiment, a management device 170 initiating a management event responsive to an operational condition being identified includes the management device 170 generating instructions and to communicate the generated instructions to one or more devices selected from: a network element, a WAN device, and/or a LAN device communicatively interfaced with the management device 170. In such an embodiment, the generated instructions may be communicated via one of: a TR-069 (Technical Report 069) compatible communications protocol; a Transmission Control Protocol/Internet Protocol (TCP/IP) communications protocol; a Simple Network Management Protocol (SNMP) communications protocol; an out-of-band telephone line protocol; a Digital Subscriber Line Ethernet over Coax (DSL EOC) communications protocol; a cable control channel communications protocol; a powerline control channel communications protocol; a Command Line protocol (CLI); via a wireless device; or via a mobile device.

[00064] In accordance with certain embodiments, one of the above protocol transfer mechanisms is utilized to transfer instructions from the management device 170 over a LAN interface of the management device to LAN based devices, utilized to transfer instructions from the management device 170 over a WAN interface of the management device to WAN based devices, or utilized to transfer instructions from the management device 170 over a management interface of the management device to one or more networked devices.

[00065] In some embodiments, initiating a management event includes the management device 170 generating instructions to change an identified operational condition. In one embodiment, the management device 170 further executes the generated instructions. For example, the management device 170 may execute the commands within the management device 170 locally to change the configuration of the management device. For example, where the management device 170 is implemented within a WAN/LAN gateway or within a modem or a router, the management device may generate instructions and execute the

instructions locally to change the configuration of the WAN/LAN gateway, modem, or router.

[00066] Alternatively, the management device may need to send the generated instructions to a distinct device to trigger or initiate a change to an identified operational condition. For example, where a management device 170 is located within a LAN based device and identifies an operational condition within a WAN based device (such as a fault or an unwanted configuration), the management device 170 may send or transmit the generated instructions to a second networked device to trigger or initiate a change. In some embodiments, the management device 170 may be able to remotely execute commands on a second networked device directly (e.g., via a remote command shell or a remote command interface). In alternative embodiments, the management device 170 sends an execution request to a second networked device soliciting execution of the commands or instructions.

[00067] For example, in one embodiment, initiating a management event responsive to the operational condition being identified constitutes an implementation module 235 of the management device 170 to generate commands based on the joint analysis to change a configuration of a LAN device communicatively interfaced with the management device and execute the commands against the LAN device to change the configuration of the LAN device.

[00068] In an alternative embodiment, initiating a management event responsive to the operational condition being identified constitutes an implementation module 235 of the management device to generate a request based on the joint analysis, in which the request specifies a configuration change to be implemented by a WAN operator, and the management device 170 to additionally send the request to the WAN operator triggering the WAN operator to implement the configuration change.

[00069] For example, the management device may collect or estimate one or more user preferences, analyze the one or more user preferences, and determine that a configuration change implemented by the WAN operator implements one or more of the user preferences. In such an example, an implementation module of the management device may responsively generate instructions to change the operational condition based at least in part on the one or more user preferences and transmit such instructions to the WAN operator. If the management device was located within a WAN based device, such as within a DSL modem operating at a central office, the instructions may be instead executed locally, for example, to alter a DSL connection configuration settings or configuration controlled by the WAN

operator. User preferences may specify various configurable or manageable characteristics for either the WAN or the LAN or both. For example, user preferences may indicate that the WAN and/or LAN should be optimized for streaming video, or gaming, or large data transfers, etc. Such optimizations may correspond to distinct operational settings affecting, for example, latency, error correction, transmit power, etc. User preferences may indicate a desired service level, which may correspond to a particular pricing scheme. For example, user preferences may indicate a less expensive rate plan in exchange for a reduced bandwidth transmit rate or a reduced bandwidth cap, or vise-versa.

[00070] In one embodiment, user preferences may be implicitly derived rather than explicitly specified. For example, a WAN operator providing internet bandwidth to an end-user may determine based on network traffic originating from the end-user's LAN that a certain class of network traffic is predominate or prioritized over the communication channel related to the WAN and the end-user's LAN. In such an embodiment, the management device operating at the WAN, having collected information from the LAN, may responsively alter the operational configuration of the WAN/LAN communication channel to optimize the communication channel for the predominate or prioritized class of network traffic.

[00071] In accordance with embodiments of the invention, initiating a management event responsive to the operational condition being identified includes the management device 170 (e.g., via its implementation module) may perform one or more of the following operations: 1) generate instructions to reduce transmit power of WAN elements (e.g., WAN based transceiver elements) when LAN bandwidth utilization is below a threshold; 2) generate instructions to reduce transmit power of LAN elements (e.g., LAN based transceiver elements) when WAN bandwidth utilization is below a threshold; 3) generate instructions to modify one or more parameters affecting WAN forward error correction (FEC), WAN latency, WAN transmit power levels, and WAN data rate, based on the collected LAN information; 4) generate instructions to modify an active Digital Subscriber Line (DSL) profile or configuration settings based on identifying network traffic related to the WAN and the LAN comprising a data type (e.g., a data class or a class type) corresponding to at least one of: video data, audio data, text data, graphical data, Voice over Internet Protocol (VoIP) data, or network gaming data, wherein the active DSL connection configuration settings is modified to optimize transmission parameters for the identified data type; and 5) generate instructions to reduce power of a DSL transceiver operating within the WAN based on data utilization levels detected within the LAN.

[00072] The above instructions each implement a change to an identified operational condition. Optimizing WAN/LAN based communications may at times, constitute reducing transmit rates and transmit power, so as to achieve reduced energy usage. Reducing transmit rates and power levels on a LAN or WAN based transceiver may be selected when it is determined that the respective network is not being actively utilized. Such optimization may not only reduce energy usage for the respective LAN or WAN based elements, but may improve network communications for other consumers of the WAN or for other LANs which may benefit from, for example, less contention for network resources.

[00073] The above optimizations may alternatively implement or trigger LAN or WAN configuration changes that alter network characteristics. For example, a WAN configuration may be modified based on collected LAN information that identifies an operational condition within the LAN that corresponds to usage or consumption of a particular class of network traffic. For example, where it is determined that streaming video is being actively consumed by a LAN device, management device 170 may responsively configure the WAN to implement a higher data rate connection with minimized data correction where a streaming video may benefit from an increased data rate and may not be adversely affected by a minimized correction scheme (e.g., stream errors may generate momentary pixilation but may not require correction as the errored frame likely has already passed, and thus, may not be referenced again or even referenceable, by the time correcting data is provided). Conversely, a particular class of data may benefit from minimized latency such as VoIP data which requires a low data rate, but may frustrate human users where a delay attributable to network latency is present. Other examples, may include gaming data which may benefit from low latency, not necessarily require high data rates, but in certain situations may require high data accuracy. Bursty file transfers (e.g., large but intermittent) and steady data streams may similarly be identified and optimized (e.g., accuracy may be very important but latency may be less important).

[00074] In some embodiments, WAN side configurations are altered based on collected LAN information, or LAN side configurations are altered based on collected WAN information, or both LAN and WAN side configurations may be altered based on collected LAN and/or WAN information. For example, a LAN device may overload a WAN back-haul connection by providing data faster than the WAN is capable of transmitting traffic. In such an instance, network communications may be optimized by reducing the data rate at which LAN information is provided to the WAN. Aligning these rates may reduce collisions and

buffering errors due to a traffic backlog. The opposite may equally be true. A WAN back-haul may be capable of providing data to a LAN device faster than the LAN device itself can process the data, thus creating an un-optimized mismatch from the WAN to the LAN device, and thus providing an opportunity for joint optimization.

[00075] In one embodiment where the identified operational condition corresponds to a problem or a fault, the implementation module responsively generates and instantiates execution of instructions to remedy the fault. For example, the instructions may be instantiated within the management device, within a LAN device connected via the LAN interface, within a WAN device connected via the WAN interface, or within a network element connected to the management device via a management interface of the management device.

[00076] In one embodiment, information collected from the LAN 210 and WAN 205 relates to two distinct communication layers. One example of the two communication layers is two layers of the Open Systems Interconnection model (OSI model). The OSI model is a commonly used model describing the different data processing layers, in digital communication systems. The communication layers could also correspond to other communication protocols or layers such as TCP/IP which might not directly correspond to one of the layers of the OSI model.

[00077] For example, information from one layer on the WAN 205 may be used to diagnose or improve the performance on a different layer on the LAN 210, or vice versa. In one embodiment, information is collected from the LAN 210 (for example, collected from a home network) by the Management device 170. Based on analysis of the information by the Management device 170, a management event initiated by the Management device 170 responsive to the analysis is applied to the WAN 205. In one example, a management event may include adjusting settings and configurations on a WAN 205 (for example a DSL network) in response to the analysis. Information collected from the LAN 210 may be from different layers of the LAN 210, such as from the application layer and the networking layer. The settings and configuration on the DSL system may be implemented at the physical layer, by setting physical layer parameters of the DSL system. For example, the DSL system physical layer settings may be implemented through the setting of the DSL connections configuration settings. Implementing physical layer settings may be performed at the Central office (CO) side or at the (Customer Premises Equipment) CPE side. It is noted that in the absence of the Management device 170, it is not possible to optimize or monitor the

performance of the LAN, based on information from the WAN or to optimize or monitor the performance of the WAN, based on information from the LAN. This is because the control mechanisms and control channels on the two networks are distinct and separate. A Management device 170 as described herein addresses such a problem and enables such monitoring and optimizations which are not otherwise feasible.

[00078] In another example, data and information may be collected at a networking layer, or TCP/IP layer from the LAN 210. Such information may, for example, be related to the performance of the LAN 210. The information may, for example, indicate packet data rate, packet error rate, throughput, or TCP/IP related information regarding quality of the link, such as packet retransmission rate, etc. For example, where analysis indicates the TCP/IP layer on the LAN 210 side is experiencing excessive dropped packets or a lower than expected throughput, and yet, no known issues with the LAN are detected, the underlying problem may be attributed to the WAN 205 side. In a particular case, where the WAN 205 is a DSL connection, the DSL link settings and configuration could be changed, for example, initiating the change as a management event responsive to the above analysis. DSL connection setting may be implemented at the physical layer. For example, the DSL coding may be improved by adjusting the Forward Error Correction (FEC) parameters (e.g., channel coding). Alternatively, DSL rate may be decreased to improve link stability and quality. Other management events could include higher INP (Impulse Noise Protection) parameter setting, improved margin parameter settings and/or power parameter settings. In this example, the management device 170 would collect the information, perform the analysis, and initiate a management event, for example, by sending instructions to a DSL controller interfaced via a WAN interface 215 of the management device 170. The management event thus corresponds to the reconfiguration setting of the DSL connection.

[00079] In the above examples, information on the networking layer of the LAN 210 is used to configure settings at the physical layer on the WAN 205. Similarly, information and data collected from other layers may be incorporated. For example, information from the application layer on the LAN may be used. Take for example, a video streaming system where an MPEG (Moving Picture Experts Group) data stream is received with errors at the receiving side on the LAN 210. One or more of channel coding parameters, INP (Impulse Noise Protection) parameters, margin parameter settings, power parameter settings, and/or data rate parameters for the DSL connection may be altered or modified to compensate for the receiving side errors in the video data stream.

[00080] The receiving side may be a TV set, a multi-media gateway, a personal computer, or other device capable of receiving the MPEG video stream. Physical layer profiles on the WAN 205 may be changed to address the problem (e.g., the received errors) on the LAN 210 side. For example, if the WAN 210 is a DSL system and analysis of the WAN 210 shows instability on the DSL line, then the problems on the LAN's 210 application layer may be attributed to the WAN 205 side, in this example, the problem/errors may be attributable to the DSL system. In such an example, DSL system settings (e.g., settings and parameters on the WAN 205) may be set to stabilize the WAN DSL connection(s). For example, a new profile or DSL system configuration settings may be set on the DSL system, including, for example: improved coding, higher INP (Impulse Noise Protection) parameter setting, improved margin parameter settings, power parameter settings, and/or a lower data rate. In such an example, the management device 170 would collect the information, perform the analysis, and initiate a management event to, for example, a DSL controller communicatively interfaced to the management device 170, for example, interfaced via WAN interface 215. The management event thus corresponding to the reconfiguration of settings on the DSL connection, as described by the examples above.

[00081] In one embodiment, joint analysis includes finding problems or impairments on both the WAN 205 and the LAN 210 by analyzing the collected information from the LAN side and/or the WAN side. Take for example a WAN 205 supported by a DSL connection, and a LAN 210 supported by an HPNA (Home Phoneline Networking Alliance) connection. In the case of HPNA, the same telephone wiring used for the DSL based WAN access may also be used for HPNA based LAN communications within the LAN premises (for example local network communications within a home network). In some HPNA systems the frequencies of operation are above the ones used in the DSL connection. In such cases, impairments associated with the operational frequency bands may affect both the LAN 210 and the WAN 205 in similar ways. For example, radio frequency (RF) interference such as impulse noise or crosstalk affecting the operational frequencies on the DSL line may similarly affect operation of the HPNA system. With HPNA, even if the frequency bands are not overlapping, the sources of interference and crosstalk may nevertheless impact frequencies both on the HPNA based LAN 210 as well as frequencies on the DSL based WAN 205. For example, a broadband noise source or harmonics of a crosstalk or interference source covering non-overlapping frequencies bands. Thus, in accordance with one embodiment, information regarding such interference is analyzed on the WAN side (e.g., by

analyzing the bit distribution or other related parameters on the DSL connection it may become apparent that the line is being affected by RF interference, such as impulse noise or high power noise). In such as case, the resulting analysis of WAN 205 side information indicates the related problems on the LAN 210 side are related to the RF interference. Conversely, in the absence of analysis done on the WAN 205 (e.g., DSL connection), it would not be possible to directly analyze the LAN 210 information (e.g., the HPNA based system). In such a way, the WAN information enables identifying and detecting or diagnosing the source of problem on the LAN 210. This made possible despite current HPNA based systems failing to provide relevant data through their control or management interfaces from which information regarding interference may otherwise be analyzed. It is possible to analyze the physical layer information on a DSL connection (such as bit distribution) to infer information about noise or interference. In case the source of the problem is found or diagnosed to be interference or external noise, the settings on the DSL connection may be adjusted to mitigate or reduce the effect of the problem. For example, the DSL coding may be improved by adjusting the FEC parameters, the DSL rate may be decreased to improve the link stability and quality, or the INP settings may be changed to guard against impulse noise, or margin parameter settings could be improved, and/or power settings. In some cases, the mitigation may be done by instructing the LAN user to physically move their LAN devices (such as an HPNA gateway or a WiFi base-station) to a different location, so as to reduce exposure of such a device to the source of interference or external noise.

[00082] In such an embodiment, the management device 170 collects WAN and LAN diagnostics information from the WAN 205 (for example a DSL connection) and from the LAN 210 (for example a HPNA based LAN) respectively, performs joint analysis on the WAN/LAN diagnostics information, and diagnoses a fault. In the above example, the fault being the existence of interference or external noise. Joint analysis may include correlating information on the collected information from the LAN with the information collected from the WAN. For example, information from the LAN may include the time periods when the LANs throughput is below a threshold based on the LAN settings, indicative that a problem is present on the LAN. Joint analysis may further include correlating the above information with the duration of time when external noise or interference was observed on the WAN. High correlation among the two time periods (ascertained from the joint analysis) may be an indication that the problem on the LAN is related to the external noise and interference. In such a case, the management device 170 may responsively initiate a management event to the

DSL controller initiating the reconfiguration of settings affecting the DSL connection, as described by the various examples above. A management event may alternatively be issued to the LAN side, for example recommending the location change of the LAN device, as described above.

[00083] In one embodiment, the management device 170 performs joint analysis of data throughput information on the LAN and the WAN. For example, the LAN may include a wireless device (e.g., a Femto cell, WiFi, etc.) and the WAN may include a DSL based connection. In this embodiment, the LAN side throughput performance is optimized or improved by optimizing the settings on the WAN side (e.g., the DSL connection). In another embodiment, the LAN side throughput problem is diagnosed by analyzing information from the WAN side. For example, it is possible that the LAN system, such as the WiFi access point or the FemtoCell base-station, are set to transmit information at the highest possible rate and throughput, yet the WAN side throughput is set to a lower data rate which does not support the needed throughput required by the LAN. Analyzing the information from the LAN would indicate the WAN settings needs to be adjusted. If the WAN supports a higher throughput, the Management device 170 may initiate a management event to the WAN controller, such as a DSL system controller on the CPE side or CO side, demanding an increase in the supported data rate or throughput. Correspondingly, the LAN may be limited to supporting a lower data rate than the WAN, yet the WAN is nevertheless configured to higher data rate (e.g., a rate greater than that which is supported by the LAN). In such a case, it is possible that a DSL based WAN link is not only wasting power, but may additionally be more prone to instability. DSL links are more susceptible to noise and other impairments when operating at high data rates because they are typically operating at lower margins. In such a case, Management device 170 initiates a management event, sending instructions to the WAN (such as DSL controller) to lower the data rate on the WAN side, making the WAN connection more stable. Additionally, a mismatch between the WAN and the LAN throughputs may cause errors on both networks due to the overloading of buffering mechanisms on the gateways between the WAN and the LAN. For example, network congestion on the LAN side, requiring higher data throughput on the WAN/LAN connection may overwhelm the WAN/LAN gateway (such as the WAN/LAN gateway 330) between the WAN and the LAN. In such a case, the WAN throughput needs to accordingly increase to overcome the throughput shortage. For example, if the WAN is a DSL connection, the data rate on the DSL connection should be increased to support the higher throughput demand on

the WAN side, however, conventional DSL systems and WAN systems are not capable of automatically detecting such demands on the LAN (e.g., detecting the need for an increased data rate and responsively implementing the increases), because the control mechanisms and control channels on the two networks are distinct and separate, hence the need for a Management device 170 as described herein which addresses such a problem.

[00084] In another embodiment, WAN settings are optimized to match the data communication types on the LAN. For example, the data communications types on the LAN may include information on traffic types which are delay sensitive, for example voice communication data. Analyzing the collected information from the LAN, by the Management device 170, indicates that the data types are voice communications and therefore delay sensitive. In such a case, the Management device 170, by initiating a management event, would adjust the WAN settings in order to support delay sensitive traffic (e.g., traffic requiring very low latency). For example, when the WAN is a DSL system, the DSL connection configuration settings may be adjusted to induce lower latency. Setting of the adjusted DSL connection configuration settings is initiated by the Management device 170 via triggering a management event. In another example the delay and INP settings, which are two DSL physical layer parameters, are set to their respective minimums, or set to the lowest possible values which allow the DSL communication link to maintain acceptable stability and maintain required quality and performance levels. INP and delay settings may be implemented or changed via management events initiated by the Management device 170.

[00085] **Figure 4** illustrates an alternative exemplary architecture 400 in which embodiments may operate. In accordance with certain embodiments, collected LAN information includes neighborhood analysis relating to Internet connectivity provided to a plurality of locations in a neighborhood or a shared geographical area 435 with the management device 170. In such an embodiment, initiating a management event includes a management device generating instructions/commands to change a configuration of a WAN device based on the neighborhood analysis collected. In an alternative embodiment, initiating a management event includes a management device generating instructions to change a configuration of a LAN device based on the neighborhood analysis.

[00086] Neighborhood analysis may be conducted when information from multiple sources may be aggregated to provide a broader analytical context. For example, remote terminals 425A, 425B, and 425C are depicted as traversing a shared back-haul 405 to a WAN 410A. WAN 410A includes a management device 170 implemented as described herein.

Because remote terminals 425A-C all traverse a common back-haul 405, information may be retrievable from each of the remote terminals 425A-C and correspondingly from Local Area Networks 415A, 415B, and 415C respectively. The information may be collected by management device 170 within WAN 410A and utilized to optimize the WAN and LAN networks and the communication paths between the respective WAN and LAN networks.

[00087] For example, a shared back-haul 405 may exist with DSL networks in which multiple twisted pair lines traverse a common DSL binder; a shared back-haul 405 may be present with multiple coaxial cable internet customers each contending for WAN based resources over a single coaxial cable over which at least a portion of WAN back-haul is implemented; a shared back-haul 405 may be present with a power line based Internet service provider in which multiple LANs (e.g., 415A-C) associated with distinct end-users contend for WAN based resources over the same physical transmission lines; a shared back-haul 405 may similarly be present where multiple LANs (e.g., 415A-C) associated with distinct end-users contend for WAN based resources over the same wireless transmission spectrum; a shared back-haul 405 may be present with fiber optic based connections each contending for WAN based resources; or a share back-haul 405 may comprise of a combination of the above communication means, such as a combination of coaxial cable, fiber and twisted pairs.

[00088] In such embodiments, a management device 170 may collect information from multiple distinct LANs and analyze the collected information from the multiple LANs to identify an operational condition. Such analysis may be referred to as neighborhood analysis. The management device 170 may then report, diagnose, monitor, or generate instructions to implement an operational change based on the neighborhood analysis. For example, the management device 170 may implement WAN/LAN network optimizations which include increasing transmit power and data rates to one LAN (e.g., 415A) based on determination that another LAN represented within the neighborhood analysis is inactive or has a low activity rate (e.g., LAN 415C may be determined to be underutilized). In such an embodiment, a corresponding decrease of transmit power and data rate may be implemented for the underutilized LAN (e.g., 415C in such an example).

[00089] In another embodiment, neighborhood analysis may indicate that the shared back-haul 405 is saturated due to a demand load in excess of capacity based on analysis of LAN information retrieved from the multiple distinct LANs 415A-C in which case the management device 170 may responsively implement a load-balancing algorithm on a WAN/LAN interface (e.g., a DSL modem, cable modem, ONT unit, etc.) interfacing each of

the respective LANs 415A-C to the single shared back-haul 405. In such a way, overall network efficiency may be improved by reducing collisions, buffering queues, data re-transmits, and other excessive overhead waste that may occur due to an overwhelmed network communication path, such as a shared WAN back-haul 405.

[00090] In accordance with an alternative embodiment, a collection module of a management device 170 collects the neighborhood analysis from a WAN operator (e.g., WAN 410B), where the neighborhood analysis describes LAN wireless transmission channels for a plurality of locations in a shared geographical area with the management device. For example, within the neighborhood or shared geographical area 435 are multiple distinct LANs 415D, 415E, and 415F. Each of the distinct LANs 415D-F are transmitting information 440 to WAN 410B, such as an ISP or Wide Area Network Operator. The information 440 sent via each of the LANs may describe various characteristics about the LAN from which the information originated. In one embodiment, the WAN 410B aggregates the information 440 and makes the aggregate information available as neighborhood analysis. Each management device 170 within each of the respective LANs 415D-F may then collect and analyze the neighborhood analysis, and may additionally implement operational changes within a corresponding LAN 415D-F based on the information collected from the WAN 410B.

[00091] Thus, in accordance with one embodiment, instructions are generated by a management device 170 to change the configuration of a LAN device based on the neighborhood analysis. In one embodiment, the generated instructions select a LAN wireless transmission channel for a LAN device communicatively interfaced with the management device 170 that minimizes wireless interference between the LAN device and a plurality of other locations in the neighborhood or shared geographical area 435 with the management device 170. In some embodiments, each of the management devices within the various LANs 415D-F implement similar instructions, although, the management devices 170 within the respective LANs 415D-F need not have operational awareness of any other management device 170 as the neighborhood analysis is collected from WAN 410B. In alternative embodiments, a management device within the WAN 410B or located elsewhere may initiate instructions to implement an operational change within the WAN or within multiple distinct LANs.

[00092] In the above embodiment, operational efficiency of the individual LANs may be improved by reducing interference between closely located LANs, based on the

neighborhood analysis. Such information may be correlated by a WAN operator based on, for example, mapping overlapping identifiers to a virtually rendered neighborhood or shared geographic area 435 or alternatively, based on actual knowledge of geographic locations for multiple LANs 415, for example, by cross referencing subscribers' service address information to physical locations.

[00093] Diagnostics may similarly rely upon neighborhood analysis yielded from multiple distinct LANs 415. For example, multiple LAN devices exhibiting high error counts, or abnormal retrains/modem resets, may be indicative of a fault within the WAN infrastructure rather than a statistically less likely coincidence that multiple LAN side devices are each simultaneously exercising a similar fault. In a complementary way, neighborhood analysis from multiple LANs 415 within a common geographical area or multiple LANs associated with a single shared back-haul 405 may aid in systematically diagnosing a LAN side fault within a particular end-user consumer's local area network where similar devices operating in neighboring LANs 415 do not present corresponding errors or faults within the neighborhood analysis.

[00094] **Figure 5** shows a diagrammatic representation of a system 500 in which embodiments may operate, be installed, integrated, or configured.

[00095] In one embodiment, system 500 includes a memory 595 and a processor or processors 590. For example, memory 595 may store instructions to be executed and processor(s) 590 may execute such instructions. Processor(s) 590 may also implement or execute implementing logic 560 having logic to implement the methodologies discussed herein. System 500 includes communication bus(es) 515 to transfer transactions, instructions, requests, and data within system 500 among a plurality of peripheral devices communicably interfaced with one or more communication buses 515. In one embodiment, system 500 includes a communication means 515 to interface, transfer, transact, relay, and and/or communicate information, transactions, instructions, requests, and data within system 500, and among plurality of peripheral devices. System 500 further includes management interface 525, for example, to receive requests, return responses, and otherwise interface with network elements located separately from system 500.

[00096] In some embodiments, management interface 525 communicates information via an out-of-band connection separate from LAN and/or WAN based communications, where "in-band" communications are communications that traverse the same communication means as payload data (e.g., content) being exchanged between networked devices and where "out-

of-band" communications are communications that traverse an isolated communication means, separate from the mechanism for communicating the payload data. An out-of-band connection may serve as a redundant or backup interface over which to communicate control data between the management device 170 and other networked devices or between the management device 170 and a third party service provider.

[00097] System 500 further includes LAN interface 530 to communicate information via a LAN based connection, including collecting LAN information from within a LAN, reporting information and diagnostics to other entities within the LAN, and for initiating instructions and commands over the LAN. Information communicated via a LAN interface 530 may, in some embodiments, traverse the LAN to a LAN to WAN interface and continue to a destination within a connected WAN. System 500 further includes WAN interface 535 to communicate information via a WAN based connection, including collecting WAN information from within a WAN, reporting information and diagnostics to other entities within the WAN, and for initiating instructions and commands over the WAN. Information communicated via WAN interface 535 may, in some embodiments, traverse the WAN to a WAN to LAN interface and continue to a LAN based destination.

[00098] System 500 further includes stored historical information 550 that may be analyzed or referenced when conducting long term trending analysis and reporting. System 500 may further include multiple management events 555, any of which may be initiated responsive to the identification of an operational condition. For example, corrective actions, additional diagnostics, information probes, configuration change requests, local commands, remote execution commands, and the like may be specified by and triggered as a management event 555. Similarly, operational reports, configuration reports, network activity reports and diagnostic reports may be generated and sent in accordance with stored management events 555. The stored historical information 550 and the management events 555 may be stored upon a hard drive, persistent data store, a database, or other storage location within system 500.

[00099] Distinct within system 500 is Management Device 501 which includes collection module 570, analysis module 575, diagnostics module 580, and implementation module 585. Management Device 501 may be installed and configured in a compatible system 500 as is depicted by Figure 5, or provided separately so as to operate in conjunction with appropriate implementing logic 560 or other software.

[000100] In accordance with one embodiment, collection module 570 collects information from available sources, such as LAN information and WAN information via interfaces of system 500, including one or more of management interface 525, LAN interface 530, and/or WAN interface 535. Analysis module 575 analyzes the information retrieved via collection module 570. In some embodiments, LAN information and WAN information is jointly analyzed to identify an operational condition within the LAN based on collected WAN information or identify an operational condition within the WAN based on collected LAN information. Analysis module 575 may further perform long term trending analysis based on stored historical information 550 or conduct neighborhood analysis based on aggregation data yielded from multiple separate and distinct LANs. Diagnostics module 580 may conduct specialized diagnostic routines and algorithms in conjunction with or separately from analysis module 575. Diagnostics module 580 may conduct additional probing diagnostics to retrieve or trigger the output of additional diagnostics information for further analysis. Implementation module 585 implements and initiates various management events 555 including generating and instantiating instructions for local or remote execution, generating and transmitting configuration change requests, generating and sending operational reports, diagnostic reports, and configuration reports.

[000101] **Figures 6A, 6B**, and **6C** are flow diagrams illustrating methods for jointly optimizing WAN and LAN network communications in accordance with described embodiments. Methods 600A, 600B, and/or 600C may be performed by processing logic that may include hardware (e.g., circuitry, dedicated logic, programmable logic, microcode, etc.), software (e.g., instructions run on a processing device to perform various operations such as interfacing functions, collecting, monitoring, diagnosing and reporting information, and executing/imitating management events, commands and instructions responsive to analysis and diagnosis, or some combination thereof. In one embodiment, methods 600A, 600B, and 600C are performed by a Management device such as that depicted at element 170 of Figure 1 or via a Management Device such as that depicted at element 501 of Figure 5. Some of the blocks and/or operations listed below are optional in accordance with certain embodiments. The numbering of the blocks presented is for the sake of clarity and is not intended to prescribe an order of operations in which the various blocks must occur.

[000102] Method 600A begins with processing logic for communicably interfacing a management device with a Local Area Network (LAN) and a Wide Area Network (WAN) as set forth at block 602. At block 604, processing logic collects WAN diagnostic information

from a WAN and at block 606, processing logic collects LAN diagnostic information from a LAN.

[000103] At block 608, processing logic jointly analyzes the collected WAN diagnostic information and the collected LAN diagnostic information to diagnose a fault within the WAN based at least in part on the LAN diagnostic information or to diagnose a fault within the LAN based at least in part on the WAN diagnostic information.

[000104] At block 610, processing logic initiates a management event responsive to the fault being identified. Initiating a management event may include performing one or more various functions including: generating and transmitting a diagnostic report identifying the fault diagnosed within the WAN or identifying the fault diagnosed within the LAN based on the joint analysis as set forth at block 612; generating instructions to remedy the fault diagnosed within the WAN or to remedy the fault diagnosed within the LAN based on the joint analysis as set forth at block 614; and instantiating execution of the instructions to remedy the fault in at least one of the management device, a LAN device connected via the LAN interface, a WAN device connected via the WAN interface, or a network element connected to the management device via a management interface (block 616).

[000105] Method 600B begins with processing logic at block 630 communicably interfacing the management device with a Local Area Network (LAN) and a Wide Area Network (WAN).

[000106] At block 632, processing logic collects WAN information from the WAN and LAN information from the LAN. At block 634, processing logic jointly analyzes the collected WAN information and the collected LAN information to identify an operational condition and at block 636, processing logic initiates a management event responsive to the operational condition being identified.

[000107] Initiating a management event may include performing one or more various functions including: Generating and transmitting an operational report describing the operational configuration of a communication channel related to the WAN and the LAN based on the joint analysis as set forth at block 638; storing collected WAN information as historical WAN information and storing collected LAN information as historical LAN information as set forth at block 640; performing historical performance trending analysis based on stored historical WAN information and stored historical LAN information as set forth at block 642; and generating and transmitting a historical performance trending report

describing the historical operational performance of a communication channel related to the WAN and the LAN as set forth at block 644.

[000108] At block 646, processing logic initiates a management event responsive to analysis of the stored historical WAN information or responsive to analysis of the stored historical LAN information, or responsive to analysis of both.

[000109] Method 600C begins with processing logic at block 660 communicatively interfacing the management device with a Local Area Network (LAN) and a Wide Area Network (WAN). At block 662, processing logic collects WAN information from the WAN and LAN information from the LAN. At block 664, processing logic jointly analyzes the collected WAN information and the collected LAN information to identify an operational condition and at block 666, processing logic initiates a management event responsive to the operational condition being identified.

[000110] Initiating a management event may include performing one or more various functions including: generating and executing commands against a LAN device to change the configuration of the LAN device commands based on the joint analysis as set forth at block 668; and/or generating and sending a request to a WAN operator triggering the WAN operator to implement a requested configuration change based on the joint analysis as set forth at block 670.

[000111] At block 672, processing logic collects neighborhood information that is not yet analyzed from one or more WANs, from one or more LANs, or from a combination of WANs and LANs. Such information may be collected and subsequently aggregated and/or analyzed by a management device to generate neighborhood analysis.

[000112] At block 674, processing logic collects neighborhood analysis from a WAN having aggregated LAN information or LAN information corresponding to multiple separate and distinct LANs; and at block 676, processing logic initiates a management event responsive to analysis of the neighborhood analysis.

[000113] **Figure 7** illustrates a diagrammatic representation of a machine 700 in the exemplary form of a computer system, in accordance with one embodiment, within which a set of instructions, for causing the machine 700 to perform any one or more of the methodologies discussed herein, may be executed. In alternative embodiments, the machine may be connected (e.g., networked) to other machines in a Local Area Network (LAN), a Wide Area Network, an intranet, an extranet, or the Internet. The machine may operate in the capacity of a server or a client machine in a client-server network environment, or as a peer

machine in a peer-to-peer (or distributed) network environment or as a server or series of servers within an on-demand service environment, including an on-demand environment providing database storage services. Certain embodiments of the machine may be in the form of a personal computer (PC), a tablet PC, a set top box (STB), a Personal Digital Assistant (PDA), a cellular telephone, a web appliance, a server, a network router, switch or bridge, computing system, or any machine capable of executing a set of instructions (sequential or otherwise) that specify actions to be taken by that machine. Further, while only a single machine is illustrated, the term "machine" shall also be taken to include any collection of machines (e.g., computers) that individually or jointly execute a set (or multiple sets) of instructions to perform any one or more of the methodologies discussed herein.

[000114] The exemplary computer system 700 includes a processor 702, a main memory 704 (e.g., read-only memory (ROM), flash memory, dynamic random access memory (DRAM) such as synchronous DRAM (SDRAM) or Rambus DRAM (RDRAM), etc., static memory such as flash memory, static random access memory (SRAM), volatile but high-data rate RAM, etc.), and a secondary memory 718 (e.g., a persistent storage device including hard disk drives and persistent data base implementations), which communicate with each other via a bus 730. Main memory 704 includes information and instructions and software program components necessary for performing and executing the functions with respect to the various embodiments of the Management Device as described herein. For example, historical WAN/LAN information 724 may include previously collected LAN information from a LAN and WAN information from a LAN which may be collected over a period of time and referenced later for performing trending analysis. Management events 723 may be stored within main memory 704 and triggered or initiated responsive to analysis of LAN and/or WAN information collected by management device 734. Main memory 704 and its sub-elements (e.g. 723 and 724) are operable in conjunction with processing logic 726 and/or software 722 and processor 702 to perform the methodologies discussed herein.

[000115] Processor 702 represents one or more general-purpose processing devices such as a microprocessor, central processing unit, or the like. More particularly, the processor 702 may be a complex instruction set computing (CISC) microprocessor, reduced instruction set computing (RISC) microprocessor, very long instruction word (VLIW) microprocessor, processor implementing other instruction sets, or processors implementing a combination of instruction sets. Processor 702 may also be one or more special-purpose processing devices such as an application specific integrated circuit (ASIC), a field programmable gate array

(FPGA), a digital signal processor (DSP), network processor, or the like. Processor 702 is configured to execute the processing logic 726 for performing the operations and functionality which is discussed herein.

[000116] The computer system 700 may further include one or more network interface cards 708 to communicatively interface the computer system 700 with one or more networks 720 from which information may be collected for analysis. The computer system 700 also may include a user interface 710 (such as a video display unit, a liquid crystal display (LCD), or a cathode ray tube (CRT)), an alphanumeric input device 712 (e.g., a keyboard), a cursor control device 714 (e.g., a mouse), and a signal generation device 716 (e.g., an integrated speaker). The computer system 700 may further include peripheral device 736 (e.g., wireless or wired communication devices, memory devices, storage devices, audio processing devices, video processing devices, etc.). The computer system 700 may perform the functions of a Management Device 734 capable interfacing networks, monitoring, collecting, analyzing, and reporting information, and initiating, triggering, and executing various management events including the execution of commands and instructions to alter an identified operational condition or perform corrective measures on a diagnosed fault, as well as the various other functions and operations described herein.

[000117] The secondary memory 718 may include a non-transitory machine-readable storage medium (or more specifically a non-transitory machine-accessible storage medium) 731 on which is stored one or more sets of instructions (e.g., software 722) embodying any one or more of the methodologies or functions described herein. Software 722 may also reside, or alternatively reside within main memory 704, and may further reside completely or at least partially within the processor 702 during execution thereof by the computer system 700, the main memory 704 and the processor 702 also constituting machine-readable storage media. The software 722 may further be transmitted or received over a network 720 via the network interface card 708.

[000118] While the subject matter disclosed herein has been described by way of example and in terms of the specific embodiments, it is to be understood that the claimed embodiments are not limited to the explicitly enumerated embodiments disclosed. To the contrary, the disclosure is intended to cover various modifications and similar arrangements as would be apparent to those skilled in the art. Therefore, the scope of the appended claims should be accorded the broadest interpretation so as to encompass all such modifications and similar arrangements. It is to be understood that the above description is intended to be

illustrative, and not restrictive. Many other embodiments will be apparent to those of skill in the art upon reading and understanding the above description. The scope of the disclosed subject matter is therefore to be determined in reference to the appended claims, along with the full scope of equivalents to which such claims are entitled.

CLAIMS

What is claimed is:

1. A management device, comprising:

a Local Area Network (LAN) interface to communicably interface the management device with a LAN;

a Wide Area Network (WAN) interface to communicably interface the management device with a WAN, wherein the WAN provides broadband connectivity to the LAN through a Digital Subscription Line (DSL) connection;

a collection module to collect LAN information from the LAN and WAN information from the WAN;

an analysis module to jointly analyze the collected WAN information and the collected LAN information to identify an operational condition; and

an implementation module to initiate a management event responsive to the operational condition being identified.

SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS

ABSTRACT

Described are systems and methods for jointly optimizing Wide Area Network (WAN) and Local Area Network (LAN) network communications. In one embodiment, a management device communicatively interfaced with a WAN and a LAN includes a collection module to collect LAN information from the LAN and WAN information from the WAN; an analysis module to jointly analyze the collected WAN information and the collected LAN information to identify an operational condition; and an implementation module to initiate a management event responsive to the operational condition being identified. In one embodiment, the management event includes generating and transmitting a diagnostics report responsive to a fault being identified. The management device may further generate and execute instructions to remedy the diagnosed fault.

FIG. 1

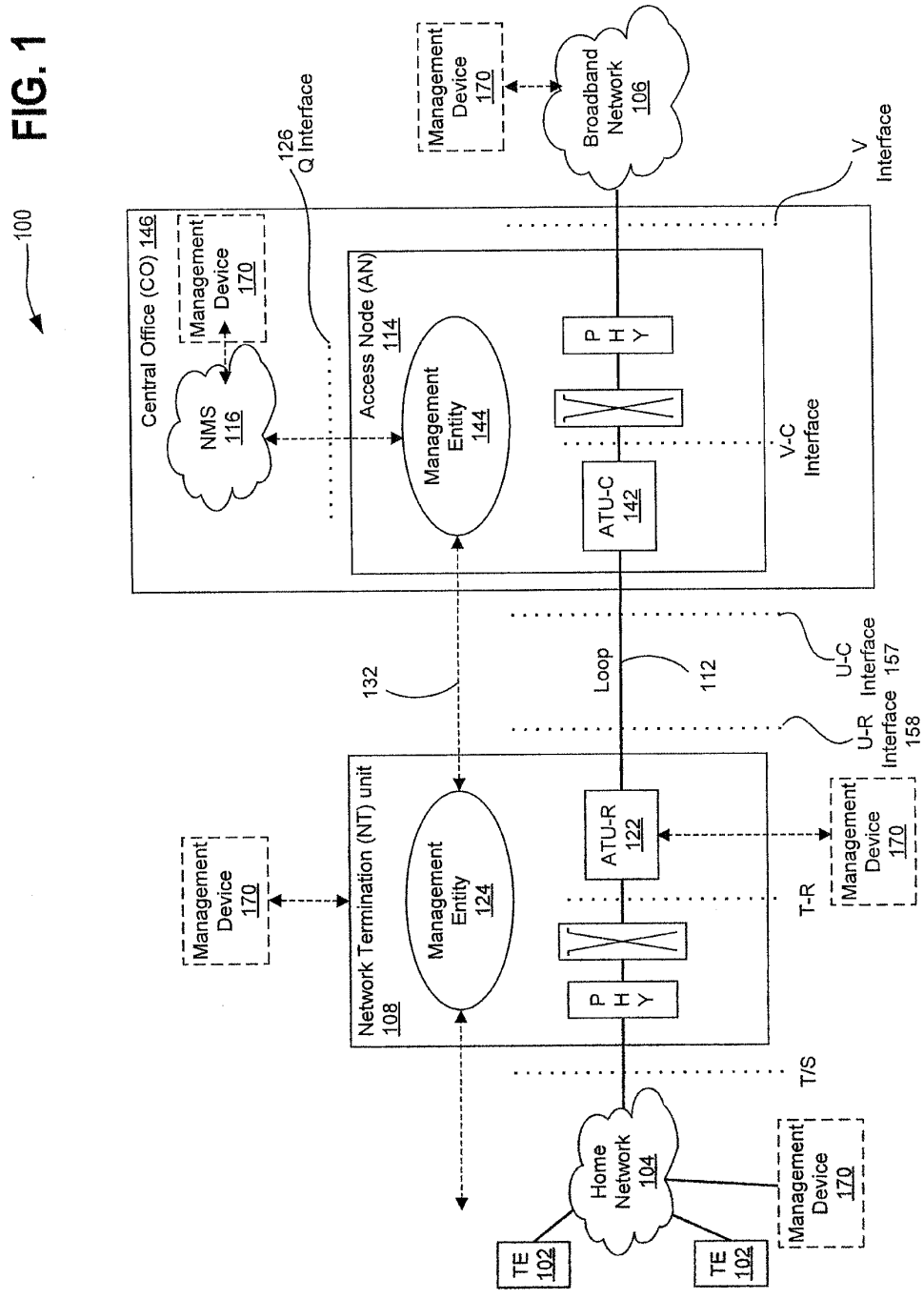

100
Central Office (CO) 146
Management Device 170
NMS 116
126 Q Interface
Access Node (AN) 114
Management Entity 144
ATU-C 142
P H Y
V-C Interface
Management Device 170
Broadband Network 106
V Interface
132
Loop
112
U-C Interface 157
U-R Interface 158
Management Device 170
Network Termination (NT) unit 108
Management Entity 124
ATU-R 122
P H Y
T-R
Management Device 170
T/S
Home Network 104
TE 102
TE 102
Management Device 170

FIG. 2

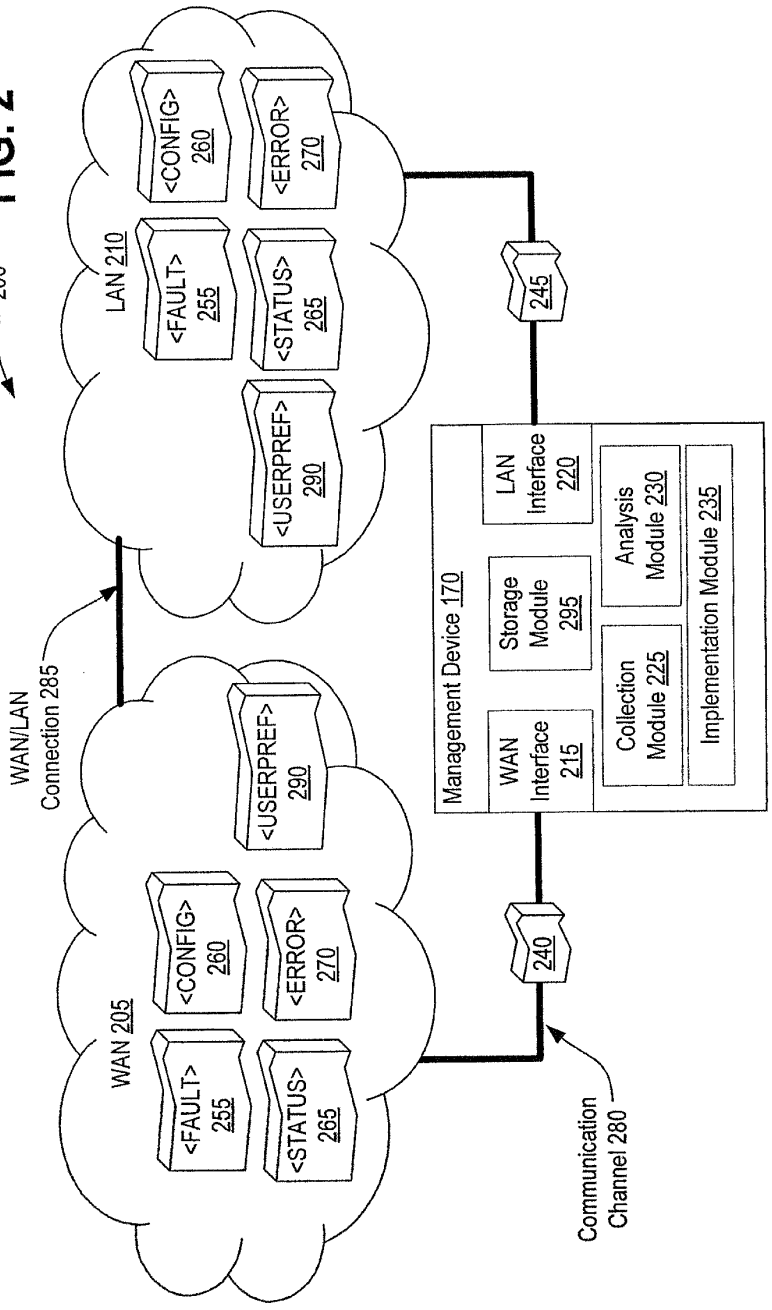

200
LAN 210
<CONFIG> 260
<ERROR> 270
<FAULT> 255
<STATUS> 265
<USERPREF> 290
245
WAN/LAN Connection 285
Management Device 170
LAN Interface 220
Storage Module 295
Analysis Module 230
WAN Interface 215
Collection Module 225
Implementation Module 235
WAN 205
<USERPREF> 290
<CONFIG> 260
<ERROR> 270
<FAULT> 255
<STATUS> 265
240
Communication Channel 280

FIG. 3

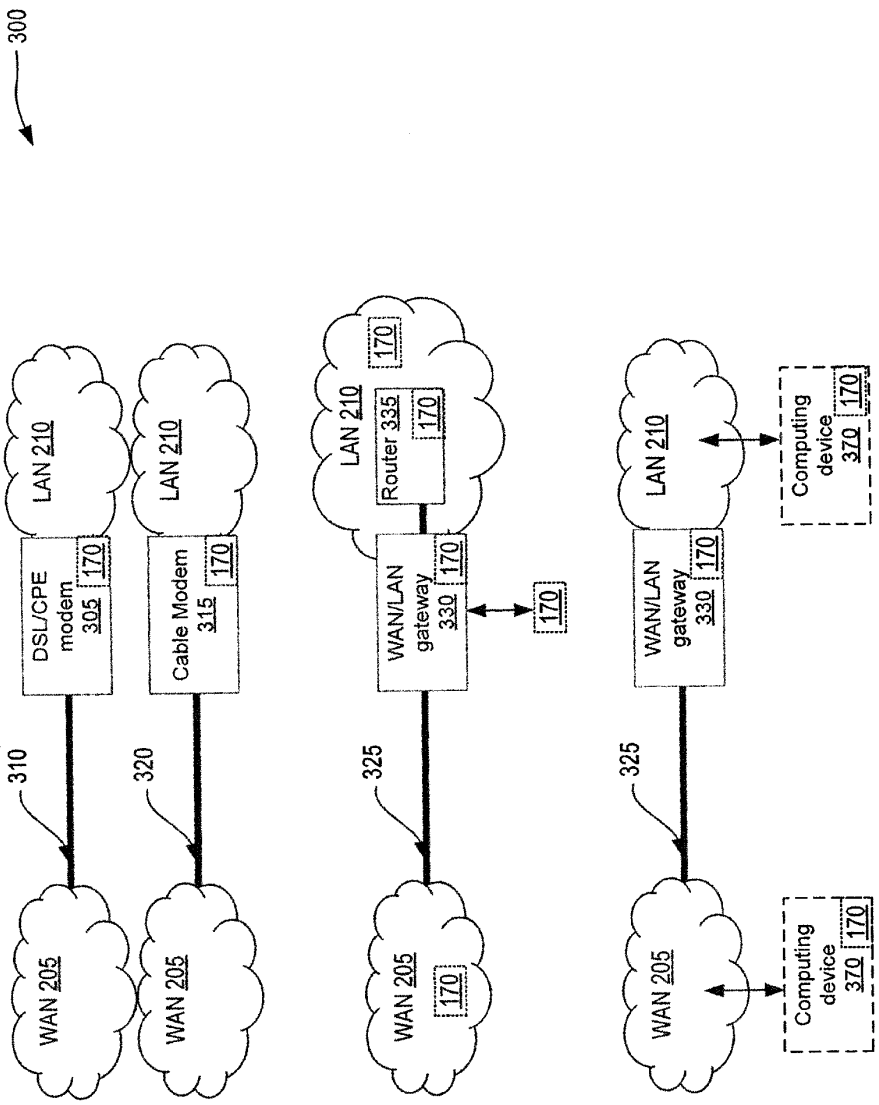
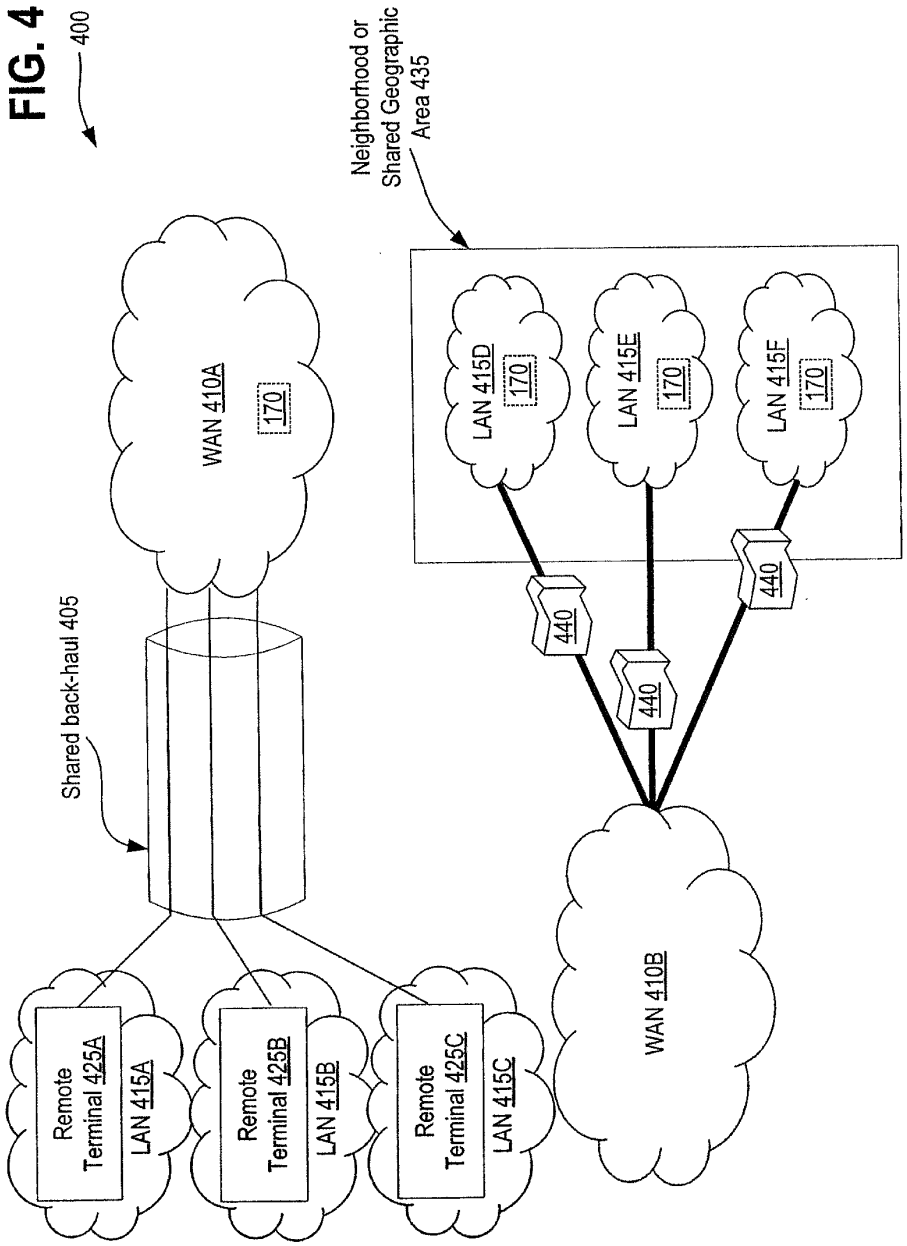

300
LAN 210
DSL/CPE modem 305
170
LAN 210
Cable Modem 315
170
310
320
WAN 205
WAN 205
LAN 210
170
Router 335
170
WAN/LAN gateway 330
170
170
325
WAN 205
170
LAN 210
WAN/LAN gateway 330
170
Computing device 370
170
325
WAN 205
Computing device 370
170

FIG. 4


400
Neighborhood or Shared Geographic Area 435
WAN 410A
170
LAN 415D
170
LAN 415E
170
LAN 415F
170
440
440
440
Shared back-haul 405
Remote Terminal 425A
LAN 415A
Remote Terminal 425B
LAN 415B
Remote Terminal 425C
LAN 415C
WAN 410B

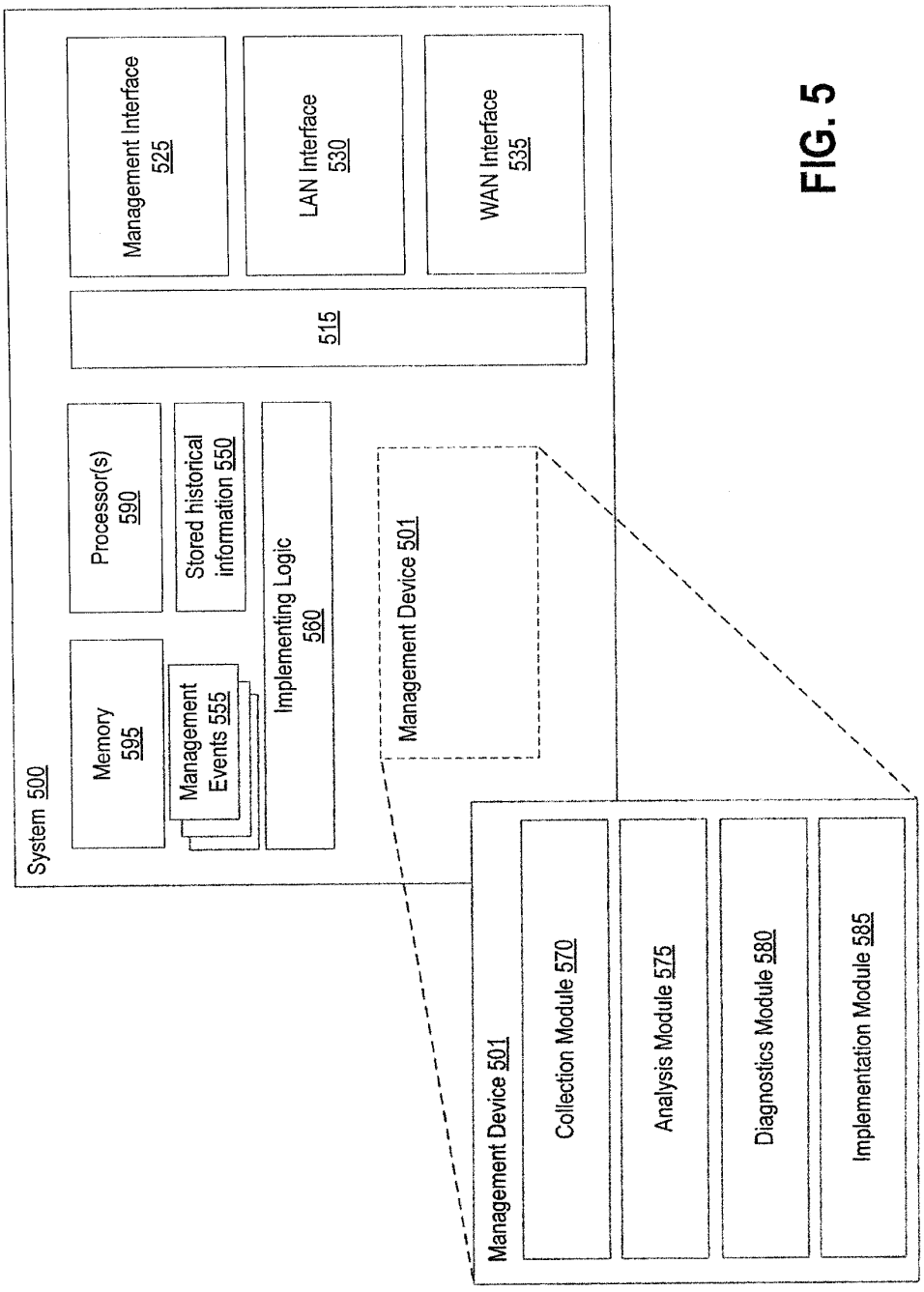

System 500
Memory 595
Management Events 555
Implementing Logic 560
Processor(s) 590
Stored historical information 550
515
Management Interface 525
LAN Interface 530
WAN Interface 535
Management Device 501
Management Device 501
Collection Module 570
Analysis Module 575
Diagnostics Module 580
Implementation Module 585

FIG. 5

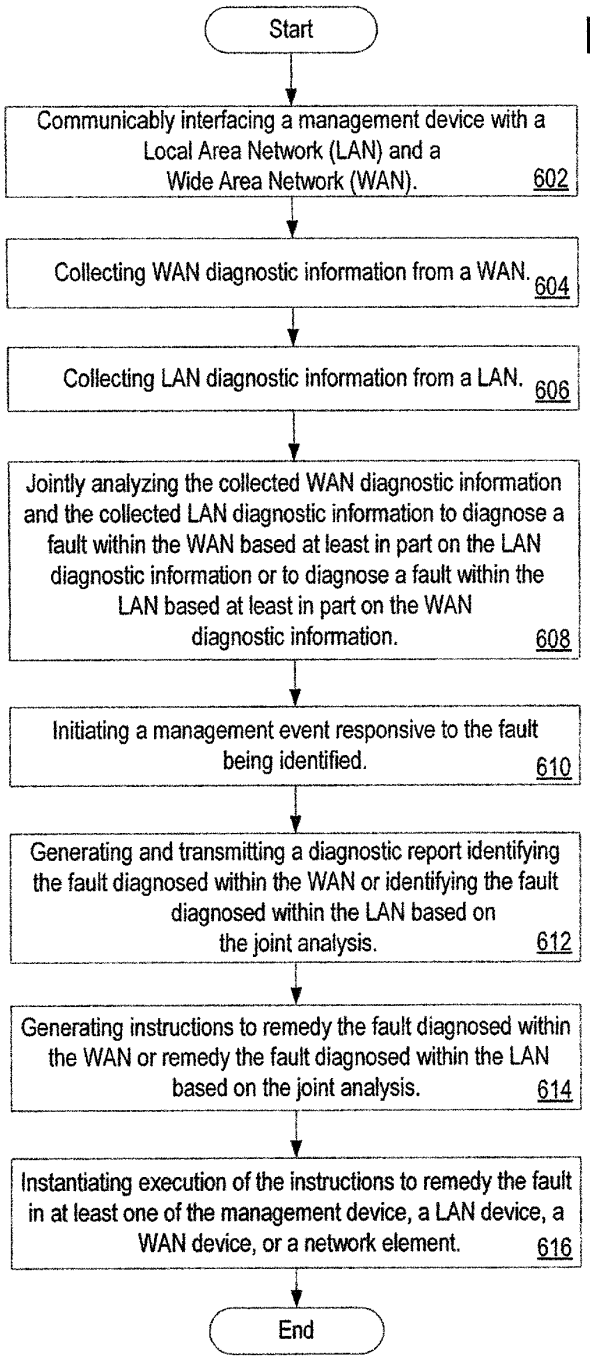

Start
Communicably interfacing a management device with a Local Area Network (LAN) and a Wide Area Network (WAN). 602
Collecting WAN diagnostic information from a WAN. 604
Collecting LAN diagnostic information from a LAN. 606
Jointly analyzing the collected WAN diagnostic information and the collected LAN diagnostic information to diagnose a fault within the WAN based at least in part on the LAN diagnostic information or to diagnose a fault within the LAN based at least in part on the WAN diagnostic information. 608
Initiating a management event responsive to the fault being identified. 610
Generating and transmitting a diagnostic report identifying the fault diagnosed within the WAN or identifying the fault diagnosed within the LAN based on the joint analysis. 612
Generating instructions to remedy the fault diagnosed within the WAN or remedy the fault diagnosed within the LAN based on the joint analysis. 614
Instantiating execution of the instructions to remedy the fault in at least one of the management device, a LAN device, a WAN device, or a network element. 616
End

FIG. 6A

600A

FIG. 6B

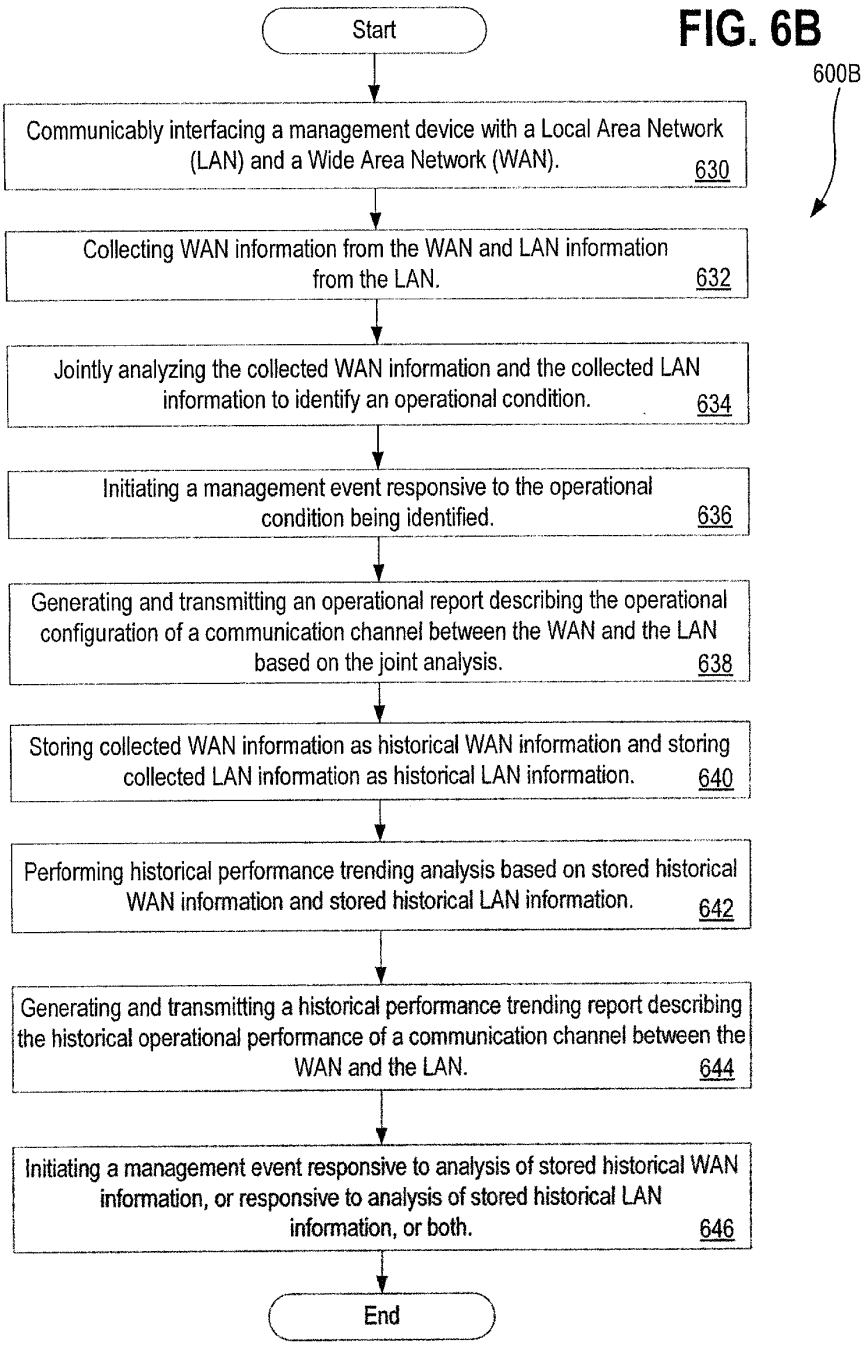
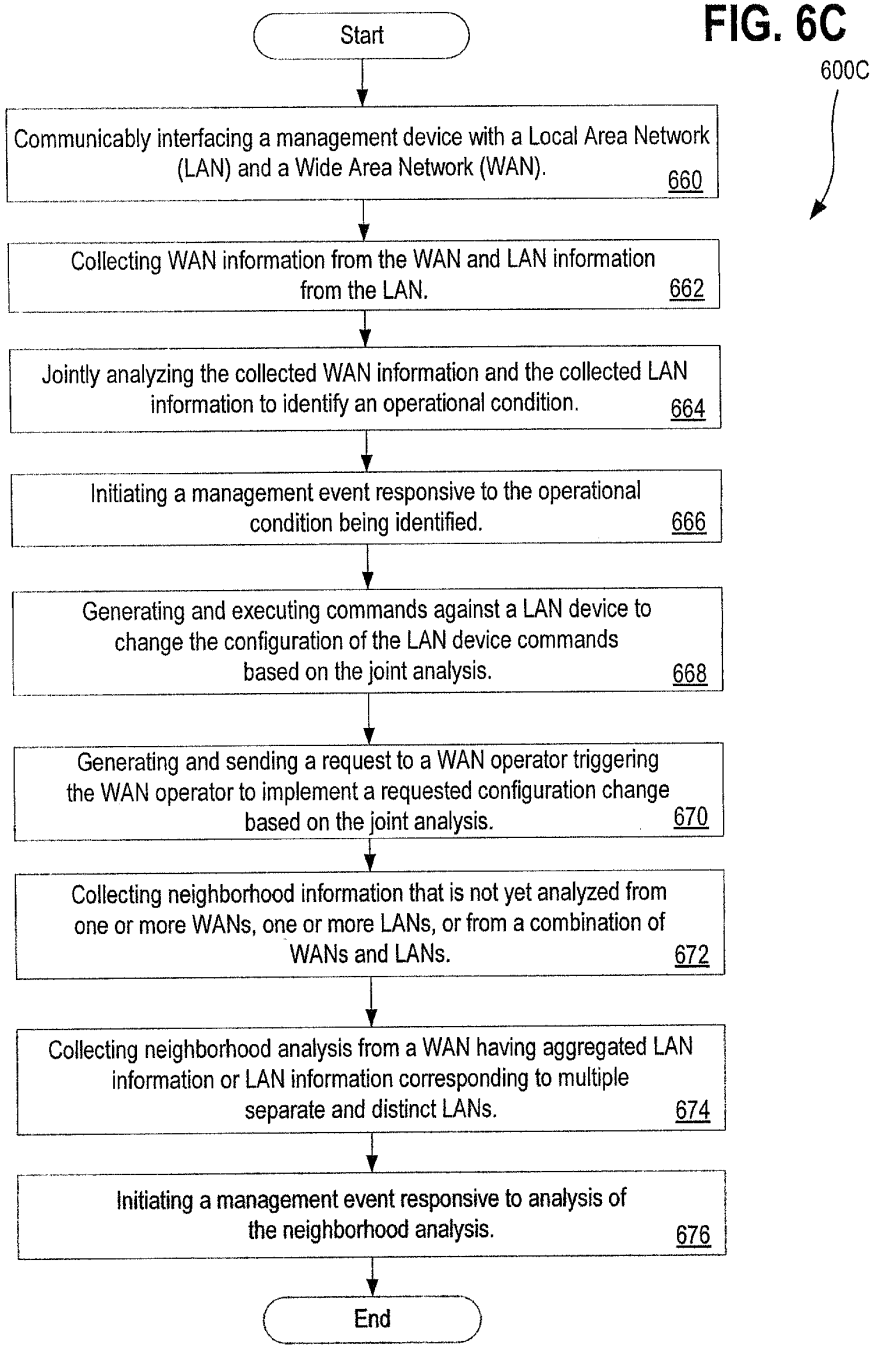
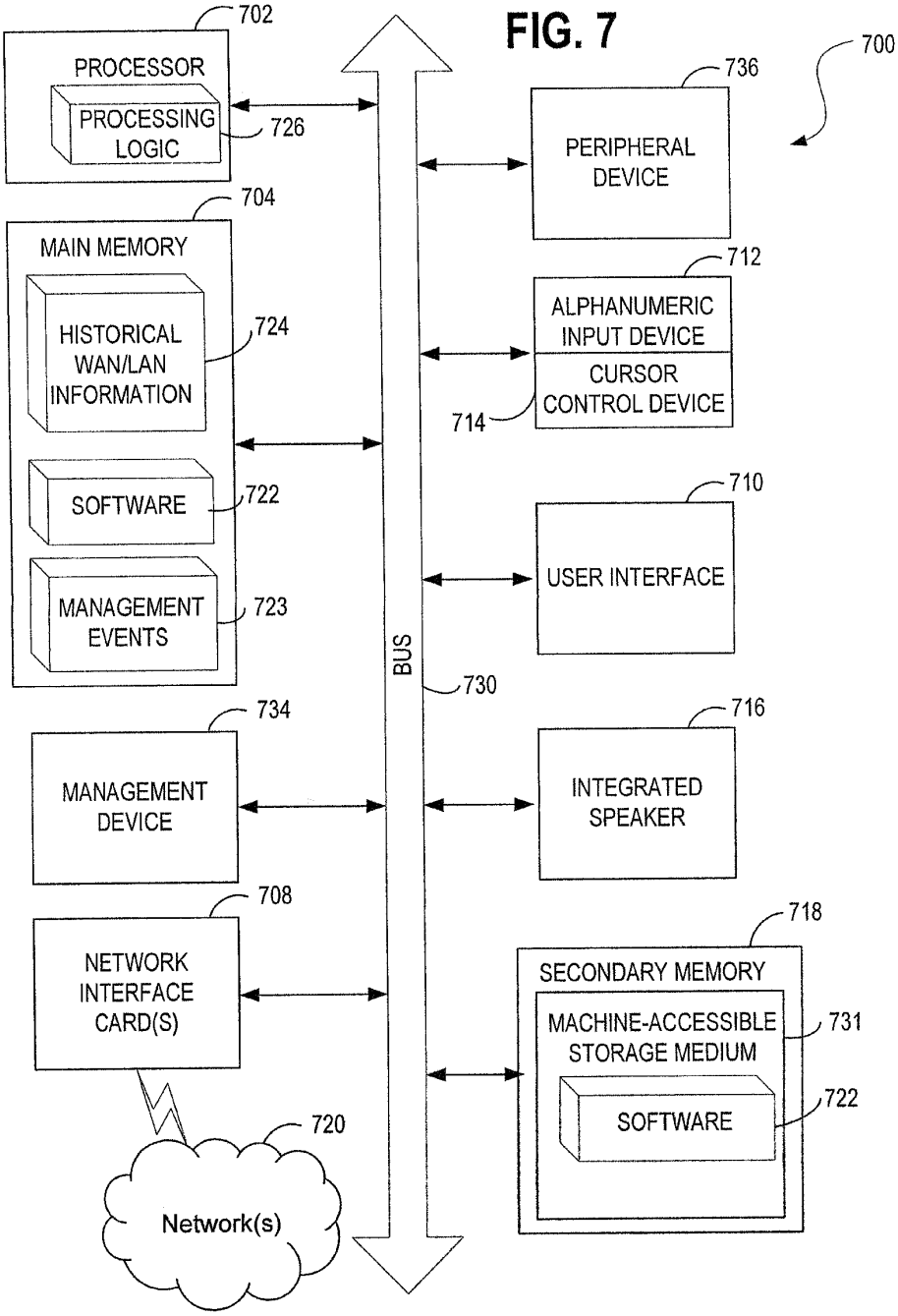

600B
Start
Communicably interfacing a management device with a Local Area Network (LAN) and a Wide Area Network (WAN). 630
Collecting WAN information from the WAN and LAN information from the LAN. 632
Jointly analyzing the collected WAN information and the collected LAN information to identify an operational condition. 634
Initiating a management event responsive to the operational condition being identified. 636
Generating and transmitting an operational report describing the operational configuration of a communication channel between the WAN and the LAN based on the joint analysis. 638
Storing collected WAN information as historical WAN information and storing collected LAN information as historical LAN information. 640
Performing historical performance trending analysis based on stored historical WAN information and stored historical LAN information. 642
Generating and transmitting a historical performance trending report describing the historical operational performance of a communication channel between the WAN and the LAN. 644
Initiating a management event responsive to analysis of stored historical WAN information, or responsive to analysis of stored historical LAN information, or both. 646
End

FIG. 6C


600C
Start
Communicably interfacing a management device with a Local Area Network (LAN) and a Wide Area Network (WAN). 660
Collecting WAN information from the WAN and LAN information from the LAN. 662
Jointly analyzing the collected WAN information and the collected LAN information to identify an operational condition. 664
Initiating a management event responsive to the operational condition being identified. 666
Generating and executing commands against a LAN device to change the configuration of the LAN device commands based on the joint analysis. 668
Generating and sending a request to a WAN operator triggering the WAN operator to implement a requested configuration change based on the joint analysis. 670
Collecting neighborhood information that is not yet analyzed from one or more WANs, one or more LANs, or from a combination of WANs and LANs. 672
Collecting neighborhood analysis from a WAN having aggregated LAN information or LAN information corresponding to multiple separate and distinct LANs. 674
Initiating a management event responsive to analysis of the neighborhood analysis. 676
End


FIG. 7
700
702
PROCESSOR
PROCESSING LOGIC
726
704
MAIN MEMORY
HISTORICAL WAN/LAN INFORMATION
724
SOFTWARE
722
MANAGEMENT EVENTS
723
734
MANAGEMENT DEVICE
708
NETWORK INTERFACE CARD(S)
720
Network(s)
BUS
730
736
PERIPHERAL DEVICE
712
ALPHANUMERIC INPUT DEVICE
CURSOR CONTROL DEVICE
714
710
USER INTERFACE
716
INTEGRATED SPEAKER
718
SECONDARY MEMORY
MACHINE-ACCESSIBLE STORAGE MEDIUM
731
SOFTWARE
722

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DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

Title of Invention	SYSTEM AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORKS COMMUNICATIONS

As the below named inventor, I hereby declare that:

This declaration is directed to:

☐ The attached application, or

☒ United States application or PCT international application number 13/995,900 filed on June 19, 2013.

United States application or PCT international application number PCT/US11/21003 filed on January 12, 2011.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

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LEGAL NAME OF INVENTOR

Citizenship: US

Inventor: Peter Chow

Date (Optional): 9/30/13

Signature: Peter Chow

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

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LEGAL NAME OF INVENTOR

Citizenship: US

Inventor: Marc Goldburg

Date (Optional): 9/22/13

Signature:

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LEGAL NAME OF INVENTOR

Citizenship: KR

Inventor: Wonjong Rhee

Date (Optional): Oct 2, 2013

Signature: Wonjong Rhee

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LEGAL NAME OF INVENTOR

Citizenship: US

Inventor: Ardavan Maleki Tehrani

Date (Optional): 9/27/13

Signature: Ardavan Maleki Tehrani

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. 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 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS
First Named Inventor/Applicant Name:	Peter Chow
Filer:	Usman Mughal
Attorney Docket Number:	03.P049USC

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Utility filing Fee (Electronic filing)	4011	1	70	70
Utility Search Fee	2111	1	300	300
Utility Examination Fee	2311	1	360	360
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**730**

Electronic Acknowledgement Receipt

EFS ID:	26065822
Application Number:	15182513
International Application Number:	
Confirmation Number:	6886
Title of Invention:	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS
First Named Inventor/Applicant Name:	Peter Chow
Customer Number:	136402
Filer:	Usman Mughal/Erin Hudjohn
Filer Authorized By:	Usman Mughal
Attorney Docket Number:	03.P049USC
Receipt Date:	14-JUN-2016
Filing Date:	
Time Stamp:	20:03:49
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$730
RAM confirmation Number	061516INTEFSW20055800
Deposit Account	3005
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	03P049USC_ADS.pdf	1926177 65b36653d80b2d073ea914e0ad46025690d3d90b	no	9
Warnings:					
Information:					
2		03P049USC_Application.pdf	662024 d1f88212267d677afde4bf66405ff53aeebe7bc7	yes	40

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Specification	1	38
Claims	39	39
Abstract	40	40

Warnings:					
Information:					
3	Drawings-only black and white line drawings	03P049USC_Drawings.pdf	1541211 e56b27375b1f2fbdf91c709c2b8d0ae5c1a30d1c	no	9
Warnings:					
Information:					
4	Oath or Declaration filed	03P049USC_Declarations.pdf	906405 fdab4e311b2814ad749ff773628f7830088f72d4	no	4
Warnings:					
Information:					
5	Fee Worksheet (SB06)	fee-info.pdf	35216 3035680a41cdd6b59f8f51c0b3f2696bacfef09e	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	5071033		

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.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 15/182,513

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	70		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	300		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	360		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	1 minus 20 =	*	x 40 =	0.00	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	1 minus 3 =	*	x 210 =	0.00			
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).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	730		TOTAL	

APPLICATION AS AMENDED - PART II

AMENDMENT A

	(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($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
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	

AMENDMENT B

	(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 found in the appropriate box in column 1.

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
15/182,513	06/14/2016	2684	730	03.P049USC	1	1

CONFIRMATION NO. 6886

136402
Green, Howard, & Mughal LLP
5 Centerpointe Dr.
Suite 400
LAKE OSWEGO, OR 97035

FILING RECEIPT



Date Mailed: 06/27/2016

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. 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 submit a written request for a Filing Receipt Correction. 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**

Inventor(s)

Peter Chow, Los Altos, CA;
Wonjong Rhee, San Francisco, CA;
Ardavan Maleki Tehrani, Menlo Park, CA;
Marc Goldburg, Redwood City, CA;

Applicant(s)

Adaptive Spectrum and Signal Alignment, Inc., Redwood City, CA;

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a CON of 13/995,900 07/08/2014 PAT 9369370
which is a 371 of PCT/US11/21003 01/12/2011

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 06/24/2016

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/182,513**

Projected Publication Date: 10/06/2016

Non-Publication Request: No

Early Publication Request: No
**** SMALL ENTITY ****
Title

SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS

Preliminary Class

340

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

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 (1-866-999-4258).

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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This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/182,513	06/14/2016	Peter Chow	03.P049USC	6886

136402 7590 09/23/2016

Green, Howard, & Mughal LLP
5 Centerpointe Dr.
Suite 400
LAKE OSWEGO, OR 97035

EXAMINER	
DUONG, DUC T	

ART UNIT	PAPER NUMBER
2467	

NOTIFICATION DATE	DELIVERY MODE
09/23/2016	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):

docketing@ghmip.com

Office Action Summary	Application No. 15/182,513	Applicant(s) CHOW ET AL.	
	Examiner DUC DUONG	Art Unit 2467	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* MONTHS 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 *6/14/16*.

☐ 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* 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* 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 *6/14/16* 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.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

DETAILED ACTION

1. The present application is being examined under the pre-AIA first to invent provisions.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claim 1 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claim(s) does/do not fall within at least one of the four categories of patent eligible subject matter because the claimed invention is directed to a judicial exception (i.e., a law of nature, a natural phenomenon, or an abstract idea) without significantly more. Claim 1 is directed to an abstract idea. The claim(s) does/do not include additional elements that are sufficient to amount to significantly more than the judicial exception because the “collecting”, “analyzing”, and “initiating” steps represent routine data gathering and analyzing to determine an alarm event. Such steps would be routinely used by those of ordinary skill in the art to trigger the alarm. Therefore, the additional steps do not add significantly more to the abstract idea. Claim 1 is ineligible.

Claim Rejections - 35 USC § 112

4. The following is a quotation of 35 U.S.C. 112(b):

> (b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:

> 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.

5. Claim 1 is rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.

Claim elements “collection module”, “analysis module”, and implementation module” are limitations that invoke 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph. However, the written description fails to disclose the corresponding structure, material, or acts for the claimed function. Fig. 2 page 11 paragraph 0038-0039 of the specification designate “black boxes” to perform the limitations, and as such the specification fails to disclose a specific structure for the claim limitations (i.e. how/what such “module” is implemented with)

Applicant may:

(a) Amend the claim so that the claim limitation will no longer be interpreted as a limitation under 35 U.S.C. 112(f) or pre-AIA 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 should clarify the record by either:

(a) 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)); or

(b) Stating on the record what the corresponding structure, material, or acts, which are implicitly or inherently set forth in the written description of the specification, perform the claimed function. For more information, see 37 CFR 1.75(d) and MPEP §§ 608.01(o) and 2181.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of pre-AIA 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.

7. Claim 1 is rejected under pre-AIA 35 U.S.C. 102(b) as being anticipated by Son (US Publishing 2003/0145082 A1).

Regarding to claim 1, Son discloses a management device 106 (fig. 2), comprising a Local Area Network LAN interface 208 to communicably interface the management device with a LAN (page 2 paeagraph 0021); a Wide Area Network WAN interface 204 to communicably interface the management device with a WAN (page 2 paragraph 0021), wherein the WAN provides broadband connectivity to the LAN through a Digital Subscription Line DSL connection (page 1 paragraph 0016); a collection module 212 to collect LAN information from the LAN and WAN information

from the WAN (page 2 paragraph 0026); an analysis module 216 to jointly analyze the collected WAN information and the collected LAN information to identify an operational condition (page 2 paragraph 0026); and an implementation module 214 to initiate a management event responsive to the operational condition being identified (page 2 paragraph 0029).

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DUC DUONG whose telephone number is (571)272-3122. The examiner can normally be reached on M-F (9:00 AM-6:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Phillips can be reached on 571-272-3940. 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.

/DUC DUONG/
Examiner, Art Unit 2467

Notice of References Cited	Application/Control No. 15/182,513	Applicant(s)/Patent Under Reexamination CHOW ET AL.	
	Examiner DUC DUONG	Art Unit 2467	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-2006/0218267 A1	09-2006	Khan; Irfan Z.	H04L12/24	709/224
*	B	US-2002/0198952 A1	12-2002	Bell, Russell W.	H04L12/2801	709/208
*	C	US-2012/0053901 A1	03-2012	Arefeen; Mohammed	G05B23/0213	702/183
	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	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
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CONFIRMATION NO. 6886

SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
15/182,513	06/14/2016	370	2467	03.P049USC

APPLICANTS

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INVENTORS

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Marc Goldburg, Redwood City, CA;

**** CONTINUING DATA **************************

This application is a CON of 13/995,900 07/08/2014 PAT 9369370
which is a 371 of PCT/US11/21003 01/12/2011

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

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED **** ** SMALL ENTITY **
06/24/2016

Foreign Priority claimed ☐ Yes ☑ No 35 USC 119(a-d) conditions met ☐ Yes ☑ No Verified and Acknowledged /DUC T DUONG/ Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		CA	9	1	1

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Suite 400
LAKE OSWEGO, OR 97035
UNITED STATES

TITLE

SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS

FILING FEE RECEIVED		
730	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
	15182513	CHOW ET AL.
	Examiner	Art Unit
	DUC DUONG	2467

✓	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	09/19/2016								
	1	✓								

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	4820	(monitor$3 or detect$3 or detemin$3) with lan with wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:25
S2	355	(monitor$3 or detect$3 or detemin$3 or identify) with lan with wan with (condition or status or state)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:27
S3	278	S2 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:28
S4	93	S3 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:28
S5	6865	(collect$3 or snoop$3 or sniff$) with lan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:34
S6	3248	(collect$3 or snoop$3 or sniff$) with wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:34
S7	2272	S5 and S6	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:34
S8	175	S7 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:34
S9	150	S8 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:34
S10	2423	(lan adj2 (interface or port)) same (wan adj2 (interface or port))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:36

S11	730	S10 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:36
S12	348	S11 and ((monitor$3 or detect$3 or detemin$3 or identify) with (condition or status or state))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:36
S13	312	S12 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:36
S14	1937247	(monitor$3 or detect$3 or determin$3 or identify) near5 (condition or status or state or failure or fault$2 or congestion)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:50
S15	41	S10 same S14	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:51
S16	16	S15 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:51
S17	8	S16 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:51
S18	255	(monitor$3 or detect$3 or determin$3 or identify) near5 (condition or status or state or failure or fault$2 or congestion) with lan near5 wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:14
S19	43	S18 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:15
S20	35	S19 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:15
S21	802	(lan adj2 (interface or port or connection or connector)) same (wan adj2 (interface or port or connection or connector)) same (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:26
S22	673	S21 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:27

S23	172	S22 and "370"/$.ccls.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:27
S24	712	(monitor$3 or detect$3 or determin$3 or identify) near5 (condition or status or state or failure or fault$2 or congestion or performance) with (lan or ethernet) with (internet or wan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:35
S25	167	S24 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:35
S26	79	S25 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:35
S27	544	S24 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:41
S28	111	S27 and "370"/$.ccls.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:43
S29	1226	(management or gateway) same ((lan or ethernet) adj2 (interface or port or connection or connector)) same (wan adj2 (interface or port or connection or connector))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:46
S30	540	S29 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:46
S31	491	S30 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:46
S32	130	(monitor$3 or detect$3 or determin$3 or identify) near5 (condition or status or state or failure or fail$4 or fault$2 or congestion or performance) same ((lan or ethernet) adj2 (interface or port or connection or connector)) with ((internet or wan) adj2 (interface or port or connection or connector))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 17:27
S33	106	S32 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 17:27
S34	7	"2007146048"	US-PGPUB;	OR	ON	2015/04/27 17:50

			USPAT; EPO; DERWENT			
S35	250	(monitor$3 or detect$3 or determin$3 or identify) with ((lan or ethernet) adj2 (interface or port)) with ((internet or wan) adj2 (interface or port))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 17:55
S36	209	S35 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 17:55
S37	674	(failure or fail$4 or fault$2 or congest$3) with (lan or ethernet or rj$145) with (wan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 18:24
S38	674	(failure or fail$4 or fault$2 or congest$3) with (lan or ethernet or rj$145) with (wan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 19:43
S39	582	S38 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 19:44
S40	55	S39 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 19:44
S41	4408	(monitor$3 or measur$3 or analyz$3) with (lan or ethernet or rj$145) with (wan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 20:00
S42	158	(monitor$3 or measur$3 or analyz$3) with (lan or ethernet or rj45 or rj-45) with (wan) with performance	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 20:01
S43	171	(monitor$3 or measur$3 or analyz$3 or determin$3) with (lan or ethernet or rj45 or rj-45) with (wan) with performance	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 20:01
S44	145	S43 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 20:01
S45	3680	(monitor$3 or detect$3 or determin$3 or identify or analyz$3) near5 (condition or status or state or failure or fail$4 or fault$2 or congestion or performance) near5 (lan or ethernet)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:43
S46	159	S45 same (dsl or adsl)	US-PGPUB;	OR	ON	2015/04/29 08:44

			USPAT; EPO; DERWENT			
S47	153	S46 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:44
S48	8955	(collect$3 or snoop$3 or sniff$ or analyz$3) with lan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:46
S49	143	S48 same (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:46
S50	130	S49 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:46
S51	8571	manag$5 near3 lan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:56
S52	64	S51 same (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:56
S53	51	S52 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:56
S54	10593	((lan or ethernet or rj45 or rj-45) adj2 (interface or port or connection)) same ((wan or internet) adj2 (interface or port or connection))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:08
S55	522	S54 same (collect$3 or snoop$3 or sniff$ or analyz$3)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:09
S56	423	S55 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:09
S57	376	S54 same (collect$3)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:10
S58	313	S57 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB;	OR	ON	2015/04/29 09:10

			USPAT; EPO; DERWENT			
S59	6482	(collect$3 with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:33
S60	410	S59 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:34
S61	358	S60 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:34
S62	2100	(collect$3 with lan with wan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:37
S63	157	S62 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:37
S64	134	S63 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:37
S65	10608	((lan or ethernet or rj45 or rj-45) adj2 (interface or port or connection)) same ((wan or internet) adj2 (interface or port or connection))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:53
S66	522	S65 same (collect$3 or snoop$3 or sniff$ or analyz$3)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:53
S67	423	S66 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:53
S68	468	h04l41/04.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:57
S69	0	S67 and S68	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:57
S70	2633	h04l41/06.cpc.	US-PGPUB;	OR	ON	2015/05/03 22:57

			USPAT; EPO; DERWENT			
S71	1	S67 and S70	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:57
S72	436	h04l41/0604.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:58
S73	11	S72 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:58
S74	1193	h04l41/0631.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:59
S75	0	S67 and S74	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:59
S76	38	S74 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:59
S77	941	h04l41/0677.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:59
S78	11	S77 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:59
S79	120	h04l41/0695.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:59
S80	0	S79 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:00
S81	1200	h04l41/08.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:00
S82	11	S81 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB;	OR	ON	2015/05/03 23:00

			USPAT; EPO; DERWENT			
S83	354	h04l41/085.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:00
S84	4	S83 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:00
S85	1493	h04l41/0853.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:00
S86	41	S85 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:00
S87	1384	h04l41/0856.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:01
S88	41	S87 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:01
S89	214	h04l41/0859.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:01
S90	3	S89 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:01
S91	1831	h04l43/04.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:02
S92	87	S91 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:03
S93	3292	h04l43/10.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:03
S94	127	S93 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB;	OR	ON	2015/05/03 23:03

			USPAT; EPO; DERWENT			
S95	53	S94 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:03
S96	1796	h04l43/12.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:03
S97	48	S96 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:03
S98	5460	h04l43/50.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:04
S99	60	S98 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:04
S100	140	(peter near2 chow).inv.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:04
S101	2	S100 and (lan and wan and manag$5 and condition).clm.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:05
S102	81	(rhee near2 wonjong).inv.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:05
S103	2	S102 and (lan and wan and manag$5 and condition).clm.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:05
S104	39	(tehrani near2 ardavan).inv.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:05
S105	2	S104 and (lan and wan and manag$5 and condition).clm.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:05
S106	29	(goldburg near2 marc).inv.	US-PGPUB;	OR	ON	2015/05/03 23:06

			USPAT; EPO; DERWENT			
S107	2	S106 and (lan and wan and manag$5 and condition).clm.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:06
S108	6257	h04l43/50.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:35
S109	69	S108 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:35
S110	2369	(collect$3 with lan with wan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:41
S111	181	S110 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:41
S112	136	S111 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:41
S113	3030	(collect$3 or snoop$3 or sniff$ or analyz$3) with ((wan or internet or ip) adj2 (connection or interface))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:47
S114	702	(collect$3 or snoop$3 or sniff$ or analyz$3) with ((lan) adj2 (connection or interface))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:48
S115	188	S113 and S114	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:48
S116	167	S115 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:48
S117	2	"20140321298"	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 18:11
S121	2699	(collect$3 with lan with wan)	US-PGPUB;	OR	ON	2016/09/19 03:48

			USPAT; EPO; DERWENT			
S122	197	S121 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:48
S123	136	S122 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:48
S124	2	"9,369,370"	US-PGPUB; USPAT; FPRS	OR	ON	2016/09/19 03:49
S125	7981	(collect$3 or snoop$3 or sniff$3) with lan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:51
S126	2998	S125 same wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:51
S127	231	S126 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:51
S128	166	S127 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:51
S129	5718	(fault$3 or fail$4) with lan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:53
S130	690	S129 same wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:53
S131	102	S130 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:53
S132	73	S131 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:53
S133	2329	(diagnostic or diagnos$3) with lan	US-PGPUB; USPAT;	OR	ON	2016/09/19 03:58

			EPO; DERWENT			
S134	630	S133 same wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:59
S135	70	S134 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:59
S136	49	S135 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:59

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S118	0	((lan adj2 interface) and (wan adj2 interface) and event and collect$3 and condition).clm.	USPAT	OR	ON	2016/01/08 18:18
S119	0	((lan adj2 interface) and (wan adj2 interface) and event and collect$3).clm.	USPAT	OR	ON	2016/01/08 18:19
S120	8	((lan adj2 interface) and (wan adj2 interface) and event).clm.	US-PGPUB; USPAT	OR	ON	2016/01/08 18:19

9/19/2016 4:43:37 AM
C:\Users\dduong\Documents\EAST\Workspaces\15182513.wsp

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15182513	CHOW ET AL.
	Examiner	Art Unit
	DUC DUONG	2467

CPC- SEARCHED		
Symbol	Date	Examiner
see CPC search printout	9/19/2016	DTD

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
East text			
inventor name			

SEARCH NOTES		
Search Notes	Date	Examiner
East text	9/19/2016	DTD
inventor name	9/19/2016	DTD
h04l41/04,h04l41/06,h04l41/0604,h04l41/0631,h04l41/0677,h04l41/0695,h04l41/08,h04l41/085,h04l41/0853,h04l41/0856,h04l441/0859 (text search)	9/19/2016	DTD
h04l43/10,h04l43/12,h04l43/50 (text search)	9/19/2016	DTD

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

/DUC DUONG/ Examiner.Art Unit 2467	

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/182,513	06/14/2016	Peter Chow	03.P049USC

CONFIRMATION NO. 6886

136402
Green, Howard, & Mughal LLP
5 Centerpointe Dr.
Suite 400
LAKE OSWEGO, OR 97035

PUBLICATION NOTICE

OC00000086317088

Title:SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS

Publication No.US-2016-0294669-A1
Publication Date:10/06/2016

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 1-866-217-9197.

Office of Data Managment, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor: **Peter Chow**	Examiner: **DUONG, DUC T**
Application No.: 15/182,513	Art Group: 2467
Filed: 14 June 2016	Confirmation No.: 6886
For: SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS	Docket No.: 03.P049USC

Mail Stop **Amendment**
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT UNDER 37 C.F.R. § 1.111

Dear Examiner:

This Amendment is in response to the Non-Final Office Action of 23 September 2016. Applicants respectfully request the Examiner to enter this Amendment and consider the following remarks.

Electronic Patent Application Fee Transmittal

Application Number:	15182513
Filing Date:	14-Jun-2016
Title of Invention:	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS
First Named Inventor/Applicant Name:	Peter Chow
Filer:	Usman Mughal/Katherine Campbell
Attorney Docket Number:	03.P049USC

Filed as Small Entity

Filing Fees for Utility under 35 USC 111(a)

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($)
Extension - 2 months with $0 paid	2252	1	300	300
Miscellaneous:				
		Total in USD ($)		**300**

Electronic Acknowledgement Receipt

EFS ID:	28446547
Application Number:	15182513
International Application Number:	
Confirmation Number:	6886
Title of Invention:	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS
First Named Inventor/Applicant Name:	Peter Chow
Customer Number:	136402
Filer:	Usman Mughal/Katherine Campbell
Filer Authorized By:	Usman Mughal
Attorney Docket Number:	03.P049USC
Receipt Date:	23-FEB-2017
Filing Date:	14-JUN-2016
Time Stamp:	20:36:48
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$300
RAM confirmation Number	022417INTEFSW20372500
Deposit Account	
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	P049USC_IDS.pdf	183789 371c1c99d8a1a88b84470233ea0101cd8179e508	no	4
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
2	Extension of Time	P049USC_EOT.pdf	162635 d1a422660bc6e244232376e084098c4885564d6a	no	2
Warnings:					
Information:					
3	Foreign Reference	JP2000020428.pdf	10579189 d75990c36a2260877c2a301245593c51555a35db	no	51
Warnings:					
Information:					
4	Foreign Reference	OA_CA.pdf	201429 af42eadd228f068a92fce0b33265f774264ee882	no	3
Warnings:					
Information:					
5	Foreign Reference	P049JP_NOA.PDF	197901 1a921154ec5920592104d719715eba74ce38f989	no	3
Warnings:					
Information:					
6		03P049USC_ROA.pdf	153569 e0bc488b8bb5b64e4c474ecdd03bb0f3e3b8f704	yes	10

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Applicant Arguments/Remarks Made in an Amendment	6	10
	Claims	2	5
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1

Warnings:					
Information:					
7	Fee Worksheet (SB06)	fee-info.pdf	31026 6ce799be1e6c774134390f4d1c110fa4092a9220	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	11509538		

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/08a (01-10)
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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15/182,513
	Filing Date	Jun 14, 2016
	First Named Inventor	Peter Chow
	Art Unit	2467
	Examiner Name	DUONG, DUC T
	Attorney Docket Number	03.P049USC

U.S.PATENTS

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		6785279		2004-08-31	Crooks	

U.S.PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		20060126613		2006-06-15	ZWEIG	
		20060259583		2006-11-16	Matsuura	
		20090028181		2009-01-29	Shimon	

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
		2000020428	JP		2000-01-21	YOSHINORI, T		
		101461253	CN		2006-06-15	GINIS et al.		
		2007146048	WO		2007-12-21	CIOFFI, J et al.		
		2009540671	JP		2009-11-19	CIOFFI et al.		
		101690079	CN		2010-03-31	SAMUELS et al.		
		101815000	CN		2010-08-25	KOSBAB et al.		

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	Art Unit	2467
	Examiner Name	DUONG, DUC T
	Attorney Docket Number	03.P049USC

NON-PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
		BERSTEIN, JEFF, et al., "CPE WAN Management Protocol", Technical Report, Forum TR-069, May 1, 2004, 109 pages.	
		Final Office action for Japanese Patent Application No. 2013-549393 (Attorney Docket No. (03P049JP), mailed March 3, 2015.	
		First Office Action for Chinese Patent Application No. 201180064927.6 (Attorney Docket No. 03P049CN).	
		International Preliminary Report on Patentability for International Patent Application No. PCT/US2011/021003, (Attorney Docket No. 03.P049PCT), Mailed July 16, 2013, 12 pages.	
		International Search Report and Written Opinion for International Patent Application No. PCT/US2011/021003 (Attorney Docket No. 8241P049PCT), mailed May 13, 2011, 15 pages.	
		Non Final Office Action for Japanese Patent Application No. 2013-549393 (Attorney Docket No. 03P049JP), mailed August 5, 2014, 5 pages.	
		Notice of Allowance for Japanese Patent Application 2013-549393, mailed October 1, 2015 (Attorney Docket No. 03.P049JP)	
		Notice of Allowance for U.S. Application No. 13/995,900 (Attorney Docket No. 03.P049US) mailed January 29, 2016, 7 pages.	
		Office action for Canadian Patent Application No. 2,823,295, mailed November 13, 2016 (Attorney Docket No. 008241.P049CA).	

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
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	Application Number	15/182,513
	Filing Date	Jun 14, 2016
	First Named Inventor	Peter Chow
	Art Unit	2467
	Examiner Name	DUONG, DUC T
	Attorney Docket Number	03.P049USC

EXAMINER SIGNATURE			
Examiner Signature		Date Considered	

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

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.
[4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

PTO/SB/08a (01-10)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15/182,513
	Filing Date	Jun 14, 2016
	First Named Inventor	Peter Chow
	Art Unit	2467
	Examiner Name	DUONG, DUC T
	Attorney Docket Number	03.P049USC

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e) (1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e) (2).

☐ See attached certification statement.

X Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ None

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Usman A. Mughal/	Date (YYYY-MM-DD)	2017-02-23
Name/Print	Usman Mughal	Registration Number	62887

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

PTO/AIA/22 (03-13)
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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.

PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)

Docket Number (Optional): 03.P049USC

Application Number: 15/182,513

Filed: 2016-06-14

For: SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS

Art Unit: 2467

Examiner: DUONG, DUC T

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application.

The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):

		Fee	Small Entity Fee	Micro Entity Fee	
☐	One month (37 CFR 1.17(a)(1))	$200	$100	$50	$
☑	Two months (37 CFR 1.17(a)(2))	$600	$300	$150	$ 300
☐	Three months (37 CFR 1.17(a)(3))	$1,400	$700	$350	$
☐	Four months (37 CFR 1.17(a)(4))	$2,200	$1,100	$550	$
☐	Five months (37 CFR 1.17(a)(5))	$3,000	$1,500	$750	$

☑ Applicant asserts small entity status. See 37 CFR 1.27.

☐ Applicant certifies micro entity status. See 37 CFR 1.29.
Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.

☐ 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 Number _____.

☑ Payment made via EFS-Web.

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.

I am the

☐ applicant.

☑ attorney or agent of record. Registration number 62887.

☐ attorney or agent acting under 37 CFR 1.34. Registration number _____.

/Usman A. Mughal/ — Signature

2017-02-23 — Date

Usman A. Mughal — Typed or printed name

503-968-8233 — Telephone Number

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 _____ forms are submitted.

This collection of information is required by 37 CFR 1.136(a). 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 6 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 PCT, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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.

REMARKS

This listing of claims will replace all prior versions and listings of claims in the application. Claim 1 is amended. Claims 2-20 are added. Hence, claims 2-20 are pending. Applicants respectfully request reconsideration of claims in view of the amendments and arguments.

REJECTION UNDER 35 U.S.C. § 101

Claim 1 stands rejected under 35 U.S.C. § 101 as allegedly being directed to non-statutory subject matter. Office Action, p. 2, item 3. Examiner simply asserts that the steps of claim 1 amount to an abstract idea. However, claim 1 is not a method claim. Instead claim 1 is a management device which corresponds to a machine under 35 U.S.C. § 101. This machine includes:

a Local Area Network (LAN) interface to communicably interface the management device with a LAN;

a Wide Area Network (WAN) interface to communicably interface the management device with a WAN, wherein the WAN is to provide broadband connectivity to the LAN through a Digital Subscription Line (DSL) connection;

a collection logic to collect LAN information from the LAN and WAN information from the WAN; and

an analysis logic to jointly analyze the collected WAN information and the collected LAN information to identify an operational condition.

Here, a LAN interface is a tangible interface, a WAN interface is a tangible interface, and a DSL is a known hardware, for example. Further collection logic and analysis logic are not some generic logic to trigger an alarm as suggested by the Examiner. Instead, collection logic and analysis logic are logic to collect LAN information from the LAN and WAN information from the WAN; and to jointly analyze the collected WAN information and the collected LAN information to identify an operational condition, respectively. As such, the collection logic and the analysis logic provide significant more aspects than logic that is used to trigger an alarm.

To provide some context to the problem solved by the claims, Applicants refer the Examiner to the background section (e.g., paragraph [0005]) and the Detailed Description

section (e.g., paragraphs [0015-18]) that further highlight the problems solved by claim 1. As such, claim 1 is not an abstract idea, but a real and tangible machine which solves a real problem. Accordingly, Applicants respectfully request Examiner to withdraw the rejection.

REJECTION UNDER 35 U.S.C. § 112

Claim 1 stands rejected under 35 U.S.C. § 112(b). Office Action, p. 3, item 5. Applicants amend claim 1 to remove the objected to language "module". Further, Figs. 1-6 provide the hardware and flowchart that correspond to claim 1. Examiner is respectfully requested to withdraw the rejection and reconsider the claims in view of the above arguments.

REJECTION UNDER 35 U.S.C. § 102

Claim 1 stands rejected under 35 U.S.C. § 102(b) allegedly anticipated by U.S. Patent Publication No. 2003/0145082 of Son (hereinafter "Son"). Office Action, p. 4, item 7.

MPEP § 2131 states that "'[a] claim is anticipated only if **each and every element** as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.' *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)" (emphasis added). "'The identical invention must be shown in **as complete detail** as is contained in the ... claim.' *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989)" (emphasis added). Moreover, "[e]very element of the claimed invention must be literally present, **arranged as in the claim**." *Id.* (emphasis added).

Here, the Office Action has not established that each element of the claims is disclosed in Son. For example, Son "relates to monitoring and management of **local area networks**" Son, paragraph [0003] (emphasis added). However, Son does not specifically disclose that the WAN is to provide broadband connectivity to the LAN through a Digital Subscription Line (DSL) connection. Further, Son does not disclose a collection logic to collect LAN information from the LAN and WAN information from the WAN; and an analysis logic to jointly analyze the collected WAN information and the collected LAN information to identify an operational condition.

Examiner alleges that the diagnostic applications 216 of Son is the same as the analysis

logic of claim 1. That is not the case, because diagnostic applications 216 of Son does not **jointly analyze** the collected WAN information and the collected LAN information to identify an operational condition. Paragraph [0026] of Son states that "The diagnostic application 216 may comprise a remotely-initiated diagnostic application that has routines to diagnose problems on the LAN 104." There is no joint analysis of the collected WAN information and the collected LAN information to identify an operational condition by diagnostic application 216 of Son.

Additionally, it appears that the United States Supreme Court values "reasons" in a rejection, and would likely require that such reasoning be applied to rejections under 35 U.S.C. § 102 if presented with the issue, rather than just rejections under 35 U.S.C. § 103. For instance, MPEP § 2143, citing *KSR*, states that "**[t]he key** to supporting any rejection under 35 U.S.C. 103 is the **clear articulation** of the reason(s) why the claimed invention would have been obvious. The Supreme Court in KSR noted that the analysis supporting a rejection under 35 U.S.C. 103 should be **made explicit**" (emphasis added, see also *KSR Intl Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1395-97 (2007)). While *KSR* and the cited section of the MPEP are directed to obviousness rejections under 35 U.S.C. § 103, it is apparent that the Supreme Court believes that a clear articulation of reasons is "the key" to supportable rejections by the USPTO.

Based on the amendments and arguments, claim 1 is not anticipated by Son.

New Claims:

Applicants add new claims 2-20. The new claims are supported by the Specification. See, for example, Applications Specification, figures 1-6 and associated paragraphs. Also see, original claims of the parent application 1-33. Applicants respectfully request Examiner to consider the new claims.

Accordingly, Applicants respectfully request reconsideration of pending claims in view of the amendments.

Note that merely because Applicants do not specifically argue that certain limitations of a claim are not in the references is not a concession that a reference or combination of references includes the limitations. That Applicants do not contradict a particular statement made in the

Office action is not a concession that Applicants agree with it. Further, merely because Applicants do not separately argue the patentability of every dependent claim is not a concession that there are not additional reasons for patentability of these dependent claims.

Applicants believe every assertion by the Office Action has been addressed. However, in the interest of clarity and brevity, Applicants may not have asserted every available argument for each assertion made in the Office Action. Applicants' silence regarding any such assertion does not constitute any admission or acquiescence. Applicants reserve all rights not exercised in connection with this response, such as the right to challenge or rebut any tacit or explicit characterization of any reference or of any of the present claims, the right to challenge or rebut any asserted factual or legal basis of any of the rejections, the right to swear behind any cited reference such as provided under 37 C.F.R. § 1.131 or otherwise, or the right to assert co-ownership of any cited reference.

Applicants do not admit that any of the cited references or any other references of record is relevant to the present claims, or that they constitute prior art. To the extent that any rejection or assertion is based upon the Examiner's personal knowledge, rather than any objection evidence of record as manifested by a cited prior art reference, Applicants timely object to such reliance on Official Notice, and reserve all rights to request that the Examiner provide a reference or affidavit in support of such assertion, as required by M.P.E.P. § 2144.03. Applicants reserve all rights to pursue any cancelled claims in a subsequent patent application claiming the benefit of priority of the present patent application, and to request rejoinder of any withdrawn claim, as required by M.P.E.P. § 821.04.

Based on the amendments and arguments, Applicants respectfully request the Examiner to allow all pending claims.

CONCLUSION

Applicants submit that they have overcome Examiner's objections to and rejections of the claims and that they have the right to claim the invention as listed in the listing of claims. Examiner is respectfully requested to contact the undersigned by telephone if it is believed that such contact would further the examination of the present application.

Pursuant to 37 C.F.R. § 1.136(a)(3), Applicants request and authorize the U.S. Patent and Trademark Office to (1) treat any concurrent or future reply that requires a petition for extension of time as incorporating a petition for extension of time for the appropriate length of time and (2) charge all required fees, including extension of time fees and fees under 37 C.F.R. § 1.16 and § 1.17, to Deposit Account No. 506925.

Respectfully submitted,
GREEN, HOWARD, & MUGHAL, LLP

02/23/17
Date

/Usman A. Mughal/
Usman A. Mughal
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Attorney for Applicants

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docketing@ghmip.com

LISTING OF CLAIMS

1. (**Currently Amended**) A management device, comprising:

   a Local Area Network (LAN) interface to communicably interface the management device with a LAN;

   a Wide Area Network (WAN) interface to communicably interface the management device with a WAN, wherein the WAN is to provide broadband connectivity to the LAN through a Digital Subscription Line (DSL) connection;

   a collection logic to collect LAN information from the LAN and WAN information from the WAN; and

   an analysis logic to jointly analyze the collected WAN information and the collected LAN information to identify an operational condition~~; and~~

   ~~an implementation logic to initiate a management event responsive to the operational condition being identified~~.

2. (**New**) The management device of claim 1 comprises: an implementation logic to initiate a management event responsive to the operational condition being identified.

3. (**New**) The management device of claim 2 comprises a diagnostics logic to jointly analyze the collected WAN information and the collected LAN information to diagnose a fault within the WAN based at least in part on the LAN information or to diagnose a fault within the LAN based at least in part on the WAN information.

4. (**New**) The management device of claim 3, wherein the implementation logic is to initiate a management event responsive to the fault being identified.

5. (**New**) The management device of claim 1, wherein the WAN information collected from the WAN comprises information specific to a second communication layer of the WAN, different than the first communication layer of the LAN.

6. (**New**) The management device of claim 1, wherein the operational condition identified based on the joint analysis comprises at least one of: network congestion within the WAN; network congestion within the LAN; excess power consumption by

communication elements within the LAN; excess power consumption by communication elements within the WAN; bandwidth utilization of the WAN in excess of a maximum threshold; bandwidth availability of the WAN below a minimum threshold; a security breach within the LAN; or a network intrusion within the LAN.

7. (**New**) The management device of claim 1, wherein the collection logic is to collect the WAN information and the LAN information from one or more sources including:

a Digital Subscriber Line (DSL) Customer Premises Equipment (CPE) modem;
an in-home powerline device;
a Home Phoneline Network Alliance (HPNA) based device;
an in-home coax distribution device;
a G.hn (Global Home Networking Standard) compatible device;
an in-home metering communication device;
an in-home appliance communicatively interfaced with the LAN;
a wireless femtocell base station;
a wireless WiFi compatible base station;
a wireless mobile device repeater;
a wireless mobile device base station;
a set-top box (STB)/set-top unit (STU) customer electronics device;
an Internet Protocol (IP) enabled television;
an IP enabled media player;
an IP enabled gaming console;
an Ethernet gateway;
a computing device connected to the LAN;
an Ethernet connected computer peripheral device;
an Ethernet connected router;
an Ethernet connected wireless bridge;
an Ethernet connected network bridge; or
an Ethernet connected network switch.

8. (**New**) The management device of claim 1 comprises a Digital Subscriber Line (DSL) modem operating as a Customer Premises Equipment (CPE) device to communicatively

interface a DSL based backhaul provided via the WAN to the LAN.

9. (**New**) The management device of claim 1 comprises a cable modem operating to communicatively interface a cable network based backhaul provided via the WAN to the LAN.

10. (**New**) The management device of claim 1 comprises a wireless modem operating to communicatively interface a wireless based backhaul provided via the WAN to the LAN.

11. (**New**) The management device of claim 1 comprises a powerline modem operating to communicatively interface a powerline based backhaul provided via the WAN to the LAN.

12. (**New**) The management device of claim 1 comprises an Optical Network Terminal (ONT) operating to communicatively interface a fiber optic based backhaul provided via the WAN to the LAN.

13. (**New**) The management device of claim 1 comprises a router operating to communicatively interface a WAN connected backhaul to the LAN.

14. (**New**) The management device of claim 1 comprises a computing device remotely located from a WAN/LAN interface through which a communication channel related to the WAN and the LAN is connected, wherein the computing device is to provide remote monitoring and management functionality for the WAN/LAN interface.

15. (**New**) A method comprising:

coupling a Local Area Network (LAN) interface to a management device with a LAN;

coupling a Wide Area Network (WAN) interface to the management device with a WAN, wherein the WAN is to provide broadband connectivity to the LAN through a Digital Subscription Line (DSL) connection;

collecting LAN information from the LAN and WAN information from the WAN; and

analyzing jointly the collected WAN information and the collected LAN information to identify an operational condition.

16. (**New**) The method of claim 15 comprises diagnosing a fault within the WAN or the LAN based on the operational condition identified.

17. (**New**) The method of claim 15 comprises initiating a management event responsive to the operational condition being identified.

18. (**New**) The method of claim 15, wherein the WAN information collected from the WAN comprises information specific to a second communication layer of the WAN, different than the first communication layer of the LAN.

19. (**New**) A machine-readable storage media having machine readable instructions that when executed by a processor in a management device, cause the management device to perform a method comprising:

coupling a Local Area Network (LAN) interface to the management device with a LAN;

coupling a Wide Area Network (WAN) interface to the management device with a WAN, wherein the WAN is to provide broadband connectivity to the LAN through a Digital Subscription Line (DSL) connection;

collecting LAN information from the LAN and WAN information from the WAN; and

analyzing jointly the collected WAN information and the collected LAN information to identify an operational condition.

20. (**New**) The machine-readable storage media of claim 19 having further machine readable instructions that when executed cause the process to perform an operation which comprises diagnosing a fault within the WAN or the LAN based on the operational condition identified.

PTO/SB/06 (09-11)
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 15/182,513	Filing Date 06/14/2016	☐ 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 02/23/2017

	(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))	* 20	Minus	** 20	= 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 ISAAC

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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Document code: WFEE

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01 FC : 2806 90.00 DA

Doc Code: PA..
Document Description: Power of Attorney

PTO/AIA/82A (07-13)
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TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	15/182,513
Filing Date	2016-06-14
First Named Inventor	Peter Chow
Title	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS
Art Unit	2467
Examiner Name	Duc T. Duong
Attorney Docket Number	20145-049USC

SIGNATURE of Applicant or Patent Practitioner

Signature	/Michael V. North/	Date (Optional)	2017-03-14
Name	Michael V. North	Registration Number	46963
Title (if Applicant is a juristic entity)	Attorney		
Applicant Name (if Applicant is a juristic entity)	Adaptive Spectrum and Signal Alignment, Inc.		

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

☑ *Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Document Description: Power of Attorney

PTO/AIA/82B (07-13)
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POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

✓ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 146571

OR

I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above 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 (if the Applicant is a juristic entity, list the Applicant name in the box):

Adaptive Spectrum and Signal Alignment, Inc.

Inventor or Joint Inventor (title not required below)

Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)

✓ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)

Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature	Mary Fuller	Date (Optional)	2/24/2017
Name	Mary Fuller		
Title	General Counsel and Corporate Secretary		

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

✓ Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.131, 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.**

Electronic Acknowledgement Receipt

EFS ID:	28624337
Application Number:	15182513
International Application Number:	
Confirmation Number:	6886
Title of Invention:	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS
First Named Inventor/Applicant Name:	Peter Chow
Customer Number:	136402
Filer:	Michael V. North
Filer Authorized By:	
Attorney Docket Number:	03.P049USC
Receipt Date:	15-MAR-2017
Filing Date:	14-JUN-2016
Time Stamp:	17:38:05
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	049USC_POA.pdf	1873037 5743e0d7be0b6f395237ac83c424c94dd811553d	no	2
Warnings:					

Information:	
Total Files Size (in bytes):	1873037

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/182,513	06/14/2016	Peter Chow	03.P049USC

CONFIRMATION NO. 6886

146571
North Weber & Baugh LLP - ASSIA
3260 Hillview Avenue
Palo Alto, CA 94304

POA ACCEPTANCE LETTER

OC000000090044264

Date Mailed: 03/21/2017

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 03/15/2017.

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**.

/sleutchit/

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/182,513	06/14/2016	Peter Chow	20145-049USC	6886

146571 7590 06/12/2017
North Weber & Baugh LLP - ASSIA
3260 Hillview Avenue
Palo Alto, CA 94304

EXAMINER
DUONG, DUC T

ART UNIT	PAPER NUMBER
2467	

MAIL DATE	DELIVERY MODE
06/12/2017	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. 15/182,513	Applicant(s) CHOW ET AL.	
	Examiner DUC DUONG	Art Unit 2467	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* MONTHS 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 *2/23/17*.

☐ 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) *1-20* 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) *1-20* 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 _____ 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.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

DETAILED ACTION

1. The present application is being examined under the pre-AIA first to invent provisions.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on nonstatutory double patenting provided the reference application or patent either is shown to be commonly owned with the examined application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file

provisions of the AIA as explained in MPEP § 2159. See MPEP §§ 706.02(l)(1) - 706.02(l)(3) for applications not subject to examination under the first inventor to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/patent/patents-forms. The filing date of the application in which the form is filed determines what form (e.g., PTO/SB/25, PTO/SB/26, PTO/AIA/25, or PTO/AIA/26) should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

3. Claims 1-20 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1, 2, 8-10, 16, 22, and 28 of U.S. Patent No. 9,369,370 B2. Although the claims at issue are not identical, they are not patentably distinct from each other because the application's claims 1-20 merely broaden the scope of the patented claims 1, 2, 8-10, 16, 22, and 28 by excluding certain limitations of the parent claims. The application's claims are nearly identical in every other aspect to the patented claims. Thus, the applicant is attempting to broaden the patented claims by excluding certain limitations in the application's claims, and it would have been obvious to one skill in the art, at the time of the invention, to omit such limitations. If the application allowed the application would grant broader protection to the applicant.

Claims 1, 2, 8-10, 16, 22, and 28 of the patented contain(s) every element of claims 1-20 of the instant application and thus anticipate the claim(s) of the instant application. Claims 1-20 of the instant application therefore is/are not patently distinct from the earlier patent claim(s) and as such is/are unpatentable over obvious-type double patenting. A later patent/application claim is not patentably distinct from an earlier claim if the later claim is anticipated by the earlier claim. A later patent claim is not patentably distinct from an earlier patent claim if the later claim is obvious over, or anticipated by, the earlier claim. In re Longi, 759 F.2d at 896,225 USPQ at 651 (affirming a holding of obviousness-type double patenting because the claims at issue were obvious over claims in four prior art patents); In re Berg, 140 F.3d at 1437, 46 USPQ2d at 1233 Fed. Cir. 1998 (affirming a holding of obviousness type double patenting where a patent application claim to a genus is anticipated by a patent claim to a species within that genus). ELI LILLY AND COMPANY v BARR LABORATORIES, INC., United States Court of Appeals for the Federal Circuit, ON PETITION FOR REHEARING EN BANC (DECIDED: May 30, 2001). Claims 1-20 are generic to the species of invention covered by claims 1, 2, 8-10, 16, 22, and 28 of the patent. Thus, the generic invention is "anticipated" by the species of the patented invention. Cf., Titanium Metals Corp. v. Banner, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985 (holding that an earlier species disclosure in the prior art defeats any generic claim). This court's predecessor has held that, without a terminal disclaimer, the species claims preclude issuance of the generic application. In re Van Ornum, 686 F.2d 937, 944,214 USPQ 761,767 (CCPA 1982). Accordingly, absent a terminal disclaimer, claims 1-20 were

properly rejected under the doctrine of obviousness-type double patenting. In re Goodman (CA FC) 29 USPQ2d 2010 (12/3/1993).

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 19 and 20 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claim(s) does/do not fall within at least one of the four categories of patent eligible subject matter because these claims recited for a "machine-readable storage media" and such media fails to explicitly recited in the claim as being “non-transitory”. Thus, the examiner has given the broadest interpretation that the media include carrier wave or signal. And claims that recite nothing but the physical characteristics of a form of energy, such as a frequency, voltage, or the strength of a magnetic field, define energy or magnetism, per se, and as such are nonstatutory natural phenomena. O'Reilly, 56 U.S. (15 How.) at 112-14.

6. Claims 1, 7-13, 15, and 19 are rejected under 35 U.S.C. 101 because the claimed invention is directed to a judicial exception (i.e., a law of nature, a natural phenomenon, or an abstract idea) without significantly more. Claims 1, 7-13, 15 and 19 are directed to an abstract idea of storing, gathering, and analyzing data. These steps are similar to concept that have been identified by the court as abstract idea in *TDE Petroleum*. The claim(s) does/do not include additional elements that are sufficient to amount to significantly more than the judicial exception because the LAN/WAN interfaces and DSL connection are additional generic network elements that do not add

a meaningful limitation to the abstract idea because they are well-known in any network implementation.

Response to Arguments

7. Applicant's arguments filed February 23, 2017 have been fully considered but they are not persuasive. Regarding to applicant's argument on page 1-2 in the Remarks, claim 1 is directed to a machine and not a method and thus the claim is not directed to an abstract idea. In response, the examiner would like to point out the concept of abstract idea is not limited only to method claim but rather all four statutory categories (i.e. process, machine, manufacture, or composition of matter). Examiner advised applicant to follow The Patent Subject Matter Eligibility Guideline issue by the office on the PTO website. Furthermore, applicant's argument since the WAN/LAN interfaces are tangible, and thus not abstract idea are traversed since the determination of the claim is directed to abstract idea is based on whether the additional elements (i.e. LAN/WAN interfaces) is amount significantly more than the judicial exception, and in in this instant the LAN/WAN interfaces being tangible does not constitute to being significantly more. Thus, based on the reasons set forth here the rejections are maintained.

Conclusion

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.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DUC DUONG whose telephone number is (571)272-3122. The examiner can normally be reached on M-F (9:00 AM-6:00 PM).

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Phillips can be reached on 571-272-3940. 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.

/DUC DUONG/
Examiner, Art Unit 2467

Notice of References Cited	Application/Control No. 15/182,513	Applicant(s)/Patent Under Reexamination CHOW ET AL.	
	Examiner DUC DUONG	Art Unit 2467	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-2017/0111105 A1	04-2017	Ling; Curtis	H04B7/18515	1/1
*	B	US-2015/0230275 A1	08-2015	Kerpez; Kenneth	H04L12/66	370/329
*	C	US-2001/0047406 A1	11-2001	Araujo, Kenneth S.	H04L29/06	709/223
	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	CPC 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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15/182,513
	Filing Date	Jun 14, 2016
	First Named Inventor	Peter Chow
	Art Unit	2467
	Examiner Name	DUONG, DUC T
	Attorney Docket Number	03.P049USC

U.S.PATENTS

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		6785279		2004-08-31	Crooks	

U.S.PATENT APPLICATION PUBLICATIONS

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		20060126613		2006-06-15	ZWEIG	
		20060259583		2006-11-16	Matsuura	
		20090028181		2009-01-29	Shimon	

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
		2000020428	JP		2000-01-21	YOSHINORI, T		
		101461253	CN		2006-06-15	GINIS et al.		
		2007146048	WO		2007-12-21	CIOFFI, J et al.		
		2009540671	JP		2009-11-19	CIOFFI et al.		
		101690079	CN		2010-03-31	SAMUELS et al.		
		101815000	CN		2010-08-25	KOSBAB et al.		

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /D.T.D/

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	Art Unit	2467
	Examiner Name	DUONG, DUC T
	Attorney Docket Number	03.P049USC

NON-PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
		BERSTEIN, JEFF, et al., "CPE WAN Management Protocol", Technical Report, Forum TR-069, May 1, 2004, 109 pages.	
		Final Office action for Japanese Patent Application No. 2013-549393 (Attorney Docket No. (03P049JP), mailed March 3, 2015.	
		First Office Action for Chinese Patent Application No. 201180064927.6 (Attorney Docket No. 03P049CN).	
		International Preliminary Report on Patentability for International Patent Application No. PCT/US2011/021003, (Attorney Docket No. 03.P049PCT), Mailed July 16, 2013, 12 pages.	
		International Search Report and Written Opinion for International Patent Application No. PCT/US2011/021003 (Attorney Docket No. 8241P049PCT), mailed May 13, 2011, 15 pages.	
		Non Final Office Action for Japanese Patent Application No. 2013-549393 (Attorney Docket No. 03P049JP), mailed August 5, 2014, 5 pages.	
		Notice of Allowance for Japanese Patent Application 2013-549393, mailed October 1, 2015 (Attorney Docket No. 03.P049JP)	
		Notice of Allowance for U.S. Application No. 13/995,900 (Attorney Docket No. 03.P049US) mailed January 29, 2016, 7 pages.	
		Office action for Canadian Patent Application No. 2,823,295, mailed November 13, 2016 (Attorney Docket No. 008241.P049CA).	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /D.T.D/

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
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	Art Unit	2467
	Examiner Name	DUONG, DUC T
	Attorney Docket Number	03.P049USC

EXAMINER SIGNATURE			
Examiner Signature	/DUC T DUONG/	Date Considered	06/09/2017

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

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.
[4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /D.T.D/

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	Application Number	15/182,513
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	First Named Inventor	Peter Chow
	Art Unit	2467
	Examiner Name	DUONG, DUC T
	Attorney Docket Number	03.P049USC

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e) (1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e) (2).

☐ See attached certification statement.

X Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ None

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Usman A. Mughal/	Date (YYYY-MM-DD)	2017-02-23
Name/Print	Usman Mughal	Registration Number	62887

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /D.T.D/

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	4820	(monitor$3 or detect$3 or detemin$3) with lan with wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:25
S2	355	(monitor$3 or detect$3 or detemin$3 or identify) with lan with wan with (condition or status or state)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:27
S3	278	S2 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:28
S4	93	S3 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:28
S5	6865	(collect$3 or snoop$3 or sniff$) with lan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:34
S6	3248	(collect$3 or snoop$3 or sniff$) with wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:34
S7	2272	S5 and S6	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:34
S8	175	S7 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:34
S9	150	S8 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:34
S10	2423	(lan adj2 (interface or port)) same (wan adj2 (interface or port))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:36

S11	730	S10 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:36
S12	348	S11 and ((monitor$3 or detect$3 or detemin$3 or identify) with (condition or status or state))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:36
S13	312	S12 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:36
S14	1937247	(monitor$3 or detect$3 or determin$3 or identify) near5 (condition or status or state or failure or fault$2 or congestion)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:50
S15	41	S10 same S14	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:51
S16	16	S15 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:51
S17	8	S16 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:51
S18	255	(monitor$3 or detect$3 or determin$3 or identify) near5 (condition or status or state or failure or fault$2 or congestion) with lan near5 wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:14
S19	43	S18 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:15
S20	35	S19 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:15
S21	802	(lan adj2 (interface or port or connection or connector)) same (wan adj2 (interface or port or connection or connector)) same (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:26
S22	673	S21 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:27

S23	172	S22 and "370"/$.ccls.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:27
S24	712	(monitor$3 or detect$3 or determin$3 or identify) near5 (condition or status or state or failure or fault$2 or congestion or performance) with (lan or ethernet) with (internet or wan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:35
S25	167	S24 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:35
S26	79	S25 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:35
S27	544	S24 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:41
S28	111	S27 and "370"/$.ccls.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:43
S29	1226	(management or gateway) same ((lan or ethernet) adj2 (interface or port or connection or connector)) same (wan adj2 (interface or port or connection or connector))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:46
S30	540	S29 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:46
S31	491	S30 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:46
S32	130	(monitor$3 or detect$3 or determin$3 or identify) near5 (condition or status or state or failure or fail$4 or fault$2 or congestion or performance) same ((lan or ethernet) adj2 (interface or port or connection or connector)) with ((internet or wan) adj2 (interface or port or connection or connector))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 17:27
S33	106	S32 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 17:27
S34	7	"2007146048"	US-PGPUB;	OR	ON	2015/04/27 17:50

			USPAT; EPO; DERWENT			
S35	250	(monitor$3 or detect$3 or determin$3 or identify) with ((lan or ethernet) adj2 (interface or port)) with ((internet or wan) adj2 (interface or port))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 17:55
S36	209	S35 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 17:55
S37	674	(failure or fail$4 or fault$2 or congest$3) with (lan or ethernet or rj$145) with (wan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 18:24
S38	674	(failure or fail$4 or fault$2 or congest$3) with (lan or ethernet or rj$145) with (wan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 19:43
S39	582	S38 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 19:44
S40	55	S39 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 19:44
S41	4408	(monitor$3 or measur$3 or analyz$3) with (lan or ethernet or rj$145) with (wan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 20:00
S42	158	(monitor$3 or measur$3 or analyz$3) with (lan or ethernet or rj45 or rj-45) with (wan) with performance	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 20:01
S43	171	(monitor$3 or measur$3 or analyz$3 or determin$3) with (lan or ethernet or rj45 or rj-45) with (wan) with performance	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 20:01
S44	145	S43 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 20:01
S45	3680	(monitor$3 or detect$3 or determin$3 or identify or analyz$3) near5 (condition or status or state or failure or fail$4 or fault$2 or congestion or performance) near5 (lan or ethernet)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:43
S46	159	S45 same (dsl or adsl)	US-PGPUB;	OR	ON	2015/04/29 08:44

			USPAT; EPO; DERWENT			
S47	153	S46 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:44
S48	8955	(collect$3 or snoop$3 or sniff$ or analyz$3) with lan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:46
S49	143	S48 same (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:46
S50	130	S49 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:46
S51	8571	manag$5 near3 lan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:56
S52	64	S51 same (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:56
S53	51	S52 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:56
S54	10593	((lan or ethernet or rj45 or rj-45) adj2 (interface or port or connection)) same ((wan or internet) adj2 (interface or port or connection))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:08
S55	522	S54 same (collect$3 or snoop$3 or sniff$ or analyz$3)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:09
S56	423	S55 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:09
S57	376	S54 same (collect$3)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:10
S58	313	S57 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB;	OR	ON	2015/04/29 09:10

			USPAT; EPO; DERWENT			
S59	6482	(collect$3 with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:33
S60	410	S59 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:34
S61	358	S60 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:34
S62	2100	(collect$3 with lan with wan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:37
S63	157	S62 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:37
S64	134	S63 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:37
S65	10608	((lan or ethernet or rj45 or rj-45) adj2 (interface or port or connection)) same ((wan or internet) adj2 (interface or port or connection))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:53
S66	522	S65 same (collect$3 or snoop$3 or sniff$ or analyz$3)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:53
S67	423	S66 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:53
S68	468	h04l41/04.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:57
S69	0	S67 and S68	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:57
S70	2633	h04l41/06.cpc.	US-PGPUB;	OR	ON	2015/05/03 22:57

			USPAT; EPO; DERWENT			
S71	1	S67 and S70	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:57
S72	436	h04l41/0604.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:58
S73	11	S72 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:58
S74	1193	h04l41/0631.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:59
S75	0	S67 and S74	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:59
S76	38	S74 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:59
S77	941	h04l41/0677.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:59
S78	11	S77 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:59
S79	120	h04l41/0695.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:59
S80	0	S79 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:00
S81	1200	h04l41/08.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:00
S82	11	S81 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB;	OR	ON	2015/05/03 23:00

			USPAT; EPO; DERWENT			
S83	354	h04l41/085.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:00
S84	4	S83 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:00
S85	1493	h04l41/0853.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:00
S86	41	S85 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:00
S87	1384	h04l41/0856.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:01
S88	41	S87 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:01
S89	214	h04l41/0859.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:01
S90	3	S89 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:01
S91	1831	h04l43/04.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:02
S92	87	S91 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:03
S93	3292	h04l43/10.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:03
S94	127	S93 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB;	OR	ON	2015/05/03 23:03

			USPAT; EPO; DERWENT			
S95	53	S94 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:03
S96	1796	h04l43/12.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:03
S97	48	S96 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:03
S98	5460	h04l43/50.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:04
S99	60	S98 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:04
S100	140	(peter near2 chow).inv.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:04
S101	2	S100 and (lan and wan and manag$5 and condition).clm.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:05
S102	81	(rhee near2 wonjong).inv.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:05
S103	2	S102 and (lan and wan and manag$5 and condition).clm.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:05
S104	39	(tehrani near2 ardavan).inv.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:05
S105	2	S104 and (lan and wan and manag$5 and condition).clm.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:05
S106	29	(goldburg near2 marc).inv.	US-PGPUB;	OR	ON	2015/05/03 23:06

			USPAT; EPO; DERWENT			
S107	2	S106 and (lan and wan and manag$5 and condition).clm.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:06
S108	6257	h04l43/50.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:35
S109	69	S108 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:35
S110	2369	(collect$3 with lan with wan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:41
S111	181	S110 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:41
S112	136	S111 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:41
S113	3030	(collect$3 or snoop$3 or sniff$ or analyz$3) with ((wan or internet or ip) adj2 (connection or interface))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:47
S114	702	(collect$3 or snoop$3 or sniff$ or analyz$3) with ((lan) adj2 (connection or interface))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:48
S115	188	S113 and S114	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:48
S116	167	S115 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:48
S117	2	"20140321298"	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 18:11
S121	2699	(collect$3 with lan with wan)	US-PGPUB;	OR	ON	2016/09/19 03:48

			USPAT; EPO; DERWENT			
S122	197	S121 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:48
S123	136	S122 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:48
S124	2	"9,369,370"	US-PGPUB; USPAT; FPRS	OR	ON	2016/09/19 03:49
S125	7981	(collect$3 or snoop$3 or sniff$3) with lan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:51
S126	2998	S125 same wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:51
S127	231	S126 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:51
S128	166	S127 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:51
S129	5718	(fault$3 or fail$4) with lan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:53
S130	690	S129 same wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:53
S131	102	S130 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:53
S132	73	S131 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:53
S133	2329	(diagnostic or diagnos$3) with lan	US-PGPUB; USPAT;	OR	ON	2016/09/19 03:58

			EPO; DERWENT			
S134	630	S133 same wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:59
S135	70	S134 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:59
S136	49	S135 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:59
S137	7530	(collect$3 or snoop$3 or sniff$3 or monitor$3) with lan with wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 16:31
S138	1167	S137 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 16:31
S139	763	S138 and (diagnostic or failure or fault$2 or congestion)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 16:32
S140	556	S139 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 16:32
S141	3996	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing) with lan with wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 16:35
S142	354	S141 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 16:36
S143	239	S142 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 16:36
S144	243	lan with wan with backhaul	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 16:44
S145	175	S144 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO;	OR	ON	2017/06/09 16:44

			DERWENT			
S146	17056	lan with wan same dsl	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 16:45
S147	983	lan same (internet or wan (ip adj2 network)) same backhaul	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 16:47
S148	457	S147 and dsl	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 16:47
S149	377	S148 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 16:47
S150	359	lan with (interface or connect$3 or couple$1) with (internet or wan (ip adj2 network)) same backhaul	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 17:03
S151	187	S150 and dsl	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 17:03
S152	13421	lan with (interface or connect$5 or couple$1) with (internet or wan (ip adj2 network)) same dsl	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 17:20
S153	3996	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing) with lan with wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 17:22
S154	123	S152 and S153	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 17:22
S155	84	S154 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 17:23
S156	564	lan same wan same backhaul	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 18:54
S157	56	lan same wan same backhaul same dsl	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 18:54
S158	12990	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing) with lan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 18:58
S159	6366	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or	US-PGPUB;	OR	ON	2017/06/09 18:58

		probing) with wan	USPAT; EPO; DERWENT			
S160	4249	S158 and S159	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 18:58
S161	352	S160 and dsl	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 18:58
S162	240	S161 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 18:59
S163	4862	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing or monitor$3) with lan near5 (interface or port or media or medium or connection)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 19:05
S164	1914	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing or monitor$3) with wan near5 (interface or port or media or medium or connection)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 19:05
S165	887	S163 and S164	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:06
S166	629	S165 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:06
S167	449	S166 and (fault$3 or fail$4)	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:07
S168	8215	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing or monitor$3) with lan with wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 19:19
S169	131	S168 same (fault$3 or fail$4)	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:19
S170	87	S169 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:19
S171	14499	(manag$5 or provision$3 or optimiz$3 or monitor$3) with lan with wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 19:28
S172	6855	S171 and (fault$3 or fail$4)	US-PGPUB; USPAT;	OR	ON	2017/06/09 19:28

			FPRS			
S173	1242	S172 and dsl	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:28
S174	909	S173 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:29
S175	991	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing or monitor$3) with lan with wan near5 (interface or port or media or medium or connection)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 19:30
S176	27	S175 same (fault$3 or fail$4)	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:31
S177	1427	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing or monitor$3) with lan with (internet or wan or broad$1band) near5 (interface or port or media or medium or connection)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 19:33
S178	48	S177 same (fault$3 or fail$4)	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:33
S179	32	S178 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:33

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S118	0	((lan adj2 interface) and (wan adj2 interface) and event and collect$3 and condition).clm.	USPAT	OR	ON	2016/01/08 18:18
S119	0	((lan adj2 interface) and (wan adj2 interface) and event and collect$3).clm.	USPAT	OR	ON	2016/01/08 18:19
S120	8	((lan adj2 interface) and (wan adj2 interface) and event).clm.	US-PGPUB; USPAT	OR	ON	2016/01/08 18:19

6/9/2017 8:59:17 PM
C:\Users\dduong\Documents\EAST\Workspaces\15182513.wsp

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15182513	CHOW ET AL.
	Examiner	Art Unit
	DUC DUONG	2467

CPC- SEARCHED		
Symbol	Date	Examiner
see CPC search printout	6/9/2017	DTD

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
East text			
inventor name			

SEARCH NOTES		
Search Notes	Date	Examiner
East text	6/9/2017	DTD
inventor name	6/9/2017	DTD
h04l41/04,h04l41/06,h04l41/0604,h04l41/0631,h04l41/0677,h04l41/0695,h04l41/08,h04l41/085,h04l41/0853,h04l41/0856,h04l441/0859 (text search)	6/9/2017	DTD
h04l43/10,h04l43/12,h04l43/50 (text search)	6/9/2017	DTD
see Marcus Smith	6/9/2017	DTD
see Hassan Phillips	6/9/2017	DTD

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

/DUC DUONG/ Examiner.Art Unit 2467	

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15182513	CHOW ET AL.
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✓	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	09/19/2016	06/09/2017							
	1	✓	✓							
	2		✓							
	3		✓							
	4		✓							
	5		✓							
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	16		✓							
	17		✓							
	18		✓							
	19		✓							
	20		✓							

PTO/SB/08a (01-10)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	15182513
Filing Date	2016-06-14
First Named Inventor	Wonjong Rhee
Art Unit	2467
Examiner Name	Duc T. Duong
Attorney Docket Number	20145-049USC

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20030145082	A1	2003-07-31	Son	

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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	2007146048	WO	A2	2007-12-21	Cioffi et al.		

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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15182513
	Filing Date	2016-06-14
	First Named Inventor	Wonjong Rhee
	Art Unit	2467
	Examiner Name	Duc T. Duong
	Attorney Docket Number	20145-049USC

	1	Office Action dated 2016-09-22, in Candian Patent Application No. 2,823,295 (3pgs).	
	2	Office Action dated 2017-06-21, in Canadian Patent Application No. 2,823,295 (5pgs).	

If you wish to add additional non-patent literature document citation information please click the Add button Add

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

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

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15182513
	Filing Date	2016-06-14
	First Named Inventor	Wonjong Rhee
	Art Unit	2467
	Examiner Name	Duc T. Duong
	Attorney Docket Number	20145-049USC

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Michael North/	Date (YYYY-MM-DD)	2017-08-08
Name/Print	Michael North	Registration Number	46963

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal

Application Number:	15182513
Filing Date:	14-Jun-2016
Title of Invention:	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS
First Named Inventor/Applicant Name:	Peter Chow
Filer:	Michael V. North/Nita Miller
Attorney Docket Number:	20145-049USC

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

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

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	180	180
		Total in USD ($)		**180**

Electronic Acknowledgement Receipt

EFS ID:	30023442
Application Number:	15182513
International Application Number:	
Confirmation Number:	6886
Title of Invention:	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS
First Named Inventor/Applicant Name:	Peter Chow
Customer Number:	146571
Filer:	Michael V. North/Nita Miller
Filer Authorized By:	Michael V. North
Attorney Docket Number:	20145-049USC
Receipt Date:	08-AUG-2017
Filing Date:	14-JUN-2016
Time Stamp:	20:05:09
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	$180
RAM confirmation Number	080917INTEFSW00006670506925
Deposit Account	506925
Authorized User	Nita Miller

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 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	Transmittal Letter	049USC_SIDS_Trans.pdf	28385 95aa38a04b0445db8aabaaa30f15ae414650633d7	no	3
Warnings:					
Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	049USC_SIDS_SB08.pdf	612356 5fd28c93fb8c0cce35d17ae3660454ed9226bbd6	no	4
Warnings:					
Information:					
3	Non Patent Literature	049USC_SIDS_NPL1.pdf	272030 196d2d88119b994a0dc2fa1785f24a29b085d78e	no	3
Warnings:					
Information:					
4	Non Patent Literature	049USC_SIDS_NPL2.pdf	3119483 8f3a22ffbbc25537de3759f1ca06a595230b72a9	no	5
Warnings:					
Information:					
5	Foreign Reference	049USC_SIDS_FR1.pdf	7533467 d47299145cfa8d5c4d7408e2a902529737de64a8	no	86
Warnings:					
Information:					
6	Fee Worksheet (SB06)	fee-info.pdf	30978 e08ee59a4322bf0ec2c5fd64d986b535c716087c	no	2
Warnings:					
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Total Files Size (in bytes):	11596699

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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.

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s)	:	Peter Chow	Confirmation No.	:	6886
Appl. No.	:	15/182,513			
Filing Date	:	2016-06-14			
Title	:	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS			
Art Unit	:	2467			
Examiner	:	Duc T. Duong			
Docket No.	:	20145-049USC			

CERTIFICATE OF MAILING (37 CFR §1.8)

I hereby certify, pursuant to 37 CFR §1.8, that this correspondence is being electronically transmitted via EFS-Web addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date shown below:

Date: 2017-08-08 By: /Nita Miller/
Nita Miller

INFORMATION DISCLOSURE STATEMENT

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

SIR or MADAM:

Filed herewith, in accordance with the provisions of 37 CFR §§ 1.56 and 1.97–1.98, listing various references for consideration by the Examiner, is an Information Disclosure Statement ("IDS").

The filing of this IDS shall not be construed as a representation that a search has been made, or regarding the completeness of the list of references, or that no other material information exists. Furthermore, the filing of this IDS shall not be construed as a representation that inclusion of a reference in this list is an admission that it is prior art or is pertinent to this application, or as an admission that the information listed is, or may be considered to be, material to the patentability of the above referenced application. The filing of this IDS shall not be construed in any manner as an admission against interest.

This IDS is being filed:

☐ within three months of the filing date of a national application, other than a continued prosecution application under § 1.53(d);

☐ within three months of the date of entry of the national stage as set forth in § 1.491 in an international application;

☐ before the mailing of a first Office Action on the merits;

☐ before the mailing of a first Office Action after the filing of a request for continued examination under § 1.114;

☒ after three months of the filing date or entry into the national stage or after the mailing of a first Office action on the merits, but before the mailing date of any final action under § 1.113, a notice of allowance under §1.311, or an action that otherwise closes prosecution in the application;

AND

☒ enclosed herein is the fee set forth in 37 CFR § 1.17(p);

OR

☐ Applicant certifies pursuant to 37 CFR § 1.97(e):

☐ That each item of information contained in the information disclosure statement was first cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this information disclosure statement;

OR

☐ That no item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing this certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in § 1.56(c) more than three months prior to the filing of this information disclosure statement.

☐ on or before the payment of the issue fee but after the mailing of a final action under § 1.113, a notice of allowance under §1.311, or an action that otherwise closes prosecution in the application;

AND

☐ enclosed herein is the fee set forth in 37 CFR § 1.17(p);

AND

☐ Applicant certifies pursuant to 37 CFR § 1.97(e):

☐ That each item of information contained in the information disclosure statement was first cited in a communication from a foreign patent office in a counterpart foreign application

not more than three months prior to the filing of this information disclosure statement;

OR

☐ That no item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing this certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in § 1.56(c) more than three months prior to the filing of this information disclosure statement.

☒ Applicant submits that the enclosed Information Disclosure Statement is timely; therefore, no fee is required.

☒ Except as provided for under 37 CFR § 1.98(a)(2), Applicant has enclosed a copy of each listed reference.

☒ The above referenced application relies upon Application No. 13/995,900, filed 2011-01-12, for an earlier effective filing date under 35 U.S.C. 120. Although, pursuant to 37 CFR § 1.98(d), the references submitted herein are not required to be submitted for the Examiner to consider them, Applicant submits the references herein so that the information will be printed on the patent issuing from this application.

☐ Pursuant to 37 CFR § 1.704(d), Applicant certifies that each of the references cited herein were first cited in a communication from a foreign patent office in a counterpart application and that this communication was not received by any individual designated in 37 CFR § 1.56(c) more than thirty days prior to the filing of this Information Disclosure Statement.

Consideration of the listed references and favorable action are requested. If any additional fees are due in connection with the filing of this Information Disclosure Statement, the Commissioner is hereby authorized to charge such fees to Deposit Account 50-2776.

Respectfully submitted,

Date: 2017-08-08

By: /Michael V. North/
Michael V. North
Reg. No. 46963

Customer No.
146571
UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s)	:	Peter Chow *et al.*	Confirmation No.: 6886
Appl. No.	:	15/182,513	
Filed	:	June 14, 2016	
Title	:	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS	
Examiner	:	Duct Duong	
Art Unit	:	2467	
Docket No.	:	20145-049USC	

CERTIFICATE OF MAILING (37 CFR §1.8)

I hereby certify, pursuant to 37 CFR §1.8, that this correspondence is being electronically transmitted to the USPTO via EFS-Web addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date shown below:

Date: 2017-09-12 By: /Nita Miller
Nita Miller

RESPONSE TO NON-FINAL OFFICE ACTION

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

Examiner Duong:

This paper is responsive to the Non-Final Office Action mailed June 12, 2017, and having a shortened statutory period ending September 12, 2017. Accordingly, this paper is timely filed. Reconsideration is respectfully requested in view of the Amendments and Remarks below.

Amendments to the Claims appear in the complete Listing of Claims which may be found beginning at page **2** of this paper.

Remarks/Arguments may be found at page **7** of this paper.

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application, and reflects the Examiner's renumbering:

1. (Previously presented) A management device, comprising:

   a Local Area Network (LAN) interface to communicably interface the management device with a LAN;

   a Wide Area Network (WAN) interface to communicably interface the management device with a WAN, wherein the WAN is to provide broadband connectivity to the LAN through a Digital Subscription Line (DSL) connection;

   a collection logic to collect LAN information from the LAN and WAN information from the WAN; and

   an analysis logic to jointly analyze the collected WAN information and the collected LAN information to identify an operational condition.

2. (Previously presented) The management device of claim 1 comprises: an implementation logic to initiate a management event responsive to the operational condition being identified.

3. (Previously presented) The management device of claim 2 comprises a diagnostics logic to jointly analyze the collected WAN information and the collected LAN information to diagnose a fault within the WAN based at least in part on the LAN information or to diagnose a fault within the LAN based at least in part on the WAN information.

4. (Previously presented) The management device of claim 3, wherein the implementation logic is to initiate a management event responsive to the fault being identified.

5. (Previously presented) The management device of claim 1, wherein the WAN information collected from the WAN comprises information specific to a second communication layer of the WAN, different than the first communication layer of the LAN.

6. (Previously presented) The management device of claim 1, wherein the operational condition identified based on the joint analysis comprises at least one of: network congestion within the WAN; network congestion within the LAN; excess power consumption by communication elements within the LAN; excess power consumption by communication elements within the WAN; bandwidth utilization of the WAN in excess of a maximum threshold; bandwidth availability of the WAN below a minimum threshold; a security breach within the LAN; or a network intrusion within the LAN.

7. (Previously presented) The management device of claim 1, wherein the collection logic is to collect the WAN information and the LAN information from one or more sources including:

a Digital Subscriber Line (DSL) Customer Premises Equipment (CPE) modem;

an in-home powerline device;

a Home Phoneline Network Alliance (HPNA) based device;

an in-home coax distribution device;

a G.hn (Global Home Networking Standard) compatible device;

an in-home metering communication device;

an in-home appliance communicatively interfaced with the LAN;

a wireless femtocell base station;

a wireless WiFi compatible base station;

a wireless mobile device repeater;

a wireless mobile device base station;

a set-top box (STB)/set-top unit (STU) customer electronics device;

an Internet Protocol (IP) enabled television;

an IP enabled media player;

an IP enabled gaming console;

an Ethernet gateway;

a computing device connected to the LAN;

an Ethernet connected computer peripheral device;

an Ethernet connected router;

an Ethernet connected wireless bridge;

an Ethernet connected network bridge; or

an Ethernet connected network switch.

8. (Previously presented) The management device of claim 1 comprises a Digital Subscriber Line (DSL) modem operating as a Customer Premises Equipment (CPE) device to communicatively interface a DSL based backhaul provided via the WAN to the LAN.
9. (Previously presented) The management device of claim 1 comprises a cable modem operating to communicatively interface a cable network based backhaul provided via the WAN to the LAN.
10. (Previously presented) The management device of claim 1 comprises a wireless modem operating to communicatively interface a wireless based backhaul provided via the WAN to the LAN.
11. (Previously presented) The management device of claim 1 comprises a powerline modem

operating to communicatively interface a powerline based backhaul provided via the WAN to the LAN.

12. (Previously presented) The management device of claim 1 comprises an Optical Network Terminal (ONT) operating to communicatively interface a fiber optic based backhaul provided via the WAN to the LAN.

13. (Previously presented) The management device of claim 1 comprises a router operating to communicatively interface a WAN connected backhaul to the LAN.

14. (Previously presented) The management device of claim 1 comprises a computing device remotely located from a WAN/LAN interface through which a communication channel related to the WAN and the LAN is connected, wherein the computing device is to provide remote monitoring and management functionality for the WAN/LAN interface.

15. (Previously presented) A method comprising:

coupling a Local Area Network (LAN) interface to a management device with a LAN;

coupling a Wide Area Network (WAN) interface to the management device with a WAN, wherein the WAN is to provide broadband connectivity to the LAN through a Digital Subscription Line (DSL) connection;

collecting LAN information from the LAN and WAN information from the WAN; and

analyzing jointly the collected WAN information and the collected LAN information to identify an operational condition.

16. (Previously presented) The method of claim 15 comprises diagnosing a fault within the WAN or the LAN based on the operational condition identified.

17. (Previously presented) The method of claim 15 comprises initiating a management event responsive to the operational condition being identified.

18. (Previously presented) The method of claim 15, wherein the WAN information collected from the WAN comprises information specific to a second communication layer of the WAN, different than the first communication layer of the LAN.

19. (Currently amended) A non-transitory machine-readable storage media having machine readable instructions that when executed by a processor in a management device, cause the management device to perform a method comprising:

coupling a Local Area Network (LAN) interface to the management device with a LAN;

coupling a Wide Area Network (WAN) interface to the management device with a WAN, wherein the WAN is to provide broadband connectivity to the LAN through a Digital Subscription Line (DSL) connection;

collecting LAN information from the LAN and WAN information from the WAN; and

analyzing jointly the collected WAN information and the collected LAN information to identify an operational condition.

20. (Currently amended) The non-transitory machine-readable storage media of claim 19 having further machine readable instructions that when executed cause the process to perform an operation which comprises diagnosing a fault within the WAN or the LAN based on the operational condition identified.

REMARKS/ARGUMENTS

In the Non-Final Office Action (hereinafter, "Office Action"), mailed on June 12, 2017, the Examiner rejected all pending claims. By this response, claims 19-20 are amended; no claims are cancelled and no claims are added. Following entry of this response, claims 1-20 will be pending in the application.

Claim Rejections

I. Double Patenting

In the Office Action, the Examiner states that "*Claims 1-20 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1, 2, 8-10, 16, 22, and 28 of U.S. Patent No. 9,369,370 B2. Although the claims at issue are not identical, they are not patentably distinct from each other because the application's claims 1-20 merely broaden the scope of the patented claims 1, 2, 8-10, 16, 22, and 28 by excluding certain limitations of the parent claims. The application's claims are nearly identical in every other aspect to the patented claims*."

Since all pending claims are rejected at this point in the prosecution of this application and as further prosecution may require claim amendments that render this non-statutory double patenting rejection moot, Applicant respectfully requests that the Examiner hold this rejection in abeyance until such time as the claims are finalized and otherwise allowable. Only at that point can Applicant make a proper determination about whether a terminal disclaimer is necessary and prudent.

II. Rejection of Claims under pre-AIA 35 U.S.C. § 101

A. Claims 19-20

The Examiner rejected claims 19-20, under pre-AIA 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claim(s) does/do not fall within at least one of the four categories of patent eligible subject matter because these claims recited for a "machine-readable storage media" and such media fails to explicitly recited in the claim as being "non-transitory."

Applicant has amended claims 19-20 for further clarification by incorporating limitation "non-transitory" to define the machine-readable storage media.

Therefore, Applicant respectfully requests withdrawn of the rejections of claims 19-20.

B. Claims 1, 7-13, 15 and 19

In the Office Action, the Examiner rejected claims 1, 7-13, 15, and 19, under pre-AIA 35 U.S.C. 101 because the claimed invention is directed to judicial exception (i.e., a law of nature, a natural phenomenon, or an abstract idea) without significantly more.

Applicant respectfully traverses the rejection and asserts that claimed invention in claims 1, 7-13, 15, and 19 has significant more than just an abstract idea.

Claim 1 requires limitation "a collection logic to collect LAN information from the LAN and WAN information from the WAN" and "an analysis logic to jointly analyze the collected WAN information and the collected LAN information to identify an operational condition".

Applicant respectfully asserts that "jointly analyze the collected WAN information and the collected LAN information to identify an operational condition" is significantly more than just an idea and the limitation also provides improvements over traditional practice.

[0006] of the present application discloses that "*Moreover,* ***the means of control, monitoring and provisioning, as well as control channels on the two networks, WAN and LAN, are typically distinct and separate****, even when the WAN and the LAN are interconnected.*" Therefore, jointly analyzing WAN information collected from a WAN and LAN information collected from a LAN provides a patentable distinct approach, compared to the tradition. [0006] also explicitly discloses that "*some problems and issues exhibited via the WAN may be related to configurations, settings or problems on the LAN side. Furthermore, the WAN might be operated by a reseller, which does not have access to all management functionalities (such as monitoring, provisioning, control) to which the owner or the wholesaler of the WAN system may have access.* ***Access to such functionalities may be achieved by the embodiments described herein***."

Based on at least the above remarks, Applicant respectfully asserts that claim 1, and its dependent claims 7-13, 15, and 19, have significant more than just an abstract idea.

Applicant therefore respectfully requests withdrawn of the rejections of claims 1, 7-13, 15, and 19 under 35 U.S.C. 101.

CONCLUSION

In view of the above arguments, Applicant believes that pending claims 1-20 are allowable and respectfully requests that a Notice of Allowance be issued for this application in its current state. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned may be reached by telephone at 520-288-8876.

If any fees are due in connection with this filing the Commissioner is authorized to charge such fees to Deposit Account 50-2776.

Respectfully submitted,

Date: 2017-09-12

By: /Xin Dai/
Xin Dai, Ph.D.
Reg. No. 72,098

Customer No.
146571
UNITED STATES PATENT & TRADEMARK OFFICE

Electronic Acknowledgement Receipt

EFS ID:	30339109
Application Number:	15182513
International Application Number:	
Confirmation Number:	6886
Title of Invention:	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS
First Named Inventor/Applicant Name:	Peter Chow
Customer Number:	146571
Filer:	Michael V. North/Nita Miller
Filer Authorized By:	Michael V. North
Attorney Docket Number:	20145-049USC
Receipt Date:	12-SEP-2017
Filing Date:	14-JUN-2016
Time Stamp:	15:32:47
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		049USC_RNFOA.pdf	65078 717a35209a7c0c97c8b5393b3b5d7870bda fcd37	yes	9

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
	Claims	2	6
	Applicant Arguments/Remarks Made in an Amendment	7	9
Warnings:			
Information:			
	Total Files Size (in bytes):	65078	

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 15/182,513	Filing Date 06/14/2016	☐ 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 09/12/2017	(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))	* 20	Minus	** 20	= 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.

SLIE
SHARON M. WEST

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.
15/182,513	06/14/2016	Peter Chow	20145-049USC	6886

146571 7590 09/27/2017
North Weber & Baugh LLP - ASSIA
3260 Hillview Avenue, 1st Floor
Palo Alto, CA 94304

EXAMINER	
DUONG, DUC T	

ART UNIT	PAPER NUMBER
2467	

NOTIFICATION DATE	DELIVERY MODE
09/27/2017	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):

docket1@northweber.com

Advisory Action Before the Filing of an Appeal Brief	**Application No.** 15/182,513	**Applicant(s)** CHOW ET AL.	
	Examiner DUC DUONG	**Art Unit** 2467	**AIA (First Inventor to File) Status** No

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

THE REPLY FILED 12 September 2017 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

NO NOTICE OF APPEAL FILED

1. ☒ The reply was filed after a final rejection. No Notice of Appeal has been filed. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114 if this is a utility or plant application. Note that RCEs are not permitted in design applications. The reply must be filed within one of the following time periods:
   a) ☒ The period for reply expires *3* months from the mailing date of the final rejection.
   b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action; or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.
   c) ☐ A prior Advisory Action was mailed more than 3 months after the mailing date of the final rejection in response to a first after-final reply filed within 2 months of the mailing date of the final rejection. The current period for reply expires months from the mailing date of *the prior Advisory Action* or SIX MONTHS from the mailing date of the final rejection, whichever is earlier.

   Examiner Note: If box 1 is checked, check either box (a), (b) or (c). ONLY CHECK BOX (b) WHEN THIS ADVISORY ACTION IS THE FIRST RESPONSE TO APPLICANT'S FIRST AFTER-FINAL REPLY WHICH WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. ONLY CHECK BOX (c) IN THE LIMITED SITUATION SET FORTH UNDER BOX (c). See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) or (c) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37 CFR 41.37(a).

AMENDMENTS

3. ☐ The proposed amendments filed after a final rejection, but prior to the date of filing a brief, will not be entered because
   a) ☐ They raise new issues that would require further consideration and/or search (see NOTE below);
   b) ☐ They raise the issue of new matter (see NOTE below);
   c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
   d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.

   NOTE: _____. (See 37 CFR 1.116 and 41.33(a)).

4. ☐ The amendments are not in compliance with 37 CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicant's reply has overcome the following rejection(s): _____.
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☒ For purposes of appeal, the proposed amendment(s): (a) ☐ will not be entered, or (b) ☒ will be entered, and an explanation of how the new or amended claims would be rejected is provided below or appended.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.
9. ☐ The affidavit or other evidence filed after final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
10. ☐ The affidavit or other evidence filed after the date of filing the Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
11. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

12. ☒ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: See Continuation Sheet.
13. ☒ Note the attached Information *Disclosure Statement*(s). (PTO/SB/08) Paper No(s). _____
14. ☐ Other: _____.

STATUS OF CLAIMS

15. The status of the claim(s) is (or will be) as follows:
    Claim(s) allowed: .
    Claim(s) objected to: .
    Claim(s) rejected: 1-20.
    Claim(s) withdrawn from consideration: .

/DUC DUONG/
Examiner, Art Unit 2467

Continuation of 12. does NOT place the application in condition for allowance because: Claims 1,7-13,15,and 19 still directed to an abstract idea. The steps collecting and analyzing can be performed mentally and are similar to the concepts and idea that have been identified as abstract by the courts (i.e. Fairwarning, Electric Power, and Grams). The coupling of LAN and WAN interface are generic computer functions that does not amount to siginficantly more than the abstract idea. Thus, based on reasons set forth here the rejection is maintained.

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)
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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**		
	Application Number	15182513
	Filing Date	2016-06-14
	First Named Inventor	Wonjong Rhee
	Art Unit	2467
	Examiner Name	Duc T. Duong
	Attorney Docket Number	20145-049USC

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1					

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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20030145082	A1	2003-07-31	Son	

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FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2] i	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	2007146048	WO	A2	2007-12-21	Cioffi et al.		

If you wish to add additional Foreign Patent Document citation information please click the Add button Add

NON-PATENT LITERATURE DOCUMENTS Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]

EFS Web 2.1.17

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /D.T.D/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15182513
	Filing Date	2016-06-14
	First Named Inventor	Wonjong Rhee
	Art Unit	2467
	Examiner Name	Duc T. Duong
	Attorney Docket Number	20145-049USC

	1	Office Action dated 2016-09-22, in Candian Patent Application No. 2,823,295 (3pgs).	
	2	Office Action dated 2017-06-21, in Canadian Patent Application No. 2,823,295 (5pgs).	

If you wish to add additional non-patent literature document citation information please click the Add button Add

EXAMINER SIGNATURE

Examiner Signature	/DUC T DUONG/	Date Considered	09/21/2017

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

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /D.T.D/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	15182513
	Filing Date	2016-06-14
	First Named Inventor	Wonjong Rhee
	Art Unit	2467
	Examiner Name	Duc T. Duong
	Attorney Docket Number	20145-049USC

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Michael North/	Date (YYYY-MM-DD)	2017-08-08
Name/Print	Michael North	Registration Number	46963

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /D.T.D/

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /D.T.D/

9/21/17
OK to enter.
DTD

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s)	:	Peter Chow *et al.*	Confirmation No.: 6886
Appl. No.	:	15/182,513	
Filed	:	June 14, 2016	
Title	:	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS	
Examiner	:	Duct Duong	
Art Unit	:	2467	
Docket No.	:	20145-049USC	

CERTIFICATE OF MAILING (37 CFR §1.8)

I hereby certify, pursuant to 37 CFR §1.8, that this correspondence is being electronically transmitted to the USPTO via EFS-Web addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date shown below:

Date: 2017-09-12 By: /Nita Miller
Nita Miller

RESPONSE TO NON-FINAL OFFICE ACTION

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

Examiner Duong:

This paper is responsive to the Non-Final Office Action mailed June 12, 2017, and having a shortened statutory period ending September 12, 2017. Accordingly, this paper is timely filed. Reconsideration is respectfully requested in view of the Amendments and Remarks below.

Amendments to the Claims appear in the complete Listing of Claims which may be found beginning at page **2** of this paper.

Remarks/Arguments may be found at page **7** of this paper.

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
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REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	15182513	Filing Date	2016-06-14	Docket Number (if applicable)	20145-049USC	Art Unit	2467
First Named Inventor	Peter Chow			Examiner Name	Duct Duong		

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 502776

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

Applicant Signature

PTO/SB/30EFS (07-09)
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Signature of Registered U.S. Patent Practitioner			
Signature	/Michael North/	Date (YYYY-MM-DD)	2017-10-27
Name	Michael North	Registration Number	46963

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.

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7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s)	:	Peter Chow *et al.*	Confirmation No.: 6886
Appl. No.	:	15/182,513	
Filed	:	June 14, 2016	
Title	:	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS	
Examiner	:	Duct Duong	
Art Unit	:	2467	
Docket No.	:	20145-049USC	

CERTIFICATE OF MAILING (37 CFR §1.8)

I hereby certify, pursuant to 37 CFR §1.8, that this correspondence is being electronically transmitted to the USPTO via EFS-Web addressed to: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date shown below:

Date: 2017-10-27 By: /Nita Miller/
Nita Miller

AMENDMENT FILED WITH A REQUEST FOR CONTINUED EXAMINATION (RCE) UNDER 37 CFR 1.114

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

This paper is responsive to the Advisory Action mailed September 27, 2017, and having a shortened statutory period ending September 27, 2017. Applicant requests an extension of time for response within first month from September 27, 2017, to October 27, 2017, and submits herewith the requisite fee. Applicant submits this second Request for Continued Examination (RCE) Under 37 CFR 1.114, and respectfully requests further examination and reconsideration in view of the Amendments and Remarks set forth below.

Amendments to the Claims appear in the complete Listing of Claims which may be found beginning at page **2** of this paper.

Remarks/Arguments may be found at page **8** of this paper.

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application, and reflects the Examiner's renumbering:

1. (Previously presented) A management device, comprising:

   a Local Area Network (LAN) interface to communicably interface the management device with a LAN;

   a Wide Area Network (WAN) interface to communicably interface the management device with a WAN, wherein the WAN is to provide broadband connectivity to the LAN through a Digital Subscription Line (DSL) connection;

   a collection logic to collect LAN information from the LAN and WAN information from the WAN; and

   an analysis logic to jointly analyze the collected WAN information and the collected LAN information to identify an operational condition.

2. (Previously presented) The management device of claim 1 comprises: an implementation logic to initiate a management event responsive to the operational condition being identified.

3. (Previously presented) The management device of claim 2 comprises a diagnostics logic to jointly analyze the collected WAN information and the collected LAN information to diagnose a fault within the WAN based at least in part on the LAN information or to diagnose a fault within the LAN based at least in part on the WAN information.

4. (Previously presented) The management device of claim 3, wherein the implementation logic is to initiate a management event responsive to the fault being identified.

5. (Previously presented) The management device of claim 1, wherein the WAN information collected from the WAN comprises information specific to a second communication layer of the WAN, different than the first communication layer of the LAN.

6. (Previously presented) The management device of claim 1, wherein the operational condition identified based on the joint analysis comprises at least one of: network congestion within the WAN; network congestion within the LAN; excess power consumption by communication elements within the LAN; excess power consumption by communication elements within the WAN; bandwidth utilization of the WAN in excess of a maximum threshold; bandwidth availability of the WAN below a minimum threshold; a security breach within the LAN; or a network intrusion within the LAN.

7. (Previously presented) The management device of claim 1, wherein the collection logic is to collect the WAN information and the LAN information from one or more sources including:

a Digital Subscriber Line (DSL) Customer Premises Equipment (CPE) modem;

an in-home powerline device;

a Home Phoneline Network Alliance (HPNA) based device;

an in-home coax distribution device;

a G.hn (Global Home Networking Standard) compatible device;

an in-home metering communication device;

an in-home appliance communicatively interfaced with the LAN;

a wireless femtocell base station;

a wireless WiFi compatible base station;

a wireless mobile device repeater;

a wireless mobile device base station;

a set-top box (STB)/set-top unit (STU) customer electronics device;

an Internet Protocol (IP) enabled television;

an IP enabled media player;

an IP enabled gaming console;

an Ethernet gateway;

a computing device connected to the LAN;

an Ethernet connected computer peripheral device;

an Ethernet connected router;

an Ethernet connected wireless bridge;

an Ethernet connected network bridge; or

an Ethernet connected network switch.

8. (Previously presented) The management device of claim 1 comprises a Digital Subscriber Line (DSL) modem operating as a Customer Premises Equipment (CPE) device to communicatively interface a DSL based backhaul provided via the WAN to the LAN.
9. (Previously presented) The management device of claim 1 comprises a cable modem operating to communicatively interface a cable network based backhaul provided via the WAN to the LAN.

10. (Previously presented) The management device of claim 1 comprises a wireless modem operating to communicatively interface a wireless based backhaul provided via the WAN to the LAN.

11. (Previously presented) The management device of claim 1 comprises a powerline modem operating to communicatively interface a powerline based backhaul provided via the WAN to the LAN.

12. (Previously presented) The management device of claim 1 comprises an Optical Network Terminal (ONT) operating to communicatively interface a fiber optic based backhaul provided via the WAN to the LAN.

13. (Previously presented) The management device of claim 1 comprises a router operating to communicatively interface a WAN connected backhaul to the LAN.

14. (Previously presented) The management device of claim 1 comprises a computing device remotely located from a WAN/LAN interface through which a communication channel related to the WAN and the LAN is connected, wherein the computing device is to provide remote monitoring and management functionality for the WAN/LAN interface.

15. (Previously presented) A method comprising:

coupling a Local Area Network (LAN) interface to a management device with a LAN;

coupling a Wide Area Network (WAN) interface to the management device with a WAN, wherein the WAN is to provide broadband connectivity to the LAN through a Digital Subscription Line (DSL) connection;

collecting LAN information from the LAN and WAN information from the

WAN; and

analyzing jointly the collected WAN information and the collected LAN information to identify an operational condition.

16. (Previously presented) The method of claim 15 comprises diagnosing a fault within the WAN or the LAN based on the operational condition identified.

17. (Previously presented) The method of claim 15 comprises initiating a management event responsive to the operational condition being identified.

18. (Previously presented) The method of claim 15, wherein the WAN information collected from the WAN comprises information specific to a second communication layer of the WAN, different than the first communication layer of the LAN.

19. (Previously presented) A non-transitory machine-readable storage media having machine readable instructions that when executed by a processor in a management device, cause the management device to perform a method comprising:

coupling a Local Area Network (LAN) interface to the management device with a LAN;

coupling a Wide Area Network (WAN) interface to the management device with a WAN, wherein the WAN is to provide broadband connectivity to the LAN through a Digital Subscription Line (DSL) connection;

collecting LAN information from the LAN and WAN information from the WAN; and

analyzing jointly the collected WAN information and the collected LAN information to identify an operational condition.

20. (Previously presented) The non-transitory machine-readable storage media of claim 19 having further machine readable instructions that when executed cause the process to perform an operation which comprises diagnosing a fault within the WAN or the LAN based on the operational condition identified.

REMARKS/ARGUMENTS

In the Advisory Office Action (hereinafter, "Advisory Action"), mailed May 25, 2017, the Examiner rejected all pending claims. Examiner notes that the amendments in the response filed on September 12, 2017 were entered, and that the request for reconsideration has been considered but does NOT place the application in condition for allowance.

By this response, claims 1-20 are re-submitted; no claims are cancelled and no claims are added. Following entry of this response, claims 1-20 will be pending in the application.

Claim Rejections

I. Rejection of Claims under pre-AIA 35 USC § 101

A. Claims 1, 7-13, 15 and 19

In the Advisory Action, the Examiner states that "*Claims 1, 7-13, 15, and 19 still directed to an abstract idea. The steps collecting and analyzing can be performed mentally and are similar to the concepts and idea that have been identified as abstract by the courts (i.e. Fairwarning, Electric Power, and Grams). The coupling of LAN and WAN interface are generic computer functions that do not amount to significantly more than the abstract idea. Thus, based on reasons set forth here the rejection is maintained.*"

Applicant respectfully traverses the rejection and asserts that claimed invention in claims 1, 7-13, 15, and 19 has significant more than just an abstract idea.

The Examiner states that "*The steps collecting and analyzing can be performed mentally.*" Applicant respectfully disagrees. The LAN information and WAN information can not be collected mentally without involving structural components of LAN interface and WAN interface. Furthermore, the LAN information and WAN information can not be collected simply by the WAN and LAN interfaces themselves without involving a collection logic. The coupling of LAN and WAN interface may be generic computer components (not functions), however, they provides the necessary support to enable the limitation of "an analysis logic to jointly analyze the collected WAN information and the collected LAN information to identify an operational condition." Therefore, the limitation of the analysis logic for joint analysis and the

precedent limitations in claim 1 altogether form an integral part, which is definitely not an abstract idea.

Furthermore, applicant respectfully asserts that "jointly analyze the collected WAN information and the collected LAN information to identify an operational condition" is significantly more than just an idea and the limitation also provides improvements over traditional practice.

[0006] of the present application discloses that "*Moreover,* ***the means of control, monitoring and provisioning, as well as control channels on the two networks, WAN and LAN, are typically distinct and separate****, even when the WAN and the LAN are interconnected.*" Therefore, jointly analyzing WAN information collected from a WAN and LAN information collected from a LAN provides a patentable distinct approach, compared to the tradition. [0006] also explicitly discloses that "*some problems and issues exhibited via the WAN may be related to configurations, settings or problems on the LAN side. Furthermore, the WAN might be operated by a reseller, which does not have access to all management functionalities (such as monitoring, provisioning, control) to which the owner or the wholesaler of the WAN system may have access.* ***Access to such functionalities may be achieved by the embodiments described herein***."

[0077] of the present application discloses "*It is noted that* ***in the absence of the Management device 170, it is not possible to optimize or monitor the performance of the LAN, based on information from the WAN or to optimize or monitor the performance of the WAN, based on information from the LAN****. This is because the control mechanisms and control channels on the two networks are distinct and separate. A Management device 170 as described herein addresses such a problem and enables such monitoring and optimizations which are not otherwise feasible*." The explicit disclosure in [0077] also shows that the management device, as claimed in claim 1, is absolutely not an idea. On the contrary, it provides significantly more to enable optimizations which are not otherwise feasible.

Based on at least the above remarks, Applicant respectfully asserts that claim 1, 7-13, 15, and 19, have significant more than just an abstract idea.

Applicant therefore respectfully requests withdrawn of the rejections of claims 1, 7-13, 15, and 19 under 35 U.S.C. 101.

CONCLUSION

In view of the above arguments, Applicant believes that pending claims 1-20 are allowable and respectfully requests that a Notice of Allowance be issued for this application in its current state. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned may be reached by telephone at 520-288-8876.

If any fees are due in connection with this filing the Commissioner is authorized to charge such fees to Deposit Account 50-2776.

Respectfully submitted,

Date: October 26, 2017

By: /Xin Dai/
Xin Dai, Ph.D.
Reg. No. 72,098

Customer No.
146571
UNITED STATES PATENT & TRADEMARK OFFICE

Electronic Patent Application Fee Transmittal

Application Number:	15182513
Filing Date:	14-Jun-2016
Title of Invention:	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS
First Named Inventor/Applicant Name:	Peter Chow
Filer:	Michael V. North/Nita Miller
Attorney Docket Number:	20145-049USC

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

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($)
Extension - 1 month with $0 paid	1251	1	200	200
Miscellaneous:				
		Total in USD ($)		**200**

Electronic Acknowledgement Receipt

EFS ID:	30782664
Application Number:	15182513
International Application Number:	
Confirmation Number:	6886
Title of Invention:	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS
First Named Inventor/Applicant Name:	Peter Chow
Customer Number:	146571
Filer:	Michael V. North/Nita Miller
Filer Authorized By:	Michael V. North
Attorney Docket Number:	20145-049USC
Receipt Date:	27-OCT-2017
Filing Date:	14-JUN-2016
Time Stamp:	13:33:28
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$200
RAM confirmation Number	102717INTEFSW13342901
Deposit Account	502776
Authorized User	Nita Miller

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 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)	049USC_RCE.pdf	697586 cd26a38c129a2866a5cc53bc299503a95272e068	no	3
Warnings:					
Information:					
2		049USC_RCE_Amdt.pdf	68390 50578b949ca1d836087e92f21f7f9d089cd219d8	yes	10

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment Submitted/Entered with Filing of CPA/RCE	1	1
	Claims	2	7
	Applicant Arguments/Remarks Made in an Amendment	8	10

Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	31104 a8e2f5a0c83b1fabe35275efbff93513c6ba6e37	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	797080		

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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

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New International Application Filed with the USPTO as a Receiving Office

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Electronic Patent Application Fee Transmittal

Application Number:	15182513
Filing Date:	14-Jun-2016
Title of Invention:	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS
First Named Inventor/Applicant Name:	Peter Chow
Filer:	Michael V. North/Nita Miller
Attorney Docket Number:	20145-049USC

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

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($)
Miscellaneous:				
RCE- 1st Request	1801	1	1200	1200
		Total in USD ($)		**1200**

Electronic Acknowledgement Receipt

EFS ID:	30782861
Application Number:	15182513
International Application Number:	
Confirmation Number:	6886
Title of Invention:	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS
First Named Inventor/Applicant Name:	Peter Chow
Customer Number:	146571
Filer:	Michael V. North/Nita Miller
Filer Authorized By:	Michael V. North
Attorney Docket Number:	20145-049USC
Receipt Date:	27-OCT-2017
Filing Date:	14-JUN-2016
Time Stamp:	13:42:31
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1200
RAM confirmation Number	102717INTEFSW13430400
Deposit Account	502776
Authorized User	Nita Miller
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37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 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	Fee Worksheet (SB06)	fee-info.pdf	30714 fc85e20245049deb8d1877417e547215db732a09	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	30714		

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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 (09-11)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 15/182,513	Filing Date 06/14/2016	☐ 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	10/27/2017	(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))	* 20	Minus	** 20	= 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
LAVINIA JOHNSON

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UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/182,513	06/14/2016	Peter Chow	20145-049USC	6886

146571 7590 11/17/2017
North Weber & Baugh LLP - ASSIA
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EXAMINER	
DUONG, DUC T	

ART UNIT	PAPER NUMBER
2467	

NOTIFICATION DATE	DELIVERY MODE
11/17/2017	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):

docket1@northweber.com

Office Action Summary	Application No. 15/182,513	Applicant(s) CHOW ET AL.	
	Examiner DUC T. DUONG	Art Unit 2467	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* MONTHS 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 *10/27/17*.

☐ 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) *1-20* 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) *1-4,6-17,19 and 20* is/are rejected.

8)☒ Claim(s) *5 and 18* 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 *6/14/16* 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.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

DETAILED ACTION

1. The present application is being examined under the pre-AIA first to invent provisions.

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 October 27, 2017 has been entered.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*,

686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on nonstatutory double patenting provided the reference application or patent either is shown to be commonly owned with the examined application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file provisions of the AIA as explained in MPEP § 2159. See MPEP §§ 706.02(l)(1) - 706.02(l)(3) for applications not subject to examination under the first inventor to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/patent/patents-forms. The filing date of the application in which the form is filed determines what form (e.g., PTO/SB/25, PTO/SB/26, PTO/AIA/25, or PTO/AIA/26) should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

4. Claims 1-20 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1, 2, 8-10, 16, 22, and 28 of U.S. Patent No. 9,369,370 B2.

Although the claims at issue are not identical, they are not patentably distinct from each other because the application's claims 1-20 merely broaden the scope of the patented claims 1, 2, 8-10, 16, 22, and 28 by excluding certain limitations of the parent claims. The application's claims are nearly identical in every other aspect to the patented claims. Thus, the applicant is attempting to broaden the patented claims by excluding certain limitations in the application's claims, and it would have been obvious to one skill in the art, at the time of the invention, to omit such limitations. If the application allowed the application would grant broader protection to the applicant.

Claims 1, 2, 8-10, 16, 22, and 28 of the patented contain(s) every element of claims 1-20 of the instant application and thus anticipate the claim(s) of the instant application. Claims 1-20 of the instant application therefore is/are not patently distinct from the earlier patent claim(s) and as such is/are unpatentable over obvious-type double patenting. A later patent/application claim is not patentably distinct from an earlier claim if the later claim is anticipated by the earlier claim. A later patent claim is not patentably distinct from an earlier patent claim if the later claim is obvious over, or anticipated by, the earlier claim. In re Longi, 759 F.2d at 896,225 USPQ at 651 (affirming a holding of obviousness-type double patenting because the claims at issue were obvious over claims in four prior art patents); In re Berg, 140 F.3d at 1437, 46 USPQ2d at 1233 Fed. Cir. 1998 (affirming a holding of obviousness type double patenting where a patent application claim to a genus is anticipated by a patent claim to a species within that genus). ELI LILLY AND COMPANY v BARR LABORATORIES, INC., United States Court of Appeals for the Federal Circuit, ON PETITION FOR

REHEARING EN BANC (DECIDED: May 30, 2001). Claims 1-20 are generic to the species of invention covered by claims 1, 2, 8-10, 16, 22, and 28 of the patent. Thus, the generic invention is "anticipated" by the species of the patented invention. Cf., Titanium Metals Corp. v. Banner, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985 (holding that an earlier species disclosure in the prior art defeats any generic claim). This court's predecessor has held that, without a terminal disclaimer, the species claims preclude issuance of the generic application. In re Van Ornum, 686 F.2d 937, 944,214 USPQ 761,767 (CCPA 1982). Accordingly, absent a terminal disclaimer, claims 1-20 were properly rejected under the doctrine of obviousness-type double patenting. In re Goodman (CA FC) 29 USPQ2d 2010 (12/3/1993).

Claim Rejections - 35 USC § 112

5. The following is a quotation of 35 U.S.C. 112(b):
(b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:
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.

6. Claims 5 and 18 are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.

Claims 5 and 18 recite the limitation "the first communication layer of the LAN" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 101

7. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

8. Claims 1, 7-13, 15, and 19 are rejected under 35 U.S.C. 101 because the claimed invention is directed to a judicial exception (i.e., a law of nature, a natural phenomenon, or an abstract idea) without significantly more. Claims 1, 7-13, 15 and 19 are directed to an abstract idea of storing, gathering, and analyzing data. These steps are similar to concept that have been identified by the court as abstract idea in *Electric Power Group* and *FairWarning* and *CyberSource*. The claim(s) does/do not include additional elements that are sufficient to amount to significantly more than the judicial exception because the LAN/WAN interfaces and DSL connection are additional generic network elements that do not add a meaningful limitation to the abstract idea because they are well-known in any network implementation.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of pre-AIA 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.

10. Claims 1, 2, 6-15, and 19 are rejected under pre-AIA 35 U.S.C. 102(b) as being anticipated by Werner et al (US Publishing 2006/0164978 A1).

Regarding to claims 1, 15, and 19, Werner discloses a management device 2000 (fig. 1-2), comprising a Local Area Network LAN interface 2100 (page 3 paragraph 0032) to communicably interface the management device with a LAN 1600 (page 2 paragraph 0023); a Wide Area Network WAN interface 2100 to communicably interface the management device with a WAN 1700 (page 2 paragraph 0023), wherein the WAN provides broadband connectivity to the LAN through a Digital Subscription Line DSL connection (page 4 paragraph 0070); a collection module 1400 to collect LAN information from the LAN and WAN information from the WAN (page 2 paragraph 0025); and an analysis module 1460 to jointly analyze the collected WAN information and the collected LAN information to identify an operational condition (pages 2-3 paragraphs 0026-0031).

Regarding to claim 2, Werner discloses an implementation logic to initiate a management event responsive to the operational condition being identified (page 3 paragraphs 0030-0031).

Regarding to claim 6, Werner discloses the operational condition identified based on the joint analysis comprises at least one of: network congestion within the WAN; network congestion within the LAN; excess power consumption by communication elements within the LAN; excess power consumption by communication elements within the WAN; bandwidth utilization of the WAN in excess of a maximum threshold; bandwidth availability of the WAN below a minimum threshold; a security breach within the LAN (page 1 paragraphs 0010-0013); or a network intrusion within the LAN.

Regarding to claim 7, Werner discloses the collection logic is to collect the WAN information and the LAN information from one or more sources including: a Digital Subscriber Line (DSL) Customer Premises Equipment (CPE) modem ; an in-home powerline device; a Home Phoneline Network Alliance (HPNA) based device; an in-home coax distribution device; a G.hn (Global Home Networking Standard) compatible device; an in-home metering communication device; an in-home appliance communicatively interfaced with the LAN; a wireless femtocell base station; a wireless WiFi compatible base station; a wireless mobile device repeater; a wireless mobile device base station; a set-top box (STB)/set-top unit (STU) customer electronics device; an Internet Protocol (IP) enabled television; an IP enabled media player; an IP enabled gaming console; an Ethernet gateway; a computing device connected to the LAN; an Ethernet connected computer peripheral device; an Ethernet connected router; an Ethernet connected wireless bridge; an Ethernet connected network bridge; or an Ethernet connected network switch (page 4 paragraph 0070).

Regarding to claim 8, Werner discloses a Digital Subscriber Line (DSL) modem operating as a Customer Premises Equipment (CPE) device to communicatively interface a DSL based backhaul provided via the WAN to the LAN (page 4 paragraph 0070).

Regarding to claim 9, Werner discloses a cable modem operating to communicatively interface a cable network based backhaul provided via the WAN to the LAN (page 4 paragraph 0070).

Regarding to claim 10, Werner discloses a wireless modem operating to communicatively interface a wireless based backhaul provided via the WAN to the LAN (page 4 paragraph 0070).

Regarding to claim 11, Werner discloses a powerline modem operating to communicatively interface a powerline based backhaul provided via the WAN to the LAN (page 4 paragraph 0070).

Regarding to claim 12, Werner discloses an Optical Network Terminal (ONT) operating to communicatively interface a fiber optic based backhaul provided via the WAN to the LAN (page 4 paragraph 0070).

Regarding to claim 13, Werner discloses a router operating to communicatively interface a WAN connected backhaul to the LAN (page 2 paragraph 0023).

Regarding to claim 14, Werner discloses a computing device 1400 remotely located from a WAN/LAN interface through which a communication channel related to the WAN and the LAN is connected, wherein the computing device is to provide remote monitoring and management functionality for the WAN/LAN interface (page 2 paragraph 0025).

Claim Rejections - 35 USC § 103

11. The following is a quotation of pre-AIA 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, 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.

12. Claims 3, 4, 16, 17, and 20 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Werner in view of Son (US Publication 2003/0145082 A1).

Regarding to claims 3, 4, 16, 17, and 20, Werner discloses all the limitations with respect to claims 1 and 15, except for a diagnostics logic to jointly analyze the collected WAN information and the collected LAN information to diagnose a fault within the WAN based at least in part on the LAN information or to diagnose a fault within the LAN based at least in part on the WAN information (claims 3, 16, and 20), and the implementation logic to initiate a management event responsive to the fault being identified (claims 4 and 17). However, Son discloses a monitoring system 208 to jointly analyze the collected WAN information and the collected LAN information to diagnose a fault within the WAN based at least in part on the LAN information or to diagnose a fault within the LAN based at least in part on the WAN information (fig. 2 page 2 paragraphs 0029-0031), and to initiate a management event response based on fault being identified (page 2 paragraph 0026). Thus, it would have been obvious to a person of ordinary skill in the art, at the time of the invention, to arrange for the monitoring system as taught by Son into Werner's system to provide periodicity testing of LAN/WAN connectivity.

Response to Arguments

13. Applicant's arguments filed October 27, 2017 have been fully considered but they are not persuasive. Regarding to applicant's argument on page 1-2 in the Remarks, claim 1 is not directed to an abstract idea. In response, the examiner would like to point out applicant argued the claim solves various technical problems, including monitoring

and provisioning LAN/WAN channels, and optimize LAN/WAN performance. But claim 1 here only uses generic functional language to achieve these purported solutions. Applicant cited limitation "jointly analyze the collected WAN information and the collected LAN information to identify an operational condition" is significantly more to solve the various technical problems. However, the limitation is broad and vague in how such technical problems are solve. Specifically, "identify an operational condition" does not provide as to how to monitoring, provisioning, and optimize LAN/WAN is carried out. Thus, based on the reasons set forth here the claim is still direct to an abstract idea.

Allowable Subject Matter

14. Claims 5 and 18 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DUC DUONG whose telephone number is (571)272-3122. The examiner can normally be reached on M-F (9:00 AM-6:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Phillips can be reached on 571-272-3940. 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.

/DUC T DUONG/
Primary Examiner, Art Unit 2467

Notice of References Cited	Application/Control No. 15/182,513	Applicant(s)/Patent Under Reexamination CHOW ET AL.	
	Examiner DUC T. DUONG	Art Unit 2467	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-2006/0164978 A1	07-2006	Werner; Carl E.	H04L41/0896	370/229
	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	CPC 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
	15182513	CHOW ET AL.
	Examiner	Art Unit
	DUC DUONG	2467

CPC- SEARCHED		
Symbol	Date	Examiner
see CPC search printout	11/13/2017	DTD

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
East text			
inventor name			

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

SEARCH NOTES		
Search Notes	Date	Examiner
East text	11/13/2017	DTD
inventor name	11/13/2017	DTD
updated h04l41/04,h04l41/06,h04l41/0604,h04l41/0631,h04l41/0677,h04l41/0695,h04l41/08,h04l41/085,h04l41/0853,h04l41/0856,h04l441/0859 (text search)	11/13/2017	DTD
updated h04l43/10,h04l43/12,h04l43/50 (text search)	11/13/2017	DTD
see Hassan Phillips	11/13/2017	DTD

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

	/DUC T DUONG/ Primary Examiner.Art Unit 2467

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	4820	(monitor$3 or detect$3 or detemin$3) with lan with wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:25
S2	355	(monitor$3 or detect$3 or detemin$3 or identify) with lan with wan with (condition or status or state)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:27
S3	278	S2 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:28
S4	93	S3 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:28
S5	6865	(collect$3 or snoop$3 or sniff$) with lan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:34
S6	3248	(collect$3 or snoop$3 or sniff$) with wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:34
S7	2272	S5 and S6	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:34
S8	175	S7 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:34
S9	150	S8 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:34
S10	2423	(lan adj2 (interface or port)) same (wan adj2 (interface or port))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:36

S11	730	S10 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:36
S12	348	S11 and ((monitor$3 or detect$3 or detemin$3 or identify) with (condition or status or state))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:36
S13	312	S12 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:36
S14	1937247	(monitor$3 or detect$3 or determin$3 or identify) near5 (condition or status or state or failure or fault$2 or congestion)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:50
S15	41	S10 same S14	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:51
S16	16	S15 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:51
S17	8	S16 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:51
S18	255	(monitor$3 or detect$3 or determin$3 or identify) near5 (condition or status or state or failure or fault$2 or congestion) with lan near5 wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:14
S19	43	S18 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:15
S20	35	S19 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:15
S21	802	(lan adj2 (interface or port or connection or connector)) same (wan adj2 (interface or port or connection or connector)) same (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:26
S22	673	S21 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:27

S23	172	S22 and "370"/$.ccls.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:27
S24	712	(monitor$3 or detect$3 or determin$3 or identify) near5 (condition or status or state or failure or fault$2 or congestion or performance) with (lan or ethernet) with (internet or wan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:35
S25	167	S24 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:35
S26	79	S25 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:35
S27	544	S24 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:41
S28	111	S27 and "370"/$.ccls.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:43
S29	1226	(management or gateway) same ((lan or ethernet) adj2 (interface or port or connection or connector)) same (wan adj2 (interface or port or connection or connector))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:46
S30	540	S29 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:46
S31	491	S30 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:46
S32	130	(monitor$3 or detect$3 or determin$3 or identify) near5 (condition or status or state or failure or fail$4 or fault$2 or congestion or performance) same ((lan or ethernet) adj2 (interface or port or connection or connector)) with ((internet or wan) adj2 (interface or port or connection or connector))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 17:27
S33	106	S32 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 17:27
S34	7	"2007146048"	US-PGPUB;	OR	ON	2015/04/27 17:50

			USPAT; EPO; DERWENT			
S35	250	(monitor$3 or detect$3 or determin$3 or identify) with ((lan or ethernet) adj2 (interface or port)) with ((internet or wan) adj2 (interface or port))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 17:55
S36	209	S35 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 17:55
S37	674	(failure or fail$4 or fault$2 or congest$3) with (lan or ethernet or rj$145) with (wan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 18:24
S38	674	(failure or fail$4 or fault$2 or congest$3) with (lan or ethernet or rj$145) with (wan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 19:43
S39	582	S38 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 19:44
S40	55	S39 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 19:44
S41	4408	(monitor$3 or measur$3 or analyz$3) with (lan or ethernet or rj$145) with (wan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 20:00
S42	158	(monitor$3 or measur$3 or analyz$3) with (lan or ethernet or rj45 or rj-45) with (wan) with performance	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 20:01
S43	171	(monitor$3 or measur$3 or analyz$3 or determin$3) with (lan or ethernet or rj45 or rj-45) with (wan) with performance	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 20:01
S44	145	S43 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 20:01
S45	3680	(monitor$3 or detect$3 or determin$3 or identify or analyz$3) near5 (condition or status or state or failure or fail$4 or fault$2 or congestion or performance) near5 (lan or ethernet)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:43
S46	159	S45 same (dsl or adsl)	US-PGPUB;	OR	ON	2015/04/29 08:44

			USPAT; EPO; DERWENT			
S47	153	S46 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:44
S48	8955	(collect$3 or snoop$3 or sniff$ or analyz$3) with lan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:46
S49	143	S48 same (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:46
S50	130	S49 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:46
S51	8571	manag$5 near3 lan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:56
S52	64	S51 same (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:56
S53	51	S52 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:56
S54	10593	((lan or ethernet or rj45 or rj-45) adj2 (interface or port or connection)) same ((wan or internet) adj2 (interface or port or connection))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:08
S55	522	S54 same (collect$3 or snoop$3 or sniff$ or analyz$3)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:09
S56	423	S55 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:09
S57	376	S54 same (collect$3)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:10
S58	313	S57 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB;	OR	ON	2015/04/29 09:10

			USPAT; EPO; DERWENT			
S59	6482	(collect$3 with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:33
S60	410	S59 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:34
S61	358	S60 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:34
S62	2100	(collect$3 with lan with wan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:37
S63	157	S62 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:37
S64	134	S63 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:37
S65	10608	((lan or ethernet or rj45 or rj-45) adj2 (interface or port or connection)) same ((wan or internet) adj2 (interface or port or connection))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:53
S66	522	S65 same (collect$3 or snoop$3 or sniff$ or analyz$3)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:53
S67	423	S66 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:53
S68	468	h04l41/04.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:57
S69	0	S67 and S68	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:57
S70	2633	h04l41/06.cpc.	US-PGPUB;	OR	ON	2015/05/03 22:57

			USPAT; EPO; DERWENT			
S71	1	S67 and S70	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:57
S72	436	h04l41/0604.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:58
S73	11	S72 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:58
S74	1193	h04l41/0631.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:59
S75	0	S67 and S74	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:59
S76	38	S74 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:59
S77	941	h04l41/0677.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:59
S78	11	S77 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:59
S79	120	h04l41/0695.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:59
S80	0	S79 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:00
S81	1200	h04l41/08.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:00
S82	11	S81 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB;	OR	ON	2015/05/03 23:00

			USPAT; EPO; DERWENT			
S83	354	h04l41/085.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:00
S84	4	S83 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:00
S85	1493	h04l41/0853.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:00
S86	41	S85 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:00
S87	1384	h04l41/0856.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:01
S88	41	S87 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:01
S89	214	h04l41/0859.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:01
S90	3	S89 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:01
S91	1831	h04l43/04.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:02
S92	87	S91 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:03
S93	3292	h04l43/10.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:03
S94	127	S93 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB;	OR	ON	2015/05/03 23:03

			USPAT; EPO; DERWENT			
S95	53	S94 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:03
S96	1796	h04l43/12.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:03
S97	48	S96 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:03
S98	5460	h04l43/50.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:04
S99	60	S98 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:04
S100	140	(peter near2 chow).inv.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:04
S101	2	S100 and (lan and wan and manag$5 and condition).clm.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:05
S102	81	(rhee near2 wonjong).inv.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:05
S103	2	S102 and (lan and wan and manag$5 and condition).clm.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:05
S104	39	(tehrani near2 ardavan).inv.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:05
S105	2	S104 and (lan and wan and manag$5 and condition).clm.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:05
S106	29	(goldburg near2 marc).inv.	US-PGPUB;	OR	ON	2015/05/03 23:06

			USPAT; EPO; DERWENT			
S107	2	S106 and (lan and wan and manag$5 and condition).clm.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:06
S108	6257	h04l43/50.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:35
S109	69	S108 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:35
S110	2369	(collect$3 with lan with wan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:41
S111	181	S110 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:41
S112	136	S111 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:41
S113	3030	(collect$3 or snoop$3 or sniff$ or analyz$3) with ((wan or internet or ip) adj2 (connection or interface))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:47
S114	702	(collect$3 or snoop$3 or sniff$ or analyz$3) with ((lan) adj2 (connection or interface))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:48
S115	188	S113 and S114	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:48
S116	167	S115 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:48
S117	2	"20140321298"	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 18:11
S121	2699	(collect$3 with lan with wan)	US-PGPUB;	OR	ON	2016/09/19 03:48

			USPAT; EPO; DERWENT			
S122	197	S121 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:48
S123	136	S122 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:48
S124	2	"9,369,370"	US-PGPUB; USPAT; FPRS	OR	ON	2016/09/19 03:49
S125	7981	(collect$3 or snoop$3 or sniff$3) with lan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:51
S126	2998	S125 same wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:51
S127	231	S126 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:51
S128	166	S127 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:51
S129	5718	(fault$3 or fail$4) with lan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:53
S130	690	S129 same wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:53
S131	102	S130 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:53
S132	73	S131 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:53
S133	2329	(diagnostic or diagnos$3) with lan	US-PGPUB; USPAT;	OR	ON	2016/09/19 03:58

			EPO; DERWENT			
S134	630	S133 same wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:59
S135	70	S134 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:59
S136	49	S135 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:59
S137	7530	(collect$3 or snoop$3 or sniff$3 or monitor$3) with lan with wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 16:31
S138	1167	S137 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 16:31
S139	763	S138 and (diagnostic or failure or fault$2 or congestion)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 16:32
S140	556	S139 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 16:32
S141	3996	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing) with lan with wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 16:35
S142	354	S141 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 16:36
S143	239	S142 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 16:36
S144	243	lan with wan with backhaul	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 16:44
S145	175	S144 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO;	OR	ON	2017/06/09 16:44

			DERWENT			
S146	17056	lan with wan same dsl	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 16:45
S147	983	lan same (internet or wan (ip adj2 network)) same backhaul	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 16:47
S148	457	S147 and dsl	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 16:47
S149	377	S148 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 16:47
S150	359	lan with (interface or connect$3 or couple$1) with (internet or wan (ip adj2 network)) same backhaul	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 17:03
S151	187	S150 and dsl	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 17:03
S152	13421	lan with (interface or connect$5 or couple$1) with (internet or wan (ip adj2 network)) same dsl	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 17:20
S153	3996	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing) with lan with wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 17:22
S154	123	S152 and S153	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 17:22
S155	84	S154 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 17:23
S156	564	lan same wan same backhaul	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 18:54
S157	56	lan same wan same backhaul same dsl	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 18:54
S158	12990	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing) with lan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 18:58
S159	6366	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or	US-PGPUB;	OR	ON	2017/06/09 18:58

		probing) with wan	USPAT; EPO; DERWENT			
S160	4249	S158 and S159	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 18:58
S161	352	S160 and dsl	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 18:58
S162	240	S161 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 18:59
S163	4862	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing or monitor$3) with lan near5 (interface or port or media or medium or connection)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 19:05
S164	1914	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing or monitor$3) with wan near5 (interface or port or media or medium or connection)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 19:05
S165	887	S163 and S164	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:06
S166	629	S165 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:06
S167	449	S166 and (fault$3 or fail$4)	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:07
S168	8215	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing or monitor$3) with lan with wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 19:19
S169	131	S168 same (fault$3 or fail$4)	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:19
S170	87	S169 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:19
S171	14499	(manag$5 or provision$3 or optimiz$3 or monitor$3) with lan with wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 19:28
S172	6855	S171 and (fault$3 or fail$4)	US-PGPUB; USPAT;	OR	ON	2017/06/09 19:28

			FPRS			
S173	1242	S172 and dsl	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:28
S174	909	S173 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:29
S175	991	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing or monitor$3) with lan with wan near5 (interface or port or media or medium or connection)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 19:30
S176	27	S175 same (fault$3 or fail$4)	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:31
S177	1427	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing or monitor$3) with lan with (internet or wan or broad$1band) near5 (interface or port or media or medium or connection)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 19:33
S178	48	S177 same (fault$3 or fail$4)	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:33
S179	32	S178 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:33
S180	3000	lan with (interface or connect$5 or couple$1) with wan with dsl	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/11 00:56
S181	2347544	(monitor$3 or detect$3 or determin$3 or identify) near5 (condition or status or state or failure or fault$2 or congestion)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/11 00:58
S182	1223	S180 and S181	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/11 00:58
S183	907	S182 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/11 00:59
S184	5107	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing or monitor$3 or meter$3) with lan near5 (interface or port or media or medium or connection)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/11 01:00
S185	2174	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing or monitor$3 or meter$3) with wan near5 (interface or port or media	US-PGPUB; USPAT; EPO;	OR	ON	2017/06/11 01:01

		or medium or connection)	DERWENT			
S186	1074	S184 and S185	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/11 01:01
S187	301	S186 and dsl	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/11 01:03
S188	259	S187 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/11 01:03
S189	234	S188 and (fault or fail$3)	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/11 01:03
S190	424	(fault or fail$3) with lan with wan	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/11 01:05
S191	323	S190 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/11 01:05
S192	30	(back$1haul near5 wan) same lan same dsl	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/11 01:15
S193	2	"20060164978"	US-PGPUB; USPAT; FPRS	OR	ON	2017/09/26 13:03
S194	1	"20160294669"	US-PGPUB; USPAT; FPRS	OR	ON	2017/09/26 16:18

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S118	0	((lan adj2 interface) and (wan adj2 interface) and event and collect$3 and condition).clm.	USPAT	OR	ON	2016/01/08 18:18
S119	0	((lan adj2 interface) and (wan adj2 interface) and event and collect$3).clm.	USPAT	OR	ON	2016/01/08 18:19
S120	8	((lan adj2 interface) and (wan adj2 interface) and event).clm.	US-PGPUB; USPAT	OR	ON	2016/01/08 18:19

11/13/2017 2:29:32 PM
C:\Users\dduong\Documents\EAST\Workspaces\15182513.wsp

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15182513	CHOW ET AL.
	Examiner	**Art Unit**
	DUC DUONG	2467

✓	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	09/19/2016	06/09/2017	11/13/2017						
	1	✓	✓	✓						
	2		✓	✓						
	3		✓	✓						
	4		✓	✓						
	5		✓	O						
	6		✓	✓						
	7		✓	✓						
	8		✓	✓						
	9		✓	✓						
	10		✓	✓						
	11		✓	✓						
	12		✓	✓						
	13		✓	✓						
	14		✓	✓						
	15		✓	✓						
	16		✓	✓						
	17		✓	✓						
	18		✓	O						
	19		✓	✓						
	20		✓	✓						

PTO/SB/08b (07-09)
Approved for use through 07/31/2016. OMB 0651-0031
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Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 1

Complete if Known	
Application Number	13/995,900
Filing Date	2014-07-08
First Named Inventor	Wonjong Rhee
Art Unit	2467
Examiner Name	Duc T. Duong
Attorney Docket Number	20145-049USC

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
	1	Office Action dated 2017-11-01, in Australian Patent Application No. 2016222368 (3pgs).	

Examiner Signature		Date Considered	

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

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

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

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	31476912
Application Number:	15182513
International Application Number:	
Confirmation Number:	6886
Title of Invention:	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS
First Named Inventor/Applicant Name:	Peter Chow
Customer Number:	146571
Filer:	Michael V. North/Nita Miller
Filer Authorized By:	Michael V. North
Attorney Docket Number:	20145-049USC
Receipt Date:	11-JAN-2018
Filing Date:	14-JUN-2016
Time Stamp:	16:11:47
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	Transmittal Letter	049USC_SIDS_Trans.pdf	30026 14f7e839d85f37788670abbf3ab9772676970133	no	3
Warnings:					

Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	049USC_SIDS_sb08b.pdf	225769 5678095c7acdf097d3db7e153fe3f1c19b0a56cf	no	2
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
3	Non Patent Literature	049USC_SIDS_NPL1.pdf	163919 1cdbcaff2cb15bbe9e77ed61a4511846b2540aae	no	3
Warnings:					
Information:					
		Total Files Size (in bytes):	419714		

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.

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s)	:	Wonjong Rhee *et al.*	Confirmation No.: 6886
Appl. No.	:	15/182,513	
Filing Date	:	2016-06-14	
Title	:	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS	
Art Unit	:	2467	
Examiner	:	Duc T. Duong	
Docket No.	:	20145-049USC	

CERTIFICATE OF MAILING (37 CFR §1.8)

I hereby certify, pursuant to 37 CFR §1.8, that this correspondence is being electronically transmitted via EFS-Web addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date shown below:

Date: 2018-01-11 By: /Nita Miller/
Nita Miller

INFORMATION DISCLOSURE STATEMENT

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

SIR or MADAM:

Filed herewith, in accordance with the provisions of 37 CFR §§ 1.56 and 1.97–1.98, listing various references for consideration by the Examiner, is an Information Disclosure Statement ("IDS").

The filing of this IDS shall not be construed as a representation that a search has been made, or regarding the completeness of the list of references, or that no other material information exists. Furthermore, the filing of this IDS shall not be construed as a representation that inclusion of a reference in this list is an admission that it is prior art or is pertinent to this application, or as an admission that the information listed is, or may be considered to be, material to the patentability of the above referenced application. The filing of this IDS shall not be construed in any manner as an admission against interest.

This IDS is being filed:

☐ within three months of the filing date of a national application, other than a continued prosecution application under § 1.53(d);

☐ within three months of the date of entry of the national stage as set forth in § 1.491 in an international application;

☐ before the mailing of a first Office Action on the merits;

☐ before the mailing of a first Office Action after the filing of a request for continued examination under § 1.114;

☒ after three months of the filing date or entry into the national stage or after the mailing of a first Office action on the merits, but before the mailing date of any final action under § 1.113, a notice of allowance under §1.311, or an action that otherwise closes prosecution in the application;

AND

☐ enclosed herein is the fee set forth in 37 CFR § 1.17(p);

OR

☒ Applicant certifies pursuant to 37 CFR § 1.97(e):

☒ That each item of information contained in the information disclosure statement was first cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this information disclosure statement;

OR

☐ That no item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing this certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in § 1.56(c) more than three months prior to the filing of this information disclosure statement.

☐ on or before the payment of the issue fee but after the mailing of a final action under § 1.113, a notice of allowance under §1.311, or an action that otherwise closes prosecution in the application;

AND

☐ enclosed herein is the fee set forth in 37 CFR § 1.17(p);

AND

☐ Applicant certifies pursuant to 37 CFR § 1.97(e):

☐ That each item of information contained in the information disclosure statement was first cited in a communication from a foreign patent office in a counterpart foreign application

not more than three months prior to the filing of this information disclosure statement;

OR

☐ That no item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing this certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in § 1.56(c) more than three months prior to the filing of this information disclosure statement.

☒ Applicant submits that the enclosed Information Disclosure Statement is timely; therefore, no fee is required.

☒ Except as provided for under 37 CFR § 1.98(a)(2), Applicant has enclosed a copy of each listed reference.

☒ The above referenced application relies upon Application No. 13/995,900, filed 2014-07-08, for an earlier effective filing date under 35 U.S.C. 120. Although, pursuant to 37 CFR § 1.98(d), the references submitted herein are not required to be submitted for the Examiner to consider them, Applicant submits the references herein so that the information will be printed on the patent issuing from this application.

☐ Pursuant to 37 CFR § 1.704(d), Applicant certifies that each of the references cited herein were first cited in a communication from a foreign patent office in a counterpart application and that this communication was not received by any individual designated in 37 CFR § 1.56(c) more than thirty days prior to the filing of this Information Disclosure Statement.

Consideration of the listed references and favorable action are requested. If any additional fees are due in connection with the filing of this Information Disclosure Statement, the Commissioner is hereby authorized to charge such fees to Deposit Account 50-2776.

Respectfully submitted,

Date: 2018-01-11

By: /Michael V. North/
Michael V. North
Reg. No. 46963

Customer No.
69569
UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s)	:	Peter Chow *et al.*	Confirmation No.: 6886
Appl. No.	:	15/182,513	
Filed	:	June 14, 2016	
Title	:	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS	
Examiner	:	Duct Duong	
Art Unit	:	2467	
Docket No.	:	20145-049USC	

CERTIFICATE OF MAILING (37 CFR §1.8)

I hereby certify, pursuant to 37 CFR §1.8, that this correspondence is being electronically transmitted to the USPTO via EFS-Web addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date shown below:

Date: 2018-03-02 By: /Nita Miller/
Nita Miller

RESPONSE TO NON-FINAL OFFICE ACTION

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

Examiner Duong:

This paper is responsive to the Non-Final Office Action mailed November 17, 2017, and having a shortened statutory period ending February 17, 2018. Accordingly, this paper is timely filed. Reconsideration is respectfully requested in view of the Amendments and Remarks below.

Amendments to the Claims appear in the complete Listing of Claims which may be found beginning at page **2** of this paper.

Remarks/Arguments may be found at page **7** of this paper.

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application, and reflects the Examiner's renumbering:

1. (Currently amended) A management device, comprising:

a Local Area Network (LAN) interface to communicably interface the management device with a LAN;

a Wide Area Network (WAN) interface to communicably interface the management device with a WAN, wherein the WAN is to provide broadband connectivity to the LAN through a Digital Subscription Line (DSL) connection;

a collection logic to collect LAN information from the LAN and WAN information from the WAN; and

an analysis logic to jointly analyze the collected WAN information and the collected LAN information to identify an operational condition , the operation condition is within the LAN identified based at least on collected WAN information or within the WAN identified based at least on collected LAN information.

2. (Previously presented) The management device of claim 1 comprises: an implementation logic to initiate a management event responsive to the operational condition being identified.

3. (Previously presented) The management device of claim 2 comprises a diagnostics logic to jointly analyze the collected WAN information and the collected LAN information to diagnose a fault within the WAN based at least in part on the LAN information or to diagnose a fault within the LAN based at least in part on the WAN information.

4. (Previously presented) The management device of claim 3, wherein the implementation logic is to initiate a management event responsive to the fault being identified.

5. (Currently amended) The management device of claim 1, wherein the WAN information collected from the WAN comprises information specific to a second communication layer of the WAN, different than ~~the~~ a first communication layer of the LAN.

6. (Previously presented) The management device of claim 1, wherein the operational condition identified based on the joint analysis comprises at least one of: network congestion within the WAN; network congestion within the LAN; excess power consumption by communication elements within the LAN; excess power consumption by communication elements within the WAN; bandwidth utilization of the WAN in excess of a maximum threshold; bandwidth availability of the WAN below a minimum threshold; a security breach within the LAN; or a network intrusion within the LAN.

7. (Previously presented) The management device of claim 1, wherein the collection logic is to collect the WAN information and the LAN information from one or more sources including:

a Digital Subscriber Line (DSL) Customer Premises Equipment (CPE) modem;

an in-home powerline device;

a Home Phoneline Network Alliance (HPNA) based device;

an in-home coax distribution device;

a G.hn (Global Home Networking Standard) compatible device;

an in-home metering communication device;

an in-home appliance communicatively interfaced with the LAN;

a wireless femtocell base station;

a wireless WiFi compatible base station;

a wireless mobile device repeater;

a wireless mobile device base station;

a set-top box (STB)/set-top unit (STU) customer electronics device;

an Internet Protocol (IP) enabled television;

an IP enabled media player;

an IP enabled gaming console;

an Ethernet gateway;

a computing device connected to the LAN;

an Ethernet connected computer peripheral device;

an Ethernet connected router;

an Ethernet connected wireless bridge;

an Ethernet connected network bridge; or

an Ethernet connected network switch.

8. (Previously presented) The management device of claim 1 comprises a Digital Subscriber Line (DSL) modem operating as a Customer Premises Equipment (CPE) device to communicatively interface a DSL based backhaul provided via the WAN to the LAN.

9. (Previously presented) The management device of claim 1 comprises a cable modem operating to communicatively interface a cable network based backhaul provided via the WAN to the LAN.

10. (Previously presented) The management device of claim 1 comprises a wireless modem operating to communicatively interface a wireless based backhaul provided via the WAN to the LAN.

11. (Previously presented) The management device of claim 1 comprises a powerline modem operating to communicatively interface a powerline based backhaul provided via the WAN to the LAN.

12. (Previously presented) The management device of claim 1 comprises an Optical Network Terminal (ONT) operating to communicatively interface a fiber optic based backhaul provided via the WAN to the LAN.

13. (Previously presented) The management device of claim 1 comprises a router operating to communicatively interface a WAN connected backhaul to the LAN.

14. (Previously presented) The management device of claim 1 comprises a computing device remotely located from a WAN/LAN interface through which a communication channel related to the WAN and the LAN is connected, wherein the computing device is to provide remote monitoring and management functionality for the WAN/LAN interface.

15. (Currently amended) A method comprising:

coupling a Local Area Network (LAN) interface to a management device with a LAN;

coupling a Wide Area Network (WAN) interface to the management device with a WAN, wherein the WAN is to provide broadband connectivity to the LAN through a Digital Subscription Line (DSL) connection;

collecting LAN information from the LAN and WAN information from the WAN; and

analyzing jointly the collected WAN information and the collected LAN information to identify an operational condition , the operation condition is within the LAN identified based at least on collected WAN information or within the WAN identified based at least on collected LAN information.

16. (Previously presented) The method of claim 15 comprises diagnosing a fault within the WAN or the LAN based on the operational condition identified.

17. (Previously presented) The method of claim 15 comprises initiating a management event responsive to the operational condition being identified.

18. (Currently amended) The method of claim 15, wherein the WAN information collected from the WAN comprises information specific to a second communication layer of the WAN, different than ~~the~~ a first communication layer of the LAN.

19. (Currently amended) A non-transitory machine-readable storage media having machine readable instructions that when executed by a processor in a management device, cause the management device to perform a method comprising:

coupling a Local Area Network (LAN) interface to the management device with a LAN;

coupling a Wide Area Network (WAN) interface to the management device with a WAN, wherein the WAN is to provide broadband connectivity to the LAN through a Digital Subscription Line (DSL) connection;

collecting LAN information from the LAN and WAN information from the WAN; and

analyzing jointly the collected WAN information and the collected LAN information to identify an operational condition, the operation condition is within the LAN identified based at least on collected WAN information or within the WAN identified based at least on collected LAN information.

20. (Previously presented) The non-transitory machine-readable storage media of claim 19 having further machine readable instructions that when executed cause the process to perform an operation which comprises diagnosing a fault within the WAN or the LAN based on the operational condition identified.

REMARKS/ARGUMENTS

In the Non-Final Office Action (hereinafter, "Office Action"), mailed November 17, 2017, claims 1-4, 6-17, 19-20 are rejected; claims 5 and 8 are objected. By this response, claims 1, 5, 15, and 18-19 are amended; no claims are cancelled and no claims are added. Following entry of this response, claims 1-20 will be pending in the application.

Allowable Subject Matter

In the Office Action, the Examiner states that " *Claims 5 and 18 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims."*

Applicant thanks the Examiner for noticing the allowable subject matter, but believes broader independent claims are also allowable (e.g., the amended independent claims 1, 15 and 19), as discussed in more detail below.

Claim Rejections

I. Double Patenting

In the Office Action, the Examiner states that "*Claims 1-20 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1, 2, 8-10, 16, 22, and 28 of U.S. Patent No. 9,369,370 B2. Although the claims at issue are not identical, they are not patentably distinct from each other because the application's claims 1-20 merely broaden the scope of the patented claims 1, 2, 8-10, 16, 22, and 28 by excluding certain limitations of the parent claims. The application's claims are nearly identical in every other aspect to the patented claims*."

A terminal disclaimer is filed together with this response to claim that the current application and the cited reference patent are commonly owned.

Therefore, Applicant respectfully requests withdrawn of the rejection on the ground of nonstatutory double patenting.

II. Rejection of Claims under pre-AIA 35 U.S.C. § 112

In the Office Action, the Examiner states that "*Claims 5 and 18 are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to*

particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention. Claims 5 and 18 recite the limitation "the first communication layer of the LAN" in line 3. There is insufficient antecedent basis for this limitation in the claim."

Applicant thanks the Examiner for pointing out the informalities. Applicant has amended the term "the first communication layer" in claims 5 and 18 into "a first communication layer."

Therefore, Applicant respectfully requests withdrawn of the rejection under 35 U.S.C. 112.

III. Rejection of Claims 1, 7-13, 15 and 19 under pre-AIA 35 U.S.C. § 101

In the Advisory Action, the Examiner states that "*Claims 1, 7-13, 15, and 19 are rejected under 35 U.S.C. 101 because the claimed invention is directed to a judicial exception (i.e., a law of nature, a natural phenomenon, or an abstract idea) without significantly more. Claims 1, 7-13, 15 and 19 are directed to an abstract idea of storing, gathering, and analyzing data.*"

Applicant has amended independent claims 1, 15 and 19 for further clarification, and respectfully asserts that claims, as amended, have significant more than just an abstract idea.

Claims 1, 15 and 19 are amended with incorporation of limitation "the operation condition is within the LAN identified based at least on collected WAN information or within the WAN identified based at least on collected LAN information."

The amendment is fully supported by the specification. For example, [0100] discloses that "*In accordance with one embodiment, collection module 570 collects information from available sources, such as LAN information and WAN information via interfaces of system* ***500****, including one or more of management interface* ***525****, LAN interface* ***530****, and/or WAN interface* ***535****. Analysis module* ***575*** *analyzes the information retrieved via collection module* ***570****. In some embodiments,* ***LAN information and WAN information is jointly analyzed to identify an operational condition within the LAN based on collected WAN information or identify an operational condition within the WAN based on collected LAN information***." (Emphasis added)

Furthermore, applicant respectfully asserts that "the operation condition is within the LAN identified based at least on collected WAN information or within the WAN identified

based at least on collected LAN information" is significantly more than just an idea and the limitation also provides improvements over traditional practice.

The explicit disclosure in [0006], [0077] and [0100] clearly shows that the management device, as claimed in the amended claims, is absolutely not an idea. On the contrary, it provides significantly more to enable optimizations which are not otherwise feasible.

Based on at least the above remarks, Applicant respectfully asserts that claim 1, 7-13, 15, and 19, as amended, have significant more than just an abstract idea.

Applicant therefore respectfully requests withdrawn of the rejections of claims 1, 7-13, 15, and 19 under 35 U.S.C. 101.

IV. Rejection of Claims under pre-AIA 35 U.S.C. § 102

The Examiner rejected claims 1, 2, 6-15, and 19, under pre-AIA 35 U.S.C. 102(b) as being anticipated by U.S. Publication No. 2006/0164978, to Werner *et al.* (hereinafter "Werner"). Applicant has amended claims 1 15, and 19 for further clarification and respectfully asserts the claims, as amended, are not anticipated by Werner.

Applicant respectfully makes reference to MPEP §§ 2131 and 2131.02, which state in part:

> **A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. (MPEP § 2131, citing *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)). The identical invention must be shown in as complete detail as is contained in the ... claim. (MPEP § 2131.02, citing *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989)).**

Claim 1, as amended, states (*underline added for emphasis*):

> "A management device, comprising:
> a Local Area Network (LAN) interface to communicably interface the management device with a LAN;
> a Wide Area Network (WAN) interface to communicably interface the management device with a WAN, wherein the WAN is to provide broadband connectivity to the LAN through a Digital Subscription Line (DSL) connection;
> a collection logic to collect LAN information from the LAN and WAN information from the WAN; and
> an analysis logic to jointly analyze the collected WAN information and the collected LAN information to identify an operational condition , the operation

condition is within the LAN identified based at least on collected WAN information or within the WAN identified based at least on collected LAN information."

Applicant respectfully asserts that Werner fails to disclose each claim limitation within claim 1, especially the emphasized limitations.

In the Office Action, the Examiner cited paragraphs 0036-0031 of Warner for interpreting "an analysis logic to jointly analyze the collected WAN information and the collected LAN information to identify an operational condition." However, Warne does not explicitly disclose nor suggest the emphasized limitation, which is newly incorporated in this response.

Warner only discloses in [0026] that "*Based upon parameters specified by a user, customer, and/or WAN service provider, analyzer **1460** can automatically monitor, inspect, gather, analyze, store, report, render, and/or respond to information regarding packet traffic conveyed on LAN **1600**, from LAN **1600** to WAN **1700**, and/or from WAN **1700** to LAN **1600** ...*" However, Warner is silent on identifying an operation condition with the LAN based at least on collected WAN information or an operation condition in the WAN based at least on collected LAN information.

Therefore, based at least one the above remark, Applicant respectfully asserts that the amended claim 1 is not anticipated by Warner.

The above mentioned remarks in regarding to independent claim 1 are also applicable to amended independent claims 15 and 19. Therefore, independent claims 15 and 29 are also patentably distinct from Werner.

Dependent claims 2, 6-14 all ultimately depend from independent claim 1, and therefore are allowable over Werner.

Accordingly, Applicant respectfully requests that the Examiner withdraw the rejection of claims 1-2, 6 -15 and 19, and allow these claims.

V. Rejection of Claims 3, 4, 16, 17, and 20 under pre-AIA 35 U.S.C. § 103

Applicant respectfully makes reference to MPEP §§ 2142, which state in part:

> **The key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in KSR International Co. v. Teleflex Inc., 550 U.S. [398 (2007)], 82 USPQ2d 1385, 1396 (2007) noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit. The Federal Circuit has stated that 'rejections on obviousness 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. In re Kahn, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006). See also KSR, 550 U.S. at [418], 82 USPQ2d at 1396 (quoting Federal Circuit statement with approval). (MPEP § 2142.)**

The Examiner rejected claims 3-4, 16-17, and 20 under 35 U.S.C. § 103(a) as being unpatentable over Werner in view of U.S. Publication No. 2003/0145082, to Son (hereinafter, "Son"). Applicant respectfully disagrees.

Dependent claims 3-4, 16-17, and 20, depend from independent claims 1, 15 and 19 respectively. The allowability of dependent claims 3-4, 16-17, and 20 thus follows from the allowability of independent claims 1, 15 and 19 respectively.

Applicant also respectfully asserts that the further cited reference Son does not make up for the deficit of Warner.

Specifically, the Examiner cites Fig. 2, [0026], [0029]-[0031] of Son for the rejection of dependent claim 3. Son discloses in [0029] that "*the access controller 214 may be configured to* ***have multiple levels of access to a set of SOHO LAN monitor settings****. For example, a first level of access may provide the data service provider with a capability to read (view) and modify the SOHO LAN monitor settings, while a second level of access may be lower than the first level and may provide the customer with a capability only to read (view) the SOHO LAN monitor settings*." Son also discloses in [0030] that "*The periodic connectivity testing (****either LAN-side or WAN-side****) may be performed, for example, by way of "pinging.*" (Emphasis added)

At most, Son discloses ***multiple levels of access to LAN settings*** and ***connectivity testing (either LAN-side or WAN-side.*** Similar to Warner, Son is also silent on identifying an operation condition with the LAN based at least on collected WAN information or an operation condition in the WAN based at least on collected LAN information.

Therefore, based at least on above remarks, Applicant respectfully asserts that claims 3-4, 16-17, and 20 are patentable over the Werner in view of Son.

CONCLUSION

In view of the above arguments, Applicant believes that pending claims 1-20 are allowable and respectfully requests that a Notice of Allowance be issued for this application in its current state. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned may be reached by telephone at 520-288-8876.

If any fees are due in connection with this filing the Commissioner is authorized to charge such fees to Deposit Account 50-2776.

Respectfully submitted,

Date: 2018-03-02

By: /Xin Dai/
Xin Dai, Ph.D.
Reg. No. 72,098

Customer No.
146571
UNITED STATES PATENT & TRADEMARK OFFICE

PTO/SB/26 (08-08)
Approved for use through 09/30/2008. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT	Docket Number (Optional) 20145-049USC

In re Application of: Adaptive Spectrum and Signal Alignment, Inc.

Application No.: 15/182,513

Filed: 06/14/2016

For: : SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS

The owner*, Adaptive Spectrum and Signal Alignment, Inc., of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term **prior patent** No. 9,369,370B2 as the term of said prior patent is defined in 35 U.S.C. 154 and 173, and as the term of said **prior patent** is presently shortened by any terminal disclaimer. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the **prior patent** are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the owner does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term as defined in 35 U.S.C. 154 and 173 of the **prior patent**, "as the term of said **prior patent** is presently shortened by any terminal disclaimer," in the event that said **prior patent** later:

expires for failure to pay a maintenance fee;
is held unenforceable;
is found invalid by a court of competent jurisdiction;
is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
has all claims canceled by a reexamination certificate;
is reissued; or
is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

Check either box 1 or 2 below, if appropriate.

1. ☑ For submissions on behalf of a business/organization (e.g., corporation, partnership, university, government agency, etc.), the undersigned is empowered to act on behalf of the business/organization.

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.

2. ☑ The undersigned is an attorney or agent of record. Reg. No. 72,098

/Xin Dai/ — Signature
2018-03-02 — Date

Xin Dai — Typed or printed name

520-288-8876 — Telephone Number

☑ Terminal disclaimer fee under 37 CFR 1.20(d) included.

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.

*Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner).
Form PTO/SB/96 may be used for making this certification. See MPEP § 324.

This collection of information is required by 37 CFR 1.321. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Electronic Patent Application Fee Transmittal

Application Number:	15182513
Filing Date:	14-Jun-2016
Title of Invention:	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS
First Named Inventor/Applicant Name:	Peter Chow
Filer:	Michael V. North/Nita Miller
Attorney Docket Number:	20145-049USC

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

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($)
Miscellaneous:				
STATUTORY OR TERMINAL DISCLAIMER	1814	1	160	160
		Total in USD ($)		**160**

Electronic Acknowledgement Receipt

EFS ID:	31941098
Application Number:	15182513
International Application Number:	
Confirmation Number:	6886
Title of Invention:	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS
First Named Inventor/Applicant Name:	Peter Chow
Customer Number:	146571
Filer:	Michael V. North/Nita Miller
Filer Authorized By:	Michael V. North
Attorney Docket Number:	20145-049USC
Receipt Date:	02-MAR-2018
Filing Date:	14-JUN-2016
Time Stamp:	11:17:41
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$160
RAM confirmation Number	030218INTEFSW11193200
Deposit Account	502776
Authorized User	Nita Miller

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 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		049USC_RNFOA.pdf	88824 4f987adf2fce3d73437741b136311679d10c7cf5	yes	12
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Amendment/Req. Reconsideration-After Non-Final Reject		1	1	
	Claims		2	6	
	Applicant Arguments/Remarks Made in an Amendment		7	12	
Warnings:					
Information:					
2	Terminal Disclaimer Filed	049USC_Term_Disclaim.pdf	130339 d9acdbaa20e305235e00d49fd57f57a89a33b6ef	no	1
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30680 2bc3d44982d0e5548e90b5a38cea3417e73eb6a0	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	249843		

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Electronic Patent Application Fee Transmittal

Application Number:	15182513
Filing Date:	14-Jun-2016
Title of Invention:	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS
First Named Inventor/Applicant Name:	Peter Chow
Filer:	Michael V. North/Nita Miller
Attorney Docket Number:	20145-049USC

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

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($)
Extension - 1 month with $0 paid	1251	1	200	200
Miscellaneous:				
		Total in USD ($)		**200**

Electronic Acknowledgement Receipt	
EFS ID:	31941477
Application Number:	15182513
International Application Number:	
Confirmation Number:	6886
Title of Invention:	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS
First Named Inventor/Applicant Name:	Peter Chow
Customer Number:	146571
Filer:	Michael V. North/Nita Miller
Filer Authorized By:	Michael V. North
Attorney Docket Number:	20145-049USC
Receipt Date:	02-MAR-2018
Filing Date:	14-JUN-2016
Time Stamp:	11:40:43
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$200
RAM confirmation Number	030218INTEFSW11413500
Deposit Account	502776
Authorized User	Nita Miller
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 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	Fee Worksheet (SB06)	fee-info.pdf	31104 2ba154b23a607dcc4b25b9e77e3bf78c75ec889a	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	31104		

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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 (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 15/182,513	Filing Date 06/14/2016	☐ 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 03/02/2018

	(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))	* 20	Minus	** 20	= 0	X $50 =	0
Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $230 =	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
JACQUELYN WILLIAMS

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Application Number	Application/Control No.	Applicant(s)/Patent under Reexamination	
	15/182,513	CHOW ET AL.	

Document Code - DISQ	Internal Document – DO NOT MAIL

TERMINAL DISCLAIMER	☒ APPROVED	☐ DISAPPROVED
Date Filed : 3/2/18	**This patent is subject to a Terminal Disclaimer**	

Approved/Disapproved by:
jean proctor

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/182,513	06/14/2016	Peter Chow	20145-049USC	6886

146571 7590 07/11/2018
North Weber & Baugh LLP - ASSIA
3260 Hillview Avenue, 1st Floor
Palo Alto, CA 94304

EXAMINER	
DUONG, DUC T	

ART UNIT	PAPER NUMBER
2467	

NOTIFICATION DATE	DELIVERY MODE
07/11/2018	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):

docket1@northweber.com

Office Action Summary	Application No. 15/182,513	Applicant(s) CHOW ET AL.	
	Examiner DUC T. DUONG	Art Unit 2467	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* MONTHS 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 *3/2/18*.

☐ 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) *1-20* 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) *1-4,6-17,19 and 20* is/are rejected.

8)☒ Claim(s) *5 and 18* 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 _____ 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.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

DETAILED ACTION

1. The present application is being examined under the pre-AIA first to invent provisions.

Terminal Disclaimer

2. The terminal disclaimer filed on March 7, 2018 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US Patent 9,369,370 B2 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 1, 7-13, 15, and 19 are rejected under 35 U.S.C. 101 because the claimed invention is directed to a judicial exception (i.e., a law of nature, a natural phenomenon, or an abstract idea) without significantly more. Claims 1, 7-13, 15, and 19 is directed to collecting and analyzing information (i.e. the steps of collecting LAN/WAN information and jointly analyzing the collected LAN/WAN information), which is similar to concept that have been identified as abstract by the courts, such as *Electric Power Group*, *FairWarning*, and *CyberSource*. The claim(s) does/do not include additional elements that are sufficient to amount to significantly more than the judicial exception because the additional elements when considered both individually and as a combination do not amount to significantly more than the abstract idea. The claim recites the additional elements of a LAN/WAN interfaces and DSL connection, however,

these elements are recited at a high level of generality and only performs generic network functions. And these generic network elements do not add a meaningful limitation to the abstract idea because they are well-known in any network implementation.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of pre-AIA 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.

6. Claims 1, 2, 6-15, and 19 are rejected under pre-AIA 35 U.S.C. 102(b) as being anticipated by Werner et al (US Publishing 2006/0164978 A1).

Regarding to claims 1, 15, and 19, Werner discloses a management device 2000 (fig. 1-2), comprising a Local Area Network LAN interface 2100 (page 3 paragraph 0032) to communicably interface the management device with a LAN 1600 (page 2 paragraph 0023); a Wide Area Network WAN interface 2100 to communicably interface the management device with a WAN 1700 (page 2 paragraph 0023), wherein the WAN provides broadband connectivity to the LAN through a Digital Subscription Line DSL connection (page 4 paragraph 0070); a collection module 1400 to collect LAN information from the LAN and WAN information from the WAN (page 2 paragraph 0025); and an analysis module 1460 to jointly analyze the collected WAN information and the collected LAN information to identify an operational condition (pages 2-3 paragraphs 0026-0031), the operation condition is within the LAN identified based at

least on collected WAN information (page 1 paragraphs 0007-0009; noted the CDPSS 1460 can be deployed on LAN segment with WAN access router to collected WAN information to set COS priority levels for each type of traffic class in the LAN) or within the WAN identified based at least on the collected LAN information (page 2 paragraph 0029; noted the CDPSS 160 can provided the WAN capacity information based on LAN packet traffic).

Regarding to claim 2, Werner discloses an implementation logic to initiate a management event responsive to the operational condition being identified (page 3 paragraphs 0030-0031).

Regarding to claim 6, Werner discloses the operational condition identified based on the joint analysis comprises at least one of: network congestion within the WAN; network congestion within the LAN; excess power consumption by communication elements within the LAN; excess power consumption by communication elements within the WAN; bandwidth utilization of the WAN in excess of a maximum threshold; bandwidth availability of the WAN below a minimum threshold; a security breach within the LAN (page 1 paragraphs 0010-0013); or a network intrusion within the LAN.

Regarding to claim 7, Werner discloses the collection logic is to collect the WAN information and the LAN information from one or more sources including: a Digital Subscriber Line (DSL) Customer Premises Equipment (CPE) modem ; an in-home powerline device; a Home Phoneline Network Alliance (HPNA) based device; an in-home coax distribution device; a G.hn (Global Home Networking Standard) compatible device; an in-home metering communication device; an in-home appliance

communicatively interfaced with the LAN; a wireless femtocell base station; a wireless WiFi compatible base station; a wireless mobile device repeater; a wireless mobile device base station; a set-top box (STB)/set-top unit (STU) customer electronics device; an Internet Protocol (IP) enabled television; an IP enabled media player; an IP enabled gaming console; an Ethernet gateway; a computing device connected to the LAN; an Ethernet connected computer peripheral device; an Ethernet connected router; an Ethernet connected wireless bridge; an Ethernet connected network bridge; or an Ethernet connected network switch (page 4 paragraph 0070).

Regarding to claim 8, Werner discloses a Digital Subscriber Line (DSL) modem operating as a Customer Premises Equipment (CPE) device to communicatively interface a DSL based backhaul provided via the WAN to the LAN (page 4 paragraph 0070).

Regarding to claim 9, Werner discloses a cable modem operating to communicatively interface a cable network based backhaul provided via the WAN to the LAN (page 4 paragraph 0070).

Regarding to claim 10, Werner discloses a wireless modem operating to communicatively interface a wireless based backhaul provided via the WAN to the LAN (page 4 paragraph 0070).

Regarding to claim 11, Werner discloses a powerline modem operating to communicatively interface a powerline based backhaul provided via the WAN to the LAN (page 4 paragraph 0070).

Regarding to claim 12, Werner discloses an Optical Network Terminal (ONT) operating to communicatively interface a fiber optic based backhaul provided via the WAN to the LAN (page 4 paragraph 0070).

Regarding to claim 13, Werner discloses a router operating to communicatively interface a WAN connected backhaul to the LAN (page 2 paragraph 0023).

Regarding to claim 14, Werner discloses a computing device 1400 remotely located from a WAN/LAN interface through which a communication channel related to the WAN and the LAN is connected, wherein the computing device is to provide remote monitoring and management functionality for the WAN/LAN interface (page 2 paragraph 0025).

Claim Rejections - 35 USC § 103

7. The following is a quotation of pre-AIA 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, 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.

8. Claims 3, 4, 16, 17, and 20 are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Werner in view of Son (US Publication 2003/0145082 A1).

Regarding to claims 3, 4, 16, 17, and 20, Werner discloses all the limitations with respect to claims 1 and 15, except for a diagnostics logic to jointly analyze the collected WAN information and the collected LAN information to diagnose a fault within the WAN based at least in part on the LAN information or to diagnose a fault within the LAN based at least in part on the WAN information (claims 3, 16, and 20), and the

implementation logic to initiate a management event responsive to the fault being identified (claims 4 and 17). However, Son discloses a monitoring system 208 to jointly analyze the collected WAN information and the collected LAN information to diagnose a fault within the WAN based at least in part on the LAN information or to diagnose a fault within the LAN based at least in part on the WAN information (fig. 2 page 2 paragraphs 0029-0031), and to initiate a management event response based on fault being identified (page 2 paragraph 0026). Thus, it would have been obvious to a person of ordinary skill in the art, at the time of the invention, to arrange for the monitoring system as taught by Son into Werner's system to provide periodicity testing of LAN/WAN connectivity.

Response to Arguments

9 Applicant's arguments filed October 27, 2017 have been fully considered but they are not persuasive. Regarding to applicant's argument on page 1-2 in the Remarks, claim 1 is not directed to an abstract idea. Specifically, applicant argued “the operation condition is within the LAN identified based on the collected WAN information or within the WAN identified based at least on the collected LAN information” limitation provide significantly more than abstract idea. In response, the examiner disagreed with applicant's assertion. The limitation added to the claim does not provided or teach the optimizations shown in paragraphs 0006, 0077, and 0100 of the disclosure as applicant suggested. The limitation is merely an analysis step of identifying an operation condition, and does not amount to significantly more than abstract idea. There is no optimizations is being carried out in the added limitation. Thus, based on the reasons

set forth here the claim is still direct to an abstract idea. Regarding to applicant's argument on pages 2-4 in the Remarks, Werner fails to teach for "the operation condition is within the LAN identified based on the collected WAN information or within the WAN identified based at least on the collected LAN information". In response, the examiner disagreed with applicant's assertion and that Werner indeed teach of such limitation as identified in the above rejection statement.

Allowable Subject Matter

10. Claims 5 and 18 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

11. 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.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DUC DUONG whose telephone number is (571)272-3122. The examiner can normally be reached on M-F (9:00 AM-6:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Phillips can be reached on 571-272-3940. 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.

/DUC T DUONG/
Primary Examiner, Art Unit 2467

PTO/SB/08b (07-09)
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Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 1

Complete if Known	
Application Number	13/995,900
Filing Date	2014-07-08
First Named Inventor	Wonjong Rhee
Art Unit	2467
Examiner Name	Duc T. Duong
Attorney Docket Number	20145-049USC

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
	1	Office Action dated 2017-11-01, in Australian Patent Application No. 2016222368 (3pgs).	

Examiner Signature	/DUC T DUONG/	Date Considered	07/05/2018

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

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

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

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /D.T.D/

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.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /D.T.D/

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15182513	CHOW ET AL.
	Examiner	**Art Unit**
	DUC DUONG	2467

✓	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	09/19/2016	06/09/2017	11/13/2017	07/05/2018					
	1	✓	✓	✓	✓					
	2		✓	✓	✓					
	3		✓	✓	✓					
	4		✓	✓	✓					
	5		✓	O	O					
	6		✓	✓	✓					
	7		✓	✓	✓					
	8		✓	✓	✓					
	9		✓	✓	✓					
	10		✓	✓	✓					
	11		✓	✓	✓					
	12		✓	✓	✓					
	13		✓	✓	✓					
	14		✓	✓	✓					
	15		✓	✓	✓					
	16		✓	✓	✓					
	17		✓	✓	✓					
	18		✓	O	O					
	19		✓	✓	✓					
	20		✓	✓	✓					

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	4820	(monitor$3 or detect$3 or detemin$3) with lan with wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:25
S2	355	(monitor$3 or detect$3 or detemin$3 or identify) with lan with wan with (condition or status or state)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:27
S3	278	S2 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:28
S4	93	S3 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:28
S5	6865	(collect$3 or snoop$3 or sniff$) with lan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:34
S6	3248	(collect$3 or snoop$3 or sniff$) with wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:34
S7	2272	S5 and S6	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:34
S8	175	S7 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:34
S9	150	S8 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:34
S10	2423	(lan adj2 (interface or port)) same (wan adj2 (interface or port))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:36

S11	730	S10 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:36
S12	348	S11 and ((monitor$3 or detect$3 or detemin$3 or identify) with (condition or status or state))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:36
S13	312	S12 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:36
S14	1937247	(monitor$3 or detect$3 or determin$3 or identify) near5 (condition or status or state or failure or fault$2 or congestion)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:50
S15	41	S10 same S14	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:51
S16	16	S15 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:51
S17	8	S16 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:51
S18	255	(monitor$3 or detect$3 or determin$3 or identify) near5 (condition or status or state or failure or fault$2 or congestion) with lan near5 wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:14
S19	43	S18 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:15
S20	35	S19 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:15
S21	802	(lan adj2 (interface or port or connection or connector)) same (wan adj2 (interface or port or connection or connector)) same (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:26
S22	673	S21 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:27

S23	172	S22 and "370"/$.ccls.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:27
S24	712	(monitor$3 or detect$3 or determin$3 or identify) near5 (condition or status or state or failure or fault$2 or congestion or performance) with (lan or ethernet) with (internet or wan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:35
S25	167	S24 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:35
S26	79	S25 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:35
S27	544	S24 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:41
S28	111	S27 and "370"/$.ccls.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:43
S29	1226	(management or gateway) same ((lan or ethernet) adj2 (interface or port or connection or connector)) same (wan adj2 (interface or port or connection or connector))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:46
S30	540	S29 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:46
S31	491	S30 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:46
S32	130	(monitor$3 or detect$3 or determin$3 or identify) near5 (condition or status or state or failure or fail$4 or fault$2 or congestion or performance) same ((lan or ethernet) adj2 (interface or port or connection or connector)) with ((internet or wan) adj2 (interface or port or connection or connector))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 17:27
S33	106	S32 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 17:27
S34	7	"2007146048"	US-PGPUB;	OR	ON	2015/04/27 17:50

			USPAT; EPO; DERWENT			
S35	250	(monitor$3 or detect$3 or determin$3 or identify) with ((lan or ethernet) adj2 (interface or port)) with ((internet or wan) adj2 (interface or port))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 17:55
S36	209	S35 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 17:55
S37	674	(failure or fail$4 or fault$2 or congest$3) with (lan or ethernet or rj$145) with (wan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 18:24
S38	674	(failure or fail$4 or fault$2 or congest$3) with (lan or ethernet or rj$145) with (wan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 19:43
S39	582	S38 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 19:44
S40	55	S39 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 19:44
S41	4408	(monitor$3 or measur$3 or analyz$3) with (lan or ethernet or rj$145) with (wan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 20:00
S42	158	(monitor$3 or measur$3 or analyz$3) with (lan or ethernet or rj45 or rj-45) with (wan) with performance	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 20:01
S43	171	(monitor$3 or measur$3 or analyz$3 or determin$3) with (lan or ethernet or rj45 or rj-45) with (wan) with performance	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 20:01
S44	145	S43 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 20:01
S45	3680	(monitor$3 or detect$3 or determin$3 or identify or analyz$3) near5 (condition or status or state or failure or fail$4 or fault$2 or congestion or performance) near5 (lan or ethernet)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:43
S46	159	S45 same (dsl or adsl)	US-PGPUB;	OR	ON	2015/04/29 08:44

			USPAT; EPO; DERWENT			
S47	153	S46 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:44
S48	8955	(collect$3 or snoop$3 or sniff$ or analyz$3) with lan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:46
S49	143	S48 same (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:46
S50	130	S49 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:46
S51	8571	manag$5 near3 lan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:56
S52	64	S51 same (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:56
S53	51	S52 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:56
S54	10593	((lan or ethernet or rj45 or rj-45) adj2 (interface or port or connection)) same ((wan or internet) adj2 (interface or port or connection))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:08
S55	522	S54 same (collect$3 or snoop$3 or sniff$ or analyz$3)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:09
S56	423	S55 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:09
S57	376	S54 same (collect$3)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:10
S58	313	S57 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB;	OR	ON	2015/04/29 09:10

			USPAT; EPO; DERWENT			
S59	6482	(collect$3 with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:33
S60	410	S59 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:34
S61	358	S60 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:34
S62	2100	(collect$3 with lan with wan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:37
S63	157	S62 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:37
S64	134	S63 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:37
S65	10608	((lan or ethernet or rj45 or rj-45) adj2 (interface or port or connection)) same ((wan or internet) adj2 (interface or port or connection))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:53
S66	522	S65 same (collect$3 or snoop$3 or sniff$ or analyz$3)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:53
S67	423	S66 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:53
S68	468	h04l41/04.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:57
S69	0	S67 and S68	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:57
S70	2633	h04l41/06.cpc.	US-PGPUB;	OR	ON	2015/05/03 22:57

			USPAT; EPO; DERWENT			
S71	1	S67 and S70	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:57
S72	436	h04l41/0604.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:58
S73	11	S72 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:58
S74	1193	h04l41/0631.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:59
S75	0	S67 and S74	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:59
S76	38	S74 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:59
S77	941	h04l41/0677.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:59
S78	11	S77 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:59
S79	120	h04l41/0695.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:59
S80	0	S79 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:00
S81	1200	h04l41/08.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:00
S82	11	S81 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB;	OR	ON	2015/05/03 23:00

			USPAT; EPO; DERWENT			
S83	354	h04l41/085.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:00
S84	4	S83 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:00
S85	1493	h04l41/0853.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:00
S86	41	S85 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:00
S87	1384	h04l41/0856.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:01
S88	41	S87 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:01
S89	214	h04l41/0859.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:01
S90	3	S89 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:01
S91	1831	h04l43/04.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:02
S92	87	S91 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:03
S93	3292	h04l43/10.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:03
S94	127	S93 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB;	OR	ON	2015/05/03 23:03

			USPAT; EPO; DERWENT			
S95	53	S94 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:03
S96	1796	h04l43/12.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:03
S97	48	S96 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:03
S98	5460	h04l43/50.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:04
S99	60	S98 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:04
S100	140	(peter near2 chow).inv.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:04
S101	2	S100 and (lan and wan and manag$5 and condition).clm.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:05
S102	81	(rhee near2 wonjong).inv.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:05
S103	2	S102 and (lan and wan and manag$5 and condition).clm.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:05
S104	39	(tehrani near2 ardavan).inv.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:05
S105	2	S104 and (lan and wan and manag$5 and condition).clm.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:05
S106	29	(goldburg near2 marc).inv.	US-PGPUB;	OR	ON	2015/05/03 23:06

			USPAT; EPO; DERWENT			
S107	2	S106 and (lan and wan and manag$5 and condition).clm.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:06
S108	6257	h04l43/50.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:35
S109	69	S108 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:35
S110	2369	(collect$3 with lan with wan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:41
S111	181	S110 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:41
S112	136	S111 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:41
S113	3030	(collect$3 or snoop$3 or sniff$ or analyz$3) with ((wan or internet or ip) adj2 (connection or interface))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:47
S114	702	(collect$3 or snoop$3 or sniff$ or analyz$3) with ((lan) adj2 (connection or interface))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:48
S115	188	S113 and S114	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:48
S116	167	S115 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:48
S117	2	"20140321298"	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 18:11
S121	2699	(collect$3 with lan with wan)	US-PGPUB;	OR	ON	2016/09/19 03:48

			USPAT; EPO; DERWENT			
S122	197	S121 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:48
S123	136	S122 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:48
S124	2	"9,369,370"	US-PGPUB; USPAT; FPRS	OR	ON	2016/09/19 03:49
S125	7981	(collect$3 or snoop$3 or sniff$3) with lan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:51
S126	2998	S125 same wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:51
S127	231	S126 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:51
S128	166	S127 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:51
S129	5718	(fault$3 or fail$4) with lan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:53
S130	690	S129 same wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:53
S131	102	S130 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:53
S132	73	S131 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:53
S133	2329	(diagnostic or diagnos$3) with lan	US-PGPUB; USPAT;	OR	ON	2016/09/19 03:58

			EPO; DERWENT			
S134	630	S133 same wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:59
S135	70	S134 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:59
S136	49	S135 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:59
S137	7530	(collect$3 or snoop$3 or sniff$3 or monitor$3) with lan with wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 16:31
S138	1167	S137 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 16:31
S139	763	S138 and (diagnostic or failure or fault$2 or congestion)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 16:32
S140	556	S139 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 16:32
S141	3996	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing) with lan with wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 16:35
S142	354	S141 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 16:36
S143	239	S142 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 16:36
S144	243	lan with wan with backhaul	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 16:44
S145	175	S144 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO;	OR	ON	2017/06/09 16:44

			DERWENT			
S146	17056	lan with wan same dsl	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 16:45
S147	983	lan same (internet or wan (ip adj2 network)) same backhaul	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 16:47
S148	457	S147 and dsl	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 16:47
S149	377	S148 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 16:47
S150	359	lan with (interface or connect$3 or couple$1) with (internet or wan (ip adj2 network)) same backhaul	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 17:03
S151	187	S150 and dsl	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 17:03
S152	13421	lan with (interface or connect$5 or couple$1) with (internet or wan (ip adj2 network)) same dsl	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 17:20
S153	3996	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing) with lan with wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 17:22
S154	123	S152 and S153	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 17:22
S155	84	S154 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 17:23
S156	564	lan same wan same backhaul	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 18:54
S157	56	lan same wan same backhaul same dsl	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 18:54
S158	12990	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing) with lan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 18:58
S159	6366	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or	US-PGPUB;	OR	ON	2017/06/09 18:58

		probing) with wan	USPAT; EPO; DERWENT			
S160	4249	S158 and S159	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 18:58
S161	352	S160 and dsl	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 18:58
S162	240	S161 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 18:59
S163	4862	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing or monitor$3) with lan near5 (interface or port or media or medium or connection)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 19:05
S164	1914	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing or monitor$3) with wan near5 (interface or port or media or medium or connection)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 19:05
S165	887	S163 and S164	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:06
S166	629	S165 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:06
S167	449	S166 and (fault$3 or fail$4)	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:07
S168	8215	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing or monitor$3) with lan with wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 19:19
S169	131	S168 same (fault$3 or fail$4)	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:19
S170	87	S169 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:19
S171	14499	(manag$5 or provision$3 or optimiz$3 or monitor$3) with lan with wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 19:28
S172	6855	S171 and (fault$3 or fail$4)	US-PGPUB; USPAT;	OR	ON	2017/06/09 19:28

			FPRS			
S173	1242	S172 and dsl	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:28
S174	909	S173 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:29
S175	991	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing or monitor$3) with lan with wan near5 (interface or port or media or medium or connection)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 19:30
S176	27	S175 same (fault$3 or fail$4)	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:31
S177	1427	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing or monitor$3) with lan with (internet or wan or broad$1band) near5 (interface or port or media or medium or connection)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 19:33
S178	48	S177 same (fault$3 or fail$4)	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:33
S179	32	S178 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:33
S180	3000	lan with (interface or connect$5 or couple$1) with wan with dsl	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/11 00:56
S181	2347544	(monitor$3 or detect$3 or determin$3 or identify) near5 (condition or status or state or failure or fault$2 or congestion)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/11 00:58
S182	1223	S180 and S181	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/11 00:58
S183	907	S182 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/11 00:59
S184	5107	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing or monitor$3 or meter$3) with lan near5 (interface or port or media or medium or connection)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/11 01:00
S185	2174	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing or monitor$3 or meter$3) with wan near5 (interface or port or media	US-PGPUB; USPAT; EPO;	OR	ON	2017/06/11 01:01

		or medium or connection)	DERWENT			
S186	1074	S184 and S185	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/11 01:01
S187	301	S186 and dsl	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/11 01:03
S188	259	S187 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/11 01:03
S189	234	S188 and (fault or fail$3)	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/11 01:03
S190	424	(fault or fail$3) with lan with wan	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/11 01:05
S191	323	S190 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/11 01:05
S192	30	(back$1haul near5 wan) same lan same dsl	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/11 01:15
S193	2	"20060164978"	US-PGPUB; USPAT; FPRS	OR	ON	2017/09/26 13:03
S194	1	"20160294669"	US-PGPUB; USPAT; FPRS	OR	ON	2017/09/26 16:18

7/5/2018 2:18:00 PM
C:\Users\dduong\Documents\EAST\Workspaces\15182513.wsp

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15182513	CHOW ET AL.
	Examiner	Art Unit
	DUC DUONG	2467

CPC- SEARCHED		
Symbol	Date	Examiner
see CPC search printout	7/5/2018	DTD

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
East text			
inventor name			

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

SEARCH NOTES		
Search Notes	Date	Examiner
East text	7/5/2018	DTD
inventor name	7/5/2018	DTD
updated h04l41/04,h04l41/06,h04l41/0604,h04l41/0631,h04l41/0677,h04l41/0695,h04l41/08,h04l41/085,h04l41/0853,h04l41/0856,h04l441/0859 (text search)	7/5/2018	DTD
updated h04l43/10,h04l43/12,h04l43/50 (text search)	7/5/2018	DTD
see Hassan Phillips	7/5/2018	DTD

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

	/DUC T DUONG/ Primary Examiner.Art Unit 2467

PTO/SB/08b (07-09)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 1

Complete if Known	
Application Number	15/182,513
Filing Date	2016-06-14
First Named Inventor	Peter Chow
Art Unit	2467
Examiner Name	Duc T. Duong
Attorney Docket Number	20145-049USC

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
	1	Office Action dated 2018-06-28, in Indian Patent Application No. 4985CHENP2013 (7pgs).	
	2	Office Action dated 2018-07-04, in Canadian Patent Application No. 2,823,295 (3pgs).	

Examiner Signature		Date Considered	

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

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

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

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Electronic Patent Application Fee Transmittal

Application Number:	15182513
Filing Date:	14-Jun-2016
Title of Invention:	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS
First Named Inventor/Applicant Name:	Peter Chow
Filer:	Michael V. North/Nita Miller
Attorney Docket Number:	20145-049USC

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

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

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
SUBMISSION- INFORMATION DISCLOSURE STMT	1806	1	240	240
		Total in USD ($)		**240**

Electronic Acknowledgement Receipt	
EFS ID:	33853675
Application Number:	15182513
International Application Number:	
Confirmation Number:	6886
Title of Invention:	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS
First Named Inventor/Applicant Name:	Peter Chow
Customer Number:	146571
Filer:	Michael V. North/Nita Miller
Filer Authorized By:	Michael V. North
Attorney Docket Number:	20145-049USC
Receipt Date:	27-SEP-2018
Filing Date:	14-JUN-2016
Time Stamp:	17:28:03
Application Type:	Utility under 35 USC 111(a)

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RAM confirmation Number	092818INTEFSW17292300
Deposit Account	502776
Authorized User	Nita Miller
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 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	Transmittal Letter	049USC_SIDS_Trans.pdf	30011 70323fb57ede6728ed0468e57cd0c807b3168851	no	3
Warnings:					
Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	049USC_SIDS_SB08b.pdf	136186 d37b6b8bcb9d259ef6bc1d450c7ca8a0e505a233	no	1
Warnings:					
Information:					
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3	Non Patent Literature	049USC_SIDS_NPL1.pdf	215679 cbc83861c88daaced0d412bc0bd6217e108fde03	no	7
Warnings:					
Information:					
4	Non Patent Literature	049USC_SIDS_NPL2.pdf	3755119 2976bd3345d7973388331596ec13906abf0269d5	no	3
Warnings:					
Information:					
5	Fee Worksheet (SB06)	fee-info.pdf	30819 a14bac6e36f8d9800f431ed5d4c22bddc4b6bf1d	no	2
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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

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.

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s)	:	Wonjong Rhee *et al.*	Confirmation No.: 6886
Appl. No.	:	15/182,513	
Filing Date	:	2016-06-14	
Title	:	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS	
Art Unit	:	2467	
Examiner	:	Duc T. Duong	
Docket No.	:	20145-049USC	

CERTIFICATE OF MAILING (37 CFR §1.8)

I hereby certify, pursuant to 37 CFR §1.8, that this correspondence is being electronically transmitted via EFS-Web addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date shown below:

Date: 2018-09-27 By: /Nita Miller/
Nita Miller

INFORMATION DISCLOSURE STATEMENT

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

SIR or MADAM:

Filed herewith, in accordance with the provisions of 37 CFR §§ 1.56 and 1.97–1.98, listing various references for consideration by the Examiner, is an Information Disclosure Statement ("IDS").

The filing of this IDS shall not be construed as a representation that a search has been made, or regarding the completeness of the list of references, or that no other material information exists. Furthermore, the filing of this IDS shall not be construed as a representation that inclusion of a reference in this list is an admission that it is prior art or is pertinent to this application, or as an admission that the information listed is, or may be considered to be, material to the patentability of the above referenced application. The filing of this IDS shall not be construed in any manner as an admission against interest.

This IDS is being filed:

☐ within three months of the filing date of a national application, other than a continued prosecution application under § 1.53(d);

☐ within three months of the date of entry of the national stage as set forth in § 1.491 in an international application;

☐ before the mailing of a first Office Action on the merits;

☐ before the mailing of a first Office Action after the filing of a request for continued examination under § 1.114;

☐ after three months of the filing date or entry into the national stage or after the mailing of a first Office action on the merits, but before the mailing date of any final action under § 1.113, a notice of allowance under §1.311, or an action that otherwise closes prosecution in the application;

AND

☐ enclosed herein is the fee set forth in 37 CFR § 1.17(p);

OR

☐ Applicant certifies pursuant to 37 CFR § 1.97(e):

☐ That each item of information contained in the information disclosure statement was first cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this information disclosure statement;

OR

☐ That no item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing this certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in § 1.56(c) more than three months prior to the filing of this information disclosure statement.

☒ on or before the payment of the issue fee but after the mailing of a final action under § 1.113, a notice of allowance under §1.311, or an action that otherwise closes prosecution in the application;

AND

☒ enclosed herein is the fee set forth in 37 CFR § 1.17(p);

AND

☒ Applicant certifies pursuant to 37 CFR § 1.97(e):

☒ That each item of information contained in the information disclosure statement was first cited in a communication from a foreign patent office in a counterpart foreign application

not more than three months prior to the filing of this information disclosure statement;

OR

☐ That no item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing this certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in § 1.56(c) more than three months prior to the filing of this information disclosure statement.

☒ Applicant submits that the enclosed Information Disclosure Statement is timely; therefore, no fee is required.

☒ Except as provided for under 37 CFR § 1.98(a)(2), Applicant has enclosed a copy of each listed reference.

☒ The above referenced application relies upon Application No. 13/995,900, filed 2014-07-08, for an earlier effective filing date under 35 U.S.C. 120. Although, pursuant to 37 CFR § 1.98(d), the references submitted herein are not required to be submitted for the Examiner to consider them, Applicant submits the references herein so that the information will be printed on the patent issuing from this application.

☐ Pursuant to 37 CFR § 1.704(d), Applicant certifies that each of the references cited herein were first cited in a communication from a foreign patent office in a counterpart application and that this communication was not received by any individual designated in 37 CFR § 1.56(c) more than thirty days prior to the filing of this Information Disclosure Statement.

Consideration of the listed references and favorable action are requested. If any additional fees are due in connection with the filing of this Information Disclosure Statement, the Commissioner is hereby authorized to charge such fees to Deposit Account 50-2776.

Respectfully submitted,

Date: 2018-09-27

By: /Michael V. North/
Michael V. North
Reg. No. 46963

Customer No.
146571
UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s)	:	Peter Chow *et al.*	Confirmation No.: 6886
Appl. No.	:	15/182,513	
Filed	:	June 14, 2016	
Title	:	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS	
Examiner	:	Duct Duong	
Art Unit	:	2467	
Docket No.	:	20145-049USC	

CERTIFICATE OF MAILING (37 CFR §1.8)

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Date: 2018-10-10 By: /Nita Miller/
Nita Miller

RESPONSE TO FINAL OFFICE ACTION

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

Examiner Duong:

This paper is responsive to the Final Office Action mailed July 11, 2018, and having a shortened statutory period ending October 11, 2018. Accordingly, this paper is timely filed. Reconsideration is respectfully requested in view of the Amendments and Remarks below.

Amendments to the Claims appear in the complete Listing of Claims which may be found beginning at page **2** of this paper.

Remarks/Arguments may be found at page **8** of this paper.

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application, and reflects the Examiner's renumbering:

1. (Currently amended) A management device, comprising:

a Local Area Network (LAN) interface to communicably interface the management device with a LAN;

a Wide Area Network (WAN) interface to communicably interface the management device with a WAN, wherein the WAN is to provide broadband connectivity to the LAN through a Digital Subscription Line (DSL) connection;

a collection logic to collect LAN information from one or more communication layers on the LAN and WAN information from one or more communication layers on the WAN; and

an analysis logic to jointly analyze the collected WAN information and the collected LAN information to identify an operational condition, the operational condition is within the LAN in a different communication layer from the one or more communication layers on the WAN, identified based at least on collected WAN information or within the WAN in a different communication layer from the one or more communication layers on the LAN, identified based at least on collected LAN information.

2. (Previously presented) The management device of claim 1 comprises: an implementation logic to initiate a management event responsive to the operational condition being identified.

3. (Previously presented) The management device of claim 2 comprises a diagnostics logic to jointly analyze the collected WAN information and the collected LAN information to

diagnose a fault within the WAN based at least in part on the LAN information or to diagnose a fault within the LAN based at least in part on the WAN information.

4. (Previously presented) The management device of claim 3, wherein the implementation logic is to initiate a management event responsive to the fault being identified.

5. (Previously presented) The management device of claim 1, wherein the WAN information collected from the WAN comprises information specific to a second communication layer of the WAN, different than a first communication layer of the LAN.

6. (Previously presented) The management device of claim 1, wherein the operational condition identified based on the joint analysis comprises at least one of: network congestion within the WAN; network congestion within the LAN; excess power consumption by communication elements within the LAN; excess power consumption by communication elements within the WAN; bandwidth utilization of the WAN in excess of a maximum threshold; bandwidth availability of the WAN below a minimum threshold; a security breach within the LAN; or a network intrusion within the LAN.

7. (Previously presented) The management device of claim 1, wherein the collection logic is to collect the WAN information and the LAN information from one or more sources including:

a Digital Subscriber Line (DSL) Customer Premises Equipment (CPE) modem;

an in-home powerline device;

a Home Phoneline Network Alliance (HPNA) based device;

an in-home coax distribution device;

a G.hn (Global Home Networking Standard) compatible device;

an in-home metering communication device;

an in-home appliance communicatively interfaced with the LAN;

a wireless femtocell base station;

a wireless WiFi compatible base station;

a wireless mobile device repeater;

a wireless mobile device base station;

a set-top box (STB)/set-top unit (STU) customer electronics device;

an Internet Protocol (IP) enabled television;

an IP enabled media player;

an IP enabled gaming console;

an Ethernet gateway;

a computing device connected to the LAN;

an Ethernet connected computer peripheral device;

an Ethernet connected router;

an Ethernet connected wireless bridge;

an Ethernet connected network bridge; or

an Ethernet connected network switch.

8. (Previously presented) The management device of claim 1 comprises a Digital Subscriber Line (DSL) modem operating as a Customer Premises Equipment (CPE) device to communicatively interface a DSL based backhaul provided via the WAN to the LAN.

9. (Previously presented) The management device of claim 1 comprises a cable modem operating to communicatively interface a cable network based backhaul provided via the WAN to the LAN.

10. (Previously presented) The management device of claim 1 comprises a wireless modem operating to communicatively interface a wireless based backhaul provided via the WAN to the LAN.

11. (Previously presented) The management device of claim 1 comprises a powerline modem operating to communicatively interface a powerline based backhaul provided via the WAN to the LAN.

12. (Previously presented) The management device of claim 1 comprises an Optical Network Terminal (ONT) operating to communicatively interface a fiber optic based backhaul provided via the WAN to the LAN.

13. (Previously presented) The management device of claim 1 comprises a router operating to communicatively interface a WAN connected backhaul to the LAN.

14. (Previously presented) The management device of claim 1 comprises a computing device remotely located from a WAN/LAN interface through which a communication channel related to the WAN and the LAN is connected, wherein the computing device is to provide remote monitoring and management functionality for the WAN/LAN interface.

15. (Currently amended) A method comprising:

coupling a Local Area Network (LAN) interface to a management device with a LAN;

coupling a Wide Area Network (WAN) interface to the management device with a WAN, wherein the WAN is to provide broadband connectivity to the LAN through a Digital Subscription Line (DSL) connection;

collecting LAN information from one or more communication layers on the LAN and WAN information from one or more communication layers on the WAN; and

analyzing jointly the collected WAN information and the collected LAN information to identify an operational condition, the operational condition is within the LAN in a different communication layer from the one or more communication layers on the WAN identified based at least on collected WAN information or within the WAN in a different communication layer from the one or more communication layers on the LAN identified based at least on collected LAN information.

16. (Previously presented) The method of claim 15 comprises diagnosing a fault within the WAN or the LAN based on the operational condition identified.

17. (Previously presented) The method of claim 15 comprises initiating a management event responsive to the operational condition being identified.

18. (Previously presented) The method of claim 15, wherein the WAN information collected from the WAN comprises information specific to a second communication layer of the WAN, different than a first communication layer of the LAN.

19. (Currently amended) A non-transitory machine-readable storage media having machine readable instructions that when executed by a processor in a management device, cause the management device to perform a method comprising:

coupling a Local Area Network (LAN) interface to the management device with a LAN;

coupling a Wide Area Network (WAN) interface to the management device with a WAN, wherein the WAN is to provide broadband connectivity to the LAN through a Digital Subscription Line (DSL) connection;

collecting LAN information from one or more communication layers on the LAN and WAN information from one or more communication layers on the WAN; and

analyzing jointly the collected WAN information and the collected LAN information to identify an operational condition, the operational condition is within the LAN in a different communication layer from the one or more communication layers on the WAN identified based at least on collected WAN information or within the WAN in a different communication layer from the one or more communication layers on the LAN identified based at least on collected LAN information.

20. (Previously presented) The non-transitory machine-readable storage media of claim 19 having further machine readable instructions that when executed cause the process to perform an operation which comprises diagnosing a fault within the WAN or the LAN based on the operational condition identified.

REMARKS/ARGUMENTS

In the Final Office Action (hereinafter, "Office Action"), mailed July 11, 2018, claims 1-4, 6-17, 19-20, are rejected; claims 5 and 8 are objected to. By this response, claims 1, 15, and 19 are amended; no claims are cancelled and no claims are added. Following entry of this response, claims 1-20 will be pending in the application.

Allowable Subject Matter

In the Office Action, the Examiner states that "*Claims 5 and 18 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.*"

Applicant thanks the Examiner for noticing the allowable subject matter, but believes broader independent claims are also allowable (e.g., the amended independent claims 1, 15 and 19), as discussed in more detail below.

Claim Rejections

I. Rejection of Claims 1, 7-13, 15 and 19 under pre-AIA 35 U.S.C. § 101

In the Advisory Action, the Examiner states that "*Claims 1, 7-13, 15, and 19 are rejected under 35 U.S.C. 101 because the claimed invention is directed to a judicial exception (i.e., a law of nature, a natural phenomenon, or an abstract idea) without significantly more. Claims 1, 7-13, 15 and 19 are directed to an abstract idea of storing, gathering, and analyzing data.*"

Applicant has amended independent claims 1, 15 and 19 for further clarification, and respectfully asserts that claims, as amended, have significant more than just an abstract idea.

Claims 1, 15 and 19, are amended with incorporation of limitation "collecting LAN information from one or more communication layers on the LAN and WAN information from one or more communication layers on the WAN" and "analyzing jointly the collected WAN information and the collected LAN information to identify an operational condition, the operational condition is within the LAN in a different communication layer from the one or more communication layers on the WAN identified based at least on collected WAN information or

within the WAN in a different communication layer from the one or more communication layers on the LAN identified based at least on collected LAN information" (Underline added for amended limitation).

The amendment is fully supported by the specification. For example, [0077] discloses that "*For example, **information from one layer on the WAN 205 may be used to diagnose or improve the performance on a different layer on the LAN 210, or vice versa**. In one embodiment, information is collected from the LAN **210** (for example, collected from a home network) by the Management device **170**. Based on analysis of the information by the Management device **170**, a management event initiated by the Management device **170** responsive to the analysis is applied to the WAN **205**. In one example, a management event may include adjusting settings and configurations on a WAN **205** (for example a DSL network) in response to the analysis. Information collected from the LAN **210** may be from different layers of the LAN **210**, such as from the application layer and the networking layer. The settings and configuration on the DSL system may be implemented at the physical layer, by setting physical layer parameters of the DSL system.*" (Emphasis added)

The above cited embodiment explicitly shows that the collected information from LAN is from **application layer and the networking layer**, while the settings on the DSL system (**WAN**) are at the **physical layer,** which is different from the layers from the LAN.

Furthermore, applicant respectfully asserts that the combination of element "collecting LAN information from one or more communication layers on the LAN and WAN information from one or more communication layers on the WAN " and "the operational condition is within the LAN in a different communication layer from the one or more communication layers on the WAN identified based at least on collected WAN information or within the WAN in a different communication layer from the one or more communication layers on the LAN identified based at least on collected LAN information" is significantly more than just an idea and the limitation also provides improvements over traditional practice.

Applicant also respectfully points out that the explicit disclosure in [0077] clearly shows that the management device, as claimed in the amended claims, is absolutely not an idea. On the

contrary, it provides significantly more to enable monitoring which are not otherwise feasible. *(" It is noted that in the absence of the Management device **170**, it is not possible to optimize or **monitor the performance of the LAN, based on information from the WAN** or to optimize or **monitor the performance of the WAN, based on information from the LAN**. This is because the control mechanisms and control channels on the two networks are distinct and separate. **A Management device 170 as described herein addresses such a problem and enables such monitoring** and optimizations which are not otherwise feasible.")* (Emphasis added)

Based on at least the above remarks, Applicant respectfully asserts that claim 1, 15, and 19, as amended, have significant more than just an abstract idea. Applicant therefore respectfully requests withdrawn of the rejections of claim 1, 15, and 19, as well as corresponding dependent claims, under 35 U.S.C. 101.

II. Rejection of Claims under pre-AIA 35 U.S.C. § 102

The Examiner rejected claims 1, 2, 6-15, and 19, under pre-AIA 35 U.S.C. 102(b) as being anticipated by U.S. Publication No. 2006/0164978, to Werner *et al.* (hereinafter "Werner"). The Applicant has amended claims 1 15, and 19, for further clarification and respectfully asserts that the claims, as amended, are not anticipated by Werner.

Applicant respectfully makes reference to MPEP §§ 2131 and 2131.02, which states in part:

> **A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. (MPEP § 2131, citing *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)). The identical invention must be shown in as complete detail as is contained in the ... claim. (MPEP § 2131.02, citing *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989)).**

Claim 1, as amended, states (*underline added for emphasis*):

> "A management device, comprising:
> a Local Area Network (LAN) interface to communicably interface the management device with a LAN;
> a Wide Area Network (WAN) interface to communicably interface the management device with a WAN, wherein the WAN is to provide

broadband connectivity to the LAN through a Digital Subscription Line (DSL) connection;

a collection logic to collect LAN information from one or more communication layers on the LAN and WAN information from one or more communication layers on the WAN; and

an analysis logic to jointly analyze the collected WAN information and the collected LAN information to identify an operational condition, the operational condition is within the LAN in a different communication layer from the one or more communication layers on the WAN, identified based at least on collected WAN information or within the WAN in a different communication layer from the one or more communication layers on the LAN identified based at least on collected LAN information."

Applicants respectfully assert that Werner fails to disclose each claim limitation within claim 1, especially the emphasized limitations.

Warner only discloses in [0026] that "*Based upon parameters specified by a user, customer, and/or WAN service provider, analyzer **1460** can automatically monitor, inspect, gather, analyze, store, report, render, and/or respond to information regarding packet traffic conveyed on LAN **1600**, from LAN **1600** to WAN **1700**, and/or from WAN **1700** to LAN **1600** ...*" However, Warner is silent on identifying an operation condition with the LAN in a different communication layer from the one or more communication layers on the WAN where the WAN information is collected, or identifying an operation condition in the WAN in a different communication layer from the one or more communication layers on the LAN where the LAN information is collected.

Therefore, based at least one the above remark, Applicant respectfully asserts that the amended claim 1 is not anticipated by Warner.

The above mentioned remarks in regarding to independent claim 1 are also applicable to amended independent claims 15 and 19. Therefore, independent claims 15 and 29, are also patentably distinct from Werner.

Dependent claims 2, 6-14 all ultimately depend from independent claim 1, and therefore are allowable over Werner.

Accordingly, Applicant respectfully requests that the Examiner withdraw the rejection of claims 1-2, 6 -15 and 19, and allow these claims.

III. Rejection of Claims 3, 4, 16, 17, and 20 under pre-AIA 35 U.S.C. § 103

Applicant respectfully makes reference to MPEP §§ 2142, which states in part:

> **The key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in KSR International Co. v. Teleflex Inc., 550 U.S. [398 (2007)], 82 USPQ2d 1385, 1396 (2007) noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit. The Federal Circuit has stated that 'rejections on obviousness 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. In re Kahn, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006). See also KSR, 550 U.S. at [418], 82 USPQ2d at 1396 (quoting Federal Circuit statement with approval). (MPEP § 2142.)**

The Examiner rejected claims 3-4, 16-17, and 20 under 35 U.S.C. § 103(a) as being unpatentable over Werner in view of U.S. Publication No. 2003/0145082, to Son (hereinafter, "Son"). Applicant respectfully disagrees.

Dependent claims 3-4, 16-17, and 20, depend from independent claims 1, 15 and 19, respectively. The allowability of dependent claims 3-4, 16-17, and 20, thus follows from the allowability of independent claims 1, 15 and 19, respectively.

Applicant also respectfully asserts that the further cited reference Son does not make up for the deficit of Warner.

Specifically, the Examiner cites Fig. 2, [0026], [0029]-[0031] of Son for the rejection of dependent claim 3. Son discloses in [0029] that "*the access controller 214 may be configured to* ***have multiple levels of access to a set of SOHO LAN monitor settings****. For example, a first level of access may provide the data service provider with a capability to read (view) and modify the SOHO LAN monitor settings, while a second level of access may be lower than the first level and may provide the customer with a capability only to read (view) the SOHO LAN monitor settings*." Son also discloses in [0030] that "*The periodic connectivity testing (****either LAN-side or WAN-side****) may be performed, for example, by way of "pinging.*" (Emphasis added)

At most, Son discloses ***multiple levels of access to LAN settings*** and ***connectivity testing (either LAN-side or WAN-side.*** Similar to Warner, Son is also silent on identifying an operation condition with the LAN in a different communication layer from the one or more communication layers on the WAN where the WAN information is collected, or identifying an operation condition in the WAN in a different communication layer from the one or more communication layers on the LAN where the LAN information is collected.

Therefore, based at least on above remarks, Applicant respectfully asserts that claims 3-4, 16-17, and 20, are patentable over the Werner in view of Son.

CONCLUSION

In view of the above arguments, Applicant believes that pending claims 1-20 are allowable and respectfully requests that a Notice of Allowance be issued for this application in its current state. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned may be reached by telephone at 520-288-8876.

If any fees are due in connection with this filing the Commissioner is authorized to charge such fees to Deposit Account 50-2776.

Respectfully submitted,

Date: 2018-10-10

By: /Xin Dai/
Xin Dai, Ph.D.
Reg. No. 72,098

Customer No.
146571
UNITED STATES PATENT & TRADEMARK OFFICE

Electronic Acknowledgement Receipt

EFS ID:	33975255
Application Number:	15182513
International Application Number:	
Confirmation Number:	6886
Title of Invention:	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS
First Named Inventor/Applicant Name:	Peter Chow
Customer Number:	146571
Filer:	Michael V. North/Nita Miller
Filer Authorized By:	Michael V. North
Attorney Docket Number:	20145-049USC
Receipt Date:	10-OCT-2018
Filing Date:	14-JUN-2016
Time Stamp:	19:28:48
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		049USC_RFOA.pdf	91995 b7f7b986afad8e0955fa606ebaad952e0cd5ce8d	yes	13

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Response After Final Action	1	1
	Claims	2	7
	Applicant Arguments/Remarks Made in an Amendment	8	13
Warnings:			
Information:			
	Total Files Size (in bytes):	91995	

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 15/182,513	Filing Date 06/14/2016	☐ 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 **10/10/2018**

	(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))	* 20	Minus	** 20	= 0	X $50 =	0
Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X $230 =	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
GAIL 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.**
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 NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/182,513	06/14/2016	Peter Chow	20145-049USC	6886

146571 7590 11/05/2018
North Weber & Baugh LLP - ASSIA
3260 Hillview Avenue, 1st Floor
Palo Alto, CA 94304

EXAMINER
DUONG, DUC T

ART UNIT	PAPER NUMBER
2467	

NOTIFICATION DATE	DELIVERY MODE
11/05/2018	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):

docket1@northweber.com

Advisory Action Before the Filing of an Appeal Brief	**Application No.** 15/182,513	**Applicant(s)** Chow et al.	
	Examiner Duc T Duong	**Art Unit** 2467	**AIA Status** No

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

THE REPLY FILED 10 October 2018 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE.

NO NOTICE OF APPEAL FILED

1. ☑ The reply was filed after a final rejection. No Notice of Appeal has been filed. To avoid abandonment of this application, applicant must timely file one of the following replies: (1) an amendment, affidavit, or other evidence, which places the application in condition for allowance; (2) a Notice of Appeal (with appeal fee) in compliance with 37 CFR 41.31; or (3) a Request for Continued Examination (RCE) in compliance with 37 CFR 1.114 if this is a utility or plant application. Note that RCEs are not permitted in design applications. The reply must be filed within one of the following time periods:
   a) ☑ The period for reply expires 3 months from the mailing date of the final rejection.
   b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action; or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection.
   c) ☐ A prior Advisory Action was mailed more than 3 months after the mailing date of the final rejection in response to a first after-final reply filed within 2 months of the mailing date of the final rejection.The current period for reply expires ____ months from the mailing date of *the prior Advisory Action* or SIX MONTHS from the mailing date of the final rejection, whichever is earlier.
   Examiner Note: If box 1 is checked, check either box (a), (b) or (c). ONLY CHECK BOX (b) WHEN THIS ADVISORY ACTION IS THE FIRST RESPONSE TO APPLICANTS FIRST AFTER-FINAL REPLY WHICH WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. ONLY CHECK BOX (c) IN THE LIMITED SITUATION SET FORTH UNDER BOX (c). See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) or (c) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

NOTICE OF APPEAL

2. ☐ The Notice of Appeal was filed on _____. A brief in compliance with 37 CFR 41.37 must be filed within two months of the date of filing the Notice of Appeal (37 CFR 41.37(a)), or any extension thereof (37 CFR 41.37(e)), to avoid dismissal of the appeal. Since a Notice of Appeal has been filed, any reply must be filed within the time period set forth in 37CFR 41.37(a).

AMENDMENTS

3. ☑ The proposed amendments filed after a final rejection, but prior to the date of filing a brief, will not be entered because
   a) ☑ They raise new issues that would require further consideration and/or search (see NOTE below);
   b) ☐ They raise the issue of new matter (see NOTE below);
   c) ☐ They are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
   d) ☐ They present additional claims without canceling a corresponding number of finally rejected claims.
   NOTE: See Continuation Sheet (See 37CFR 1.116 and 41.33(a)).
4. ☐ The amendments are not in compliance with 37CFR 1.121. See attached Notice of Non-Compliant Amendment (PTOL-324).
5. ☐ Applicants reply has overcome the following rejection(s): _____
6. ☐ Newly proposed or amended claim(s) _____ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
7. ☐ For purposes of appeal, the proposed amendment(s):(a)☐ will not be entered, or (b)☐ will be entered, and an explanation of how the new or amended claims would be rejected is provided below or appended.

AFFIDAVIT OR OTHER EVIDENCE

8. ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____
9. ☐ The affidavit or other evidence filed after final action, but before or on the date of filing a Notice of Appeal will not be entered because applicant failed to provide a showing of good and sufficient reasons why the affidavit or other evidence is necessary and was not earlier presented. See 37 CFR 1.116(e).
10. ☐ The affidavit or other evidence filed after the date of filing the Notice of Appeal, but prior to the date of filing a brief, will not be entered because the affidavit or other evidence failed to overcome all rejections under appeal and/or appellant fails to provide a showing of good and sufficient reasons why it is necessary and was not earlier presented. See 37 CFR 41.33(d)(1).
11. ☐ The affidavit or other evidence is entered. An explanation of the status of the claims after entry is below or attached.

REQUEST FOR RECONSIDERATION/OTHER

12. ☐ The request for reconsideration has been considered but does NOT place the application in condition for allowance because: _____.
13. ☑ Note the attached Information *Disclosure Statement*(s). (PTO/SB/08) Paper No(s). _____
14. ☐ Other: _____.

STATUS OF CLAIMS

15. The status of the claim(s) is (or will be) as follows:
    Claim(s) allowed:_____.
    Claim(s) objected to:5 and 18.
    Claim(s) rejected:1-4,6-17 and 19-20.
    Claim(s) withdrawn from consideration:_____.

/DUC T DUONG/ Primary Examiner, Art Unit 2467	

Continuation of 3. NOTE: The newly added limitation in the proposed amendments has altered the bound and scope of the claims by making them more narrow, and thus they raise new issues that would require further search/consideration.

10/31/18
Do not enter.
DTD

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s)	:	Peter Chow *et al.*	Confirmation No.: 6886
Appl. No.	:	15/182,513	
Filed	:	June 14, 2016	
Title	:	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS	
Examiner	:	Duct Duong	
Art Unit	:	2467	
Docket No.	:	20145-049USC	

CERTIFICATE OF MAILING (37 CFR §1.8)

I hereby certify, pursuant to 37 CFR §1.8, that this correspondence is being electronically transmitted to the USPTO via EFS-Web addressed to: Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date shown below:

Date: 2018-10-10 By: /Nita Miller/
Nita Miller

RESPONSE TO FINAL OFFICE ACTION

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

Examiner Duong:

This paper is responsive to the Final Office Action mailed July 11, 2018, and having a shortened statutory period ending October 11, 2018. Accordingly, this paper is timely filed. Reconsideration is respectfully requested in view of the Amendments and Remarks below.

Amendments to the Claims appear in the complete Listing of Claims which may be found beginning at page **2** of this paper.

Remarks/Arguments may be found at page **8** of this paper.

PTO/SB/08b (07-09)
Approved for use through 07/31/2016. OMB 0651-0031
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Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 1

Complete if Known	
Application Number	15/182,513
Filing Date	2016-06-14
First Named Inventor	Peter Chow
Art Unit	2467
Examiner Name	Duc T. Duong
Attorney Docket Number	20145-049USC

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
	1	Office Action dated 2018-06-28, in Indian Patent Application No. 4985CHENP2013 (7pgs).	
	2	Office Action dated 2018-07-04, in Canadian Patent Application No. 2,823,295 (3pgs).	

Examiner Signature	/DUC T DUONG/	Date Considered	10/31/2018

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

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

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

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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /D.T.D/

PTO/SB/30EFS (02-18)
Approved for use through 11/30/2020. 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	15182513	Filing Date	2016-06-14	Docket Number (if applicable)	20145-049USC	Art Unit	2467
First Named Inventor	Peter Chow			Examiner Name	Duc T. Duong		

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 502776

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

Applicant Signature

PTO/SB/30EFS (02-18)
Approved for use through 11/30/2020. 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	/Michael North/	Date (YYYY-MM-DD)	2018-12-13
Name	Michael North	Registration Number	46963

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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Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal

Application Number:	15182513
Filing Date:	14-Jun-2016
Title of Invention:	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS
First Named Inventor/Applicant Name:	Peter Chow
Filer:	Michael V. North/Nita Miller
Attorney Docket Number:	20145-049USC

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

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($)
Extension - 3 months with $0 paid	1253	1	1400	1400
Miscellaneous:				
RCE- 2ND AND SUBSEQUENT REQUEST	1820	1	1900	1900
		Total in USD ($)		**3300**

Electronic Acknowledgement Receipt	
EFS ID:	34582836
Application Number:	15182513
International Application Number:	
Confirmation Number:	6886
Title of Invention:	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS
First Named Inventor/Applicant Name:	Peter Chow
Customer Number:	146571
Filer:	Michael V. North/Nita Miller
Filer Authorized By:	Michael V. North
Attorney Docket Number:	20145-049USC
Receipt Date:	13-DEC-2018
Filing Date:	14-JUN-2016
Time Stamp:	18:17:06
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$3300
RAM confirmation Number	121418INTEFSW18181400
Deposit Account	502776
Authorized User	Nita Miller
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.16 (National application filing, search, and examination fees) 37 CFR 1.17 (Patent application and reexamination processing fees)	

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 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)	049USC_RCE.pdf	1349910 5f4e1b533b17293b2a8ee2027573e393991d7901	no	3
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	32821 bd43b1d0e84a4058ac36bcf2298395adf27a18df	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1382731		

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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
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www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

146571 7590 02/08/2019
North Weber & Baugh LLP - ASSIA
3260 Hillview Avenue, 1st Floor
Palo Alto, CA 94304

EXAMINER	
DUONG, DUC T	
ART UNIT	PAPER NUMBER
2467	

DATE MAILED: 02/08/2019

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/182,513	06/14/2016	Peter Chow	20145-049USC	6886

TITLE OF INVENTION: SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$0.00	$500	05/08/2019

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: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PTOL-85 (Rev. 02/11)

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (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)

146571 7590 02/08/2019
North Weber & Baugh LLP - ASSIA
3260 Hillview Avenue, 1st Floor
Palo Alto, CA 94304

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 transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/182,513	06/14/2016	Peter Chow	20145-049USC	6886

TITLE OF INVENTION: SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$500	$0.00	$0.00	$500	05/08/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
DUONG, DUC T	2467	370-252000

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 03-09 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 must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). 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. Fees submitted: ❑Issue Fee ❑Publication Fee (if required) ❑Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

❑ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

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.
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.
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. _____

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UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/182,513	06/14/2016	Peter Chow	20145-049USC	6886

146571 7590 02/08/2019

North Weber & Baugh LLP - ASSIA
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Palo Alto, CA 94304

EXAMINER	
DUONG, DUC T	

ART UNIT	PAPER NUMBER
2467	

DATE MAILED: 02/08/2019

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

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 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, 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.

Notice of Allowability	Application No. 15/182,513	Applicant(s) Chow et al.	
	Examiner Duc T Duong	Art Unit 2467	AIA 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 12/13/18.
   ☐ 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 1-20 . 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 areply 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. _____.
5. ☐ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/DUC T DUONG/
Primary Examiner, Art Unit 2467

DETAILED ACTION

Notice of Pre-AIA or AIA Status

1. The present application is being examined under the pre-AIA first to invent provisions.

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 December 13, 2018 has been entered.

Response to Arguments

3. Applicant's arguments, see pages 1-11 in the Remarks, filed October 10, 2018, with respect to claims 1-4, 6-17, 19, and 20 have been fully considered and are persuasive. The rejection of claims has been withdrawn.

Claim Interpretation

4. The following is a quotation of 35 U.S.C. 112(f):

> (f) Element in Claim for a Combination. – An element in a claim for a combination maybe expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

The following is a quotation of pre-AIA 35 U.S.C. 112, sixth paragraph:

> An element in a claim for a combination maybe expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

5. The claims in this application are given their broadest reasonable interpretation using the plain meaning of the claim language in light of the specification as it would be understood by one of ordinary skill in the art. The broadest reasonable interpretation of a claim element (also commonly referred to as a claim limitation) is limited by the description in the specification when 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, is invoked.

As explained in MPEP § 2181, subsection I, claim limitations that meet the following three-prong test will be interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph:

(A) the claim limitation uses the term "means" or "step" or a term used as a substitute for "means" that is a generic placeholder (also called a nonce term or a non-structural term having no specific structural meaning) for performing the claimed function;

(B) the term "means" or "step" or the generic placeholder is modified by functional language, typically, but not always linked by the transition word "for" (e.g., "means for") or another linking word or phrase, such as "configured to" or "so that"; and

(C) the term "means" or "step" or the generic placeholder is not modified by sufficient structure, material, or acts for performing the claimed function.

Use of the word "means" (or "step") in a claim with functional language creates a rebuttable presumption that the claim limitation is to be treated in accordance with 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph. The presumption that the claim limitation is interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth

paragraph, is rebutted when the claim limitation recites sufficient structure, material, or acts to entirely perform the recited function.

Absence of the word "means" (or "step") in a claim creates a rebuttable presumption that the claim limitation is not to be treated in accordance with 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph. The presumption that the claim limitation is not interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, is rebutted when the claim limitation recites function without reciting sufficient structure, material or acts to entirely perform the recited function.

Claim limitations in this application that use the word "means" (or "step") are being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, except as otherwise indicated in an Office action. Conversely, claim limitations in this application that do not use the word "means" (or "step") are not being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, except as otherwise indicated in an Office action.

6. This application includes one or more claim limitations that do not use the word "means," but are nonetheless being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, because the claim limitation(s) uses a generic placeholder that is coupled with functional language without reciting sufficient structure to perform the recited function and the generic placeholder is not preceded by a structural modifier. Such claim limitation(s) is/are: **collection logic to collect and analysis logic to jointly analyze in claim 1, implementation logic to initiate in claims 2 and 4, diagnostic logic to jointly analyze in claim 3.**

Because this/these claim limitation(s) is/are being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, it/they is/are being interpreted to cover the corresponding structure described in the specification as performing the claimed function, and equivalents thereof.

If applicant does not intend to have this/these limitation(s) interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, applicant may: (1) amend the claim limitation(s) to avoid it/them being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph (e.g., by reciting sufficient structure to perform the claimed function); or (2) present a sufficient showing that the claim limitation(s) recite(s) sufficient structure to perform the claimed function so as to avoid it/them being interpreted under 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph

Allowable Subject Matter

7. Claims 1-20 allowed.

The following is an examiner's statement of reasons for allowance: The prior art of record fails to teach or make obvious for **"analysis logic to jointly analyze the collected WAN information and the collected LAN information to identify an operational condition, the operational condition is within the LAN in a different communication layer from the one or more communication layers on the WAN, identified based at least on collected WAN information or within the WAN in a different communication layer from the one or more communication layers on the LAN, identified based at least on collected LAN information"**, when such logic for analyzing is considered within the specific structure or combination of steps recited in the device of claims 1 and 19 or in the method of claim 15.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duc T Duong whose telephone number is (571)272-3122. The examiner can normally be reached on Mon-Fri; 9am-6pm.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Phillips can be reached on (571)272-3940. 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.

/DUC T DUONG/
Primary Examiner, Art Unit 2467

Notice of References Cited	Application/Control No. 15/182,513	Applicant(s)/Patent Under Reexamination Chow et al.	
	Examiner Duc T Duong	Art Unit 2467	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20080219168-A1	09-2008	ENOMOTO; Nobuyuki	H04L45/04	370/237
*	B	US-20030039240-A1	02-2003	Sutanto, Surja	H04L12/2801	370/352
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC 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.

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/182,513	Chow et al.
	Examiner	**Art Unit**
	Duc T Duong	2467

CPC						
Symbol					**Type**	**Version**
H04L	/	43	/	50	F	2013-01-01
H04L	/	41	/	083	I	2013-01-01
H04L	/	41	/	0896	I	2013-01-01
H04L	/	41	/	26	I	2013-01-01
H04L	/	43	/	0829	I	2013-01-01
H04L	/	43	/	0888	I	2013-01-01
H04L	/	43	/	16	A	2013-01-01
Y04S	/	40	/	162	A	2013-01-01
Y04S	/	40	/	168	A	2013-01-01

CPC Combination Sets								
Symbol					**Type**	**Set**	**Ranking**	**Version**
	/		/					

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	20	
/DUC T DUONG/ Primary Examiner, Art Unit 2467	04 February 2019	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2

U.S. Patent and Trademark Office — Part of Paper No.: 20190204

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/182,513	Chow et al.
	Examiner	**Art Unit**
	Duc T Duong	2467

INTERNATIONAL CLASSIFICATION					
CLAIMED					
H04L	/	12	/	24	
H04L	/	12	/	26	

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					

NONE (Assistant Examiner)	(Date)	**Total Claims Allowed:** 20	
/DUC T DUONG/ Primary Examiner, Art Unit 2467 (Primary Examiner)	04 February 2019 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 2

U.S. Patent and Trademark Office — Part of Paper No.: 20190204

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/182,513	Chow et al.
	Examiner	**Art Unit**
	Duc T Duong	2467

☑ Claims renumbered in the same order as presented by applicant ☐ CPA ☑ T.D. ☐ R.1.47

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
	1		10		19										
	2		11		20										
	3		12												
	4		13												
	5		14												
	6		15												
	7		16												
	8		17												
	9		18												

NONE (Assistant Examiner)	(Date)	**Total Claims Allowed:** 20	
/DUC T DUONG/ Primary Examiner, Art Unit 2467 (Primary Examiner)	04 February 2019 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 2

U.S. Patent and Trademark Office

Part of Paper No.: 20190204

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/182,513	Chow et al.
	Examiner	**Art Unit**
	Duc T Duong	2467

CPC - Searched*		
Symbol	**Date**	**Examiner**
see CPC search printout	02/04/2019	DTD

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**
East text			
inventor name			

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	**Date**	**Examiner**
East text	02/04/2019	DTD
inventor name	02/04/2019	DTD
updated h04l41/04,h04l41/06,h04l41/0604,h04l41/0631,h04l41/0677, h04l41/0695,h04l41/08,h04l41/085,h04l41/0853,h04l41/0856,h04l441/ 0859 (text search)	02/04/2019	DTD
updated h04l43/10,h04l43/12,h04l43/50 (text search)	02/04/2019	DTD
see Hassan Phillips	01/31/2019	DTD

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**
	see interference search printout	02/04/2019	DTD

/DUC T DUONG/ Primary Examiner.Art Unit 2467	

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	15/182,513	Chow et al.
	Examiner	**Art Unit**
	Duc T Duong	2467

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

CLAIMS

☑ Claims renumbered in the same order as presented by applicant ☐ CPA ☑ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	09/19/2016	06/09/2017	11/13/2017	07/05/2018	02/04/2019				
	1	✓	✓	✓	✓	=				
	2		✓	✓	✓	=				
	3		✓	✓	✓	=				
	4		✓	✓	✓	=				
	5		✓	O	O	=				
	6		✓	✓	✓	=				
	7		✓	✓	✓	=				
	8		✓	✓	✓	=				
	9		✓	✓	✓	=				
	10		✓	✓	✓	=				
	11		✓	✓	✓	=				
	12		✓	✓	✓	=				
	13		✓	✓	✓	=				
	14		✓	✓	✓	=				
	15		✓	✓	✓	=				
	16		✓	✓	✓	=				
	17		✓	✓	✓	=				
	18		✓	O	O	=				
	19		✓	✓	✓	=				
	20		✓	✓	✓	=				

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	4820	(monitor$3 or detect$3 or detemin$3) with lan with wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:25
S2	355	(monitor$3 or detect$3 or detemin$3 or identify) with lan with wan with (condition or status or state)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:27
S3	278	S2 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:28
S4	93	S3 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:28
S5	6865	(collect$3 or snoop$3 or sniff$) with lan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:34
S6	3248	(collect$3 or snoop$3 or sniff$) with wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:34
S7	2272	S5 and S6	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:34
S8	175	S7 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:34
S9	150	S8 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:34
S10	2423	(lan adj2 (interface or port)) same (wan adj2 (interface or port))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:36

S11	730	S10 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:36
S12	348	S11 and ((monitor$3 or detect$3 or detemin$3 or identify) with (condition or status or state))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:36
S13	312	S12 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:36
S14	1937247	(monitor$3 or detect$3 or determin$3 or identify) near5 (condition or status or state or failure or fault$2 or congestion)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:50
S15	41	S10 same S14	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:51
S16	16	S15 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:51
S17	8	S16 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 15:51
S18	255	(monitor$3 or detect$3 or determin$3 or identify) near5 (condition or status or state or failure or fault$2 or congestion) with lan near5 wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:14
S19	43	S18 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:15
S20	35	S19 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:15
S21	802	(lan adj2 (interface or port or connection or connector)) same (wan adj2 (interface or port or connection or connector)) same (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:26
S22	673	S21 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:27

S23	172	S22 and "370"/$.ccls.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:27
S24	712	(monitor$3 or detect$3 or determin$3 or identify) near5 (condition or status or state or failure or fault$2 or congestion or performance) with (lan or ethernet) with (internet or wan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:35
S25	167	S24 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:35
S26	79	S25 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:35
S27	544	S24 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:41
S28	111	S27 and "370"/$.ccls.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:43
S29	1226	(management or gateway) same ((lan or ethernet) adj2 (interface or port or connection or connector)) same (wan adj2 (interface or port or connection or connector))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:46
S30	540	S29 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:46
S31	491	S30 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 16:46
S32	130	(monitor$3 or detect$3 or determin$3 or identify) near5 (condition or status or state or failure or fail$4 or fault$2 or congestion or performance) same ((lan or ethernet) adj2 (interface or port or connection or connector)) with ((internet or wan) adj2 (interface or port or connection or connector))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 17:27
S33	106	S32 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 17:27
S34	7	"2007146048"	US-PGPUB;	OR	ON	2015/04/27 17:50

			USPAT; EPO; DERWENT			
S35	250	(monitor$3 or detect$3 or determin$3 or identify) with ((lan or ethernet) adj2 (interface or port)) with ((internet or wan) adj2 (interface or port))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 17:55
S36	209	S35 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 17:55
S37	674	(failure or fail$4 or fault$2 or congest$3) with (lan or ethernet or rj$145) with (wan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 18:24
S38	674	(failure or fail$4 or fault$2 or congest$3) with (lan or ethernet or rj$145) with (wan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 19:43
S39	582	S38 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 19:44
S40	55	S39 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 19:44
S41	4408	(monitor$3 or measur$3 or analyz$3) with (lan or ethernet or rj$145) with (wan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 20:00
S42	158	(monitor$3 or measur$3 or analyz$3) with (lan or ethernet or rj45 or rj-45) with (wan) with performance	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 20:01
S43	171	(monitor$3 or measur$3 or analyz$3 or determin$3) with (lan or ethernet or rj45 or rj-45) with (wan) with performance	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 20:01
S44	145	S43 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/27 20:01
S45	3680	(monitor$3 or detect$3 or determin$3 or identify or analyz$3) near5 (condition or status or state or failure or fail$4 or fault$2 or congestion or performance) near5 (lan or ethernet)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:43
S46	159	S45 same (dsl or adsl)	US-PGPUB;	OR	ON	2015/04/29 08:44

			USPAT; EPO; DERWENT			
S47	153	S46 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:44
S48	8955	(collect$3 or snoop$3 or sniff$ or analyz$3) with lan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:46
S49	143	S48 same (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:46
S50	130	S49 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:46
S51	8571	manag$5 near3 lan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:56
S52	64	S51 same (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:56
S53	51	S52 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 08:56
S54	10593	((lan or ethernet or rj45 or rj-45) adj2 (interface or port or connection)) same ((wan or internet) adj2 (interface or port or connection))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:08
S55	522	S54 same (collect$3 or snoop$3 or sniff$ or analyz$3)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:09
S56	423	S55 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:09
S57	376	S54 same (collect$3)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:10
S58	313	S57 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB;	OR	ON	2015/04/29 09:10

			USPAT; EPO; DERWENT			
S59	6482	(collect$3 with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:33
S60	410	S59 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:34
S61	358	S60 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:34
S62	2100	(collect$3 with lan with wan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:37
S63	157	S62 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:37
S64	134	S63 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/04/29 09:37
S65	10608	((lan or ethernet or rj45 or rj-45) adj2 (interface or port or connection)) same ((wan or internet) adj2 (interface or port or connection))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:53
S66	522	S65 same (collect$3 or snoop$3 or sniff$ or analyz$3)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:53
S67	423	S66 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:53
S68	468	h04l41/04.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:57
S69	0	S67 and S68	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:57
S70	2633	h04l41/06.cpc.	US-PGPUB;	OR	ON	2015/05/03 22:57

			USPAT; EPO; DERWENT			
S71	1	S67 and S70	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:57
S72	436	h04l41/0604.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:58
S73	11	S72 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:58
S74	1193	h04l41/0631.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:59
S75	0	S67 and S74	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:59
S76	38	S74 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:59
S77	941	h04l41/0677.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:59
S78	11	S77 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:59
S79	120	h04l41/0695.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 22:59
S80	0	S79 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:00
S81	1200	h04l41/08.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:00
S82	11	S81 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB;	OR	ON	2015/05/03 23:00

			USPAT; EPO; DERWENT			
S83	354	h04l41/085.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:00
S84	4	S83 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:00
S85	1493	h04l41/0853.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:00
S86	41	S85 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:00
S87	1384	h04l41/0856.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:01
S88	41	S87 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:01
S89	214	h04l41/0859.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:01
S90	3	S89 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:01
S91	1831	h04l43/04.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:02
S92	87	S91 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:03
S93	3292	h04l43/10.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:03
S94	127	S93 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB;	OR	ON	2015/05/03 23:03

			USPAT; EPO; DERWENT			
S95	53	S94 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:03
S96	1796	h04l43/12.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:03
S97	48	S96 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:03
S98	5460	h04l43/50.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:04
S99	60	S98 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:04
S100	140	(peter near2 chow).inv.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:04
S101	2	S100 and (lan and wan and manag$5 and condition).clm.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:05
S102	81	(rhee near2 wonjong).inv.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:05
S103	2	S102 and (lan and wan and manag$5 and condition).clm.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:05
S104	39	(tehrani near2 ardavan).inv.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:05
S105	2	S104 and (lan and wan and manag$5 and condition).clm.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:05
S106	29	(goldburg near2 marc).inv.	US-PGPUB;	OR	ON	2015/05/03 23:06

			USPAT; EPO; DERWENT			
S107	2	S106 and (lan and wan and manag$5 and condition).clm.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2015/05/03 23:06
S108	6257	h04l43/50.cpc.	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:35
S109	69	S108 and ((collect$3 or snoop$3 or sniff$ or analyz$3) with lan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:35
S110	2369	(collect$3 with lan with wan)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:41
S111	181	S110 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:41
S112	136	S111 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:41
S113	3030	(collect$3 or snoop$3 or sniff$ or analyz$3) with ((wan or internet or ip) adj2 (connection or interface))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:47
S114	702	(collect$3 or snoop$3 or sniff$ or analyz$3) with ((lan) adj2 (connection or interface))	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:48
S115	188	S113 and S114	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:48
S116	167	S115 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 17:48
S117	2	"20140321298"	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/01/08 18:11
S121	2699	(collect$3 with lan with wan)	US-PGPUB;	OR	ON	2016/09/19 03:48

			USPAT; EPO; DERWENT			
S122	197	S121 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:48
S123	136	S122 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:48
S124	2	"9,369,370"	US-PGPUB; USPAT; FPRS	OR	ON	2016/09/19 03:49
S125	7981	(collect$3 or snoop$3 or sniff$3) with lan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:51
S126	2998	S125 same wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:51
S127	231	S126 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:51
S128	166	S127 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:51
S129	5718	(fault$3 or fail$4) with lan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:53
S130	690	S129 same wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:53
S131	102	S130 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:53
S132	73	S131 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:53
S133	2329	(diagnostic or diagnos$3) with lan	US-PGPUB; USPAT;	OR	ON	2016/09/19 03:58

			EPO; DERWENT			
S134	630	S133 same wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:59
S135	70	S134 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:59
S136	49	S135 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2016/09/19 03:59
S137	7530	(collect$3 or snoop$3 or sniff$3 or monitor$3) with lan with wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 16:31
S138	1167	S137 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 16:31
S139	763	S138 and (diagnostic or failure or fault$2 or congestion)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 16:32
S140	556	S139 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 16:32
S141	3996	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing) with lan with wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 16:35
S142	354	S141 and (dsl or adsl)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 16:36
S143	239	S142 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 16:36
S144	243	lan with wan with backhaul	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 16:44
S145	175	S144 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO;	OR	ON	2017/06/09 16:44

			DERWENT			
S146	17056	lan with wan same dsl	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 16:45
S147	983	lan same (internet or wan (ip adj2 network)) same backhaul	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 16:47
S148	457	S147 and dsl	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 16:47
S149	377	S148 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 16:47
S150	359	lan with (interface or connect$3 or couple$1) with (internet or wan (ip adj2 network)) same backhaul	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 17:03
S151	187	S150 and dsl	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 17:03
S152	13421	lan with (interface or connect$5 or couple$1) with (internet or wan (ip adj2 network)) same dsl	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 17:20
S153	3996	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing) with lan with wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 17:22
S154	123	S152 and S153	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 17:22
S155	84	S154 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 17:23
S156	564	lan same wan same backhaul	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 18:54
S157	56	lan same wan same backhaul same dsl	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 18:54
S158	12990	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing) with lan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 18:58
S159	6366	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or	US-PGPUB;	OR	ON	2017/06/09 18:58

		probing) with wan	USPAT; EPO; DERWENT			
S160	4249	S158 and S159	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 18:58
S161	352	S160 and dsl	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 18:58
S162	240	S161 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 18:59
S163	4862	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing or monitor$3) with lan near5 (interface or port or media or medium or connection)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 19:05
S164	1914	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing or monitor$3) with wan near5 (interface or port or media or medium or connection)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 19:05
S165	887	S163 and S164	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:06
S166	629	S165 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:06
S167	449	S166 and (fault$3 or fail$4)	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:07
S168	8215	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing or monitor$3) with lan with wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 19:19
S169	131	S168 same (fault$3 or fail$4)	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:19
S170	87	S169 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:19
S171	14499	(manag$5 or provision$3 or optimiz$3 or monitor$3) with lan with wan	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 19:28
S172	6855	S171 and (fault$3 or fail$4)	US-PGPUB; USPAT;	OR	ON	2017/06/09 19:28

			FPRS			
S173	1242	S172 and dsl	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:28
S174	909	S173 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:29
S175	991	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing or monitor$3) with lan with wan near5 (interface or port or media or medium or connection)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 19:30
S176	27	S175 same (fault$3 or fail$4)	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:31
S177	1427	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing or monitor$3) with lan with (internet or wan or broad$1band) near5 (interface or port or media or medium or connection)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/09 19:33
S178	48	S177 same (fault$3 or fail$4)	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:33
S179	32	S178 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/09 19:33
S180	3000	lan with (interface or connect$5 or couple$1) with wan with dsl	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/11 00:56
S181	2347544	(monitor$3 or detect$3 or determin$3 or identify) near5 (condition or status or state or failure or fault$2 or congestion)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/11 00:58
S182	1223	S180 and S181	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/11 00:58
S183	907	S182 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/11 00:59
S184	5107	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing or monitor$3 or meter$3) with lan near5 (interface or port or media or medium or connection)	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/11 01:00
S185	2174	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing or monitor$3 or meter$3) with wan near5 (interface or port or media	US-PGPUB; USPAT; EPO;	OR	ON	2017/06/11 01:01

		or medium or connection)	DERWENT			
S186	1074	S184 and S185	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/11 01:01
S187	301	S186 and dsl	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/11 01:03
S188	259	S187 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/11 01:03
S189	234	S188 and (fault or fail$3)	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/11 01:03
S190	424	(fault or fail$3) with lan with wan	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/11 01:05
S191	323	S190 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; EPO; DERWENT	OR	ON	2017/06/11 01:05
S192	30	(back$1haul near5 wan) same lan same dsl	US-PGPUB; USPAT; FPRS	OR	ON	2017/06/11 01:15
S193	2	"20060164978"	US-PGPUB; USPAT; FPRS	OR	ON	2017/09/26 13:03
S194	1	"20160294669"	US-PGPUB; USPAT; FPRS	OR	ON	2017/09/26 16:18
S195	1951	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing or monitor$3 or meter$3 or monitor$3 or analy$5) with (from or between) with wan with lan	US-PGPUB; USPAT; FPRS	OR	ON	2019/02/03 23:35
S196	228	S195 and (dsl or adsl)	US-PGPUB; USPAT; FPRS	OR	ON	2019/02/03 23:35
S197	154	S196 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; FPRS	OR	ON	2019/02/03 23:35
S198	1378	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing or monitor$3 or meter$3 or monitor$3 or analy$5) with (data or information or traffic or packet) with (from or between) with wan with lan	US-PGPUB; USPAT; FPRS	OR	ON	2019/02/03 23:37
S199	116	S198 and (dsl or adsl or (digital adj2	US-	OR	ON	2019/02/03

		line))	PGPUB; USPAT; FPRS			23:40
S200	64	S199 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; FPRS	OR	ON	2019/02/03 23:40
S201	5127	(collect$3 or snoop$3 or sniff$3 or gather$3 or aggregat$3 or probe or probing or monitor$3 or meter$3 or monitor$3 or analy$5) with (data or information or traffic or packet) with wan with lan	US-PGPUB; USPAT; FPRS	OR	ON	2019/02/03 23:41
S202	646	S201 and (dsl or adsl or (digital adj2 line))	US-PGPUB; USPAT; FPRS	OR	ON	2019/02/03 23:42
S203	374	S202 and (@ad<"20110112" or @rlad<"20110112")	US-PGPUB; USPAT; FPRS	OR	ON	2019/02/03 23:42

2/ 4/ 2019 10:12:39 AM
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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No.	:	15/182,513	Confirmation No.: 6886
Inventor(s)	:	Peter Chow *et al.*	
Filing Date	:	2016-06-14	
Title	:	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS	
Art Unit	:	2467	
Examiner	:	Duc T Duong	
Docket No.	:	20145-049USC	

CERTIFICATE OF MAILING (37 CFR §1.8)

I hereby certify, pursuant to 37 CFR §1.8, that this correspondence is being electronically transmitted to the United States Patent and Trademark Office via EFS-Web addressed to: Mail Stop Issue Fee, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date shown below:

Dated: 2019-05-01 By: /Nita Miller/
Nita Miller

TRANSMITTAL LETTER

Mail Stop Issue Fee
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Examiner Duong:

Submitted herewith is a CORRECTED Application Data Sheet and a 3.73(c) Statement of Ownership.

If any fees are due with this communication, the Director is hereby authorized to charge such fees to Deposit Account No. 50-2776.

Respectfully submitted,

Date: 2019-05-01

By: /Michael North/
Michael North
Reg. No. 46,963

Customer No.
146571
UNITED STATES PATENT & TRADEMARK OFFICE

{20145/049USC/00015206.DOCX v1}

Electronic Acknowledgement Receipt

EFS ID:	35893153
Application Number:	15182513
International Application Number:	
Confirmation Number:	6886
Title of Invention:	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS
First Named Inventor/Applicant Name:	Peter Chow
Customer Number:	146571
Filer:	Michael V. North/Nita Miller
Filer Authorized By:	Michael V. North
Attorney Docket Number:	20145-049USC
Receipt Date:	01-MAY-2019
Filing Date:	14-JUN-2016
Time Stamp:	17:45:59
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	Application Data Sheet	049USC_SADS.pdf	1947698 804a09e81d7ced362306969eb23716b9664f6f66	no	7

Warnings:

Information:					
This is not an USPTO supplied ADS fillable form					
2	Assignee showing of ownership per 37 CFR 3.73	049USC_373c.pdf	65773 86fc45901c474e62ba1924d80aeecb6b141954cf	no	2
Warnings:					
Information:					
3	Transmittal Letter	049USC_Trans.pdf	21318 cd60c55d89ba3d841b6bd441330c60c803ab4a45	no	1
Warnings:					
Information:					
			Total Files Size (in bytes):	2034789	

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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.

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	20145-049USC
	Application Number	
Title of Invention	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

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Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	20145-049USC
	Application Number	
Title of Invention	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS	

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All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	146571 ~~136402~~		
Email Address	~~docketing@ghmlp.com~~	Add Email	Remove Email

Application Information:

Title of the Invention	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS		
Attorney Docket Number	20145-049USC ~~03.Paypose~~	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	9	Suggested Figure for Publication (if any)	1

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	20145-049USC
	Application Number	
Title of Invention	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	◉ Customer Number	○ US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	146571 ~~136402~~		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	Continuation of	13995900	2014-07-08

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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	20145-049USC
	Application Number	
Title of Invention	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS	

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
13995900	a 371 of international	PCT/US11/21003	2011-01-12
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button.			

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

			Remove
Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)
Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.			

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

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.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	20145-049USC
	Application Number	
Title of Invention	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS	

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

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.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	20145-049USC
	Application Number	
Title of Invention	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS	

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

○ Assignee	○ Legal Representative under 35 U.S.C. 117	○ Joint Inventor
◉ Person to whom the inventor is obligated to assign.	○ Person who shows sufficient proprietary interest	

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	ASSIA SPE, LLC ~~Adaptive Spectrum and Signal Alignment, Inc.~~		
Mailing Address Information For Applicant:			
Address 1	1209 Orange St. ~~333 Twin Dolphin Drive~~		
Address 2	Corporation Trust Center		
City	Wilmington ~~Redwood City~~	**State/Province**	DE ~~CA~~
Country	US	Postal Code	19801 ~~94065~~
Phone Number		Fax Number	
Email Address	~~docketing@ghmip.com~~		

Additional Applicant Data may be generated within this form by selecting the Add button.

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

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.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	20145-049USC
	Application Number	
Title of Invention	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS	

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

If the Assignee or Non-Applicant Assignee is an Organization check here. ☒

Organization Name	ASSIA SPE, LLC

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1	1209 Orange St.		
Address 2	Corporation Trust Center		
City	Wilmington	**State/Province**	DE
Country i	US	Postal Code	19801
Phone Number		Fax Number	
Email Address			

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Michael North/			Date (YYYY-MM-DD)	2019-05-01
First Name	Michael	Last Name	North	Registration Number	46963

Additional Signature may be generated within this form by selecting the Add button.

PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: Adaptive Spectrum and Signal Alignment, Inc.

Application No./Patent No.: 15/182,513 Filed/Issue Date: 2016-01-14

Titled: SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS

ASSIA SPE, LLC, a 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 _____, Frame _____, 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: Peter Chow, Wonjong Rhee, Ardavan Maleki Tehrani, and Marc Goldburg To: Adaptive Spectrum and Signal Alignment, Inc.

   The document was recorded in the United States Patent and Trademark Office at
   Reel 031339, Frame 0650, or for which a copy thereof is attached.

2. From: Adaptive Spectrum and Signal Alignment, Inc. To: ASSIA SPE, LLC

   The document was recorded in the United States Patent and Trademark Office at
   Reel 040631, Frame 0088, or for which a copy thereof is attached.

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450**.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/AIA/96 (08-12)
Approved for use through 01/31/2013. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT UNDER 37 CFR 3.73(c)

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

4. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

5. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(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.

/Michael North/	2019-05-01
Signature	Date
Michael North	46963
Printed or Typed Name	Title or Registration Number

Doc Code: IFEE PTOL/85B-EFS

Document Description: Issue Fee Payment (PTO-85B)

Issue Fee Transmittal Form

Application Number	Filing Date	First Named Inventor	Atty. Docket No.	Confirmation No.
15182513	14-Jun-2016	Peter Chow	20145-049USC	6886

TITLE OF INVENTION :

SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS

Entity Status	Application Type	Art Unit	Class - Subclass	EXAMINER
~~Small~~ Regular Undiscounted	Utility under 35 USC 111(a)	2467	252000	DUC DUONG

Issue Fee Due	Publication Due	Total Fee(s) Due	Date Due	Prev. Paid Fee
~~$500~~ $1000	$0	~~$500~~ $1000	08-May-2019	$0

1.Change of Correspondence Address and/or Indication Of Fee Address (37 CFR 1.33 & 1.363)

Current Correspondence Address:	Current Indicated Fee Address :
146571 North Weber & Baugh LLP - ASSIA 3260 Hillview Avenue, 1st Floor Palo Alto CA 94304 UNITED STATES 650-856-7539 docket1@northweber.com	
☐ Change of correspondence address requested, system generated AIA/122-EFS form attached	☐ Fee Address indication requested, system generated SB/47-EFS form attached

2.Entity Status

Change in Entity Status

○ Applicant certifying micro entity status; system generated Micro Entity certification form attached. See 37 CFR 1.29.
Note: Absent a valid certification of micro entity status, issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment. If this box is checked, you will be prompted to choose a micro entity status on the gross income basis (37 CFR 1.29(a)) or the institution of higher education basis (37 CFR 1.29(d)), and make the applicable certification online.

○ 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.

3.The Following Fee(s) Are Submitted:

☒ Issue Fee	☐ I authorize USPTO to apply my previously paid issue fee to the current fees due
☐ Publication Fee	☐ The Director is hereby authorized to apply my previously paid issue fee to the current fee due and to charge deficient fees to Deposit Account Number _____
☐ Advance Order - # of copies _____	☒ If **in addition to** the payment of the issue fee amount submitted with this form, there are any discrepancies in any amount(s) due, the Director is authorized to charge any deficiency, or credit any overpayment, to Deposit Account Number 502776 . The **issue fee must be submitted** with this form. **If payment of the issue fee does not accompany this form, checking this box and providing a deposit account number will NOT be effective to satisfy full payment of the fee(s) due.**

4.Firm and/or Attorney Names To Be Printed

NOTE: If no name is listed, no name will be printed
For printing on the patent front page, list to be displayed as entered

1. NORTH WEBER AND BAUGH LLP
2.
3.

5.Assignee Name(s) and Residence Data To Be Printed

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.

Name	City	State	Country	Category
ASSIA SPE, LLC	Wilmington	DELAWARE	united states	corporation

6.Signature

I certify, in accordance with 37 CFR 1.4(d)(4) that I am an attorney or agent registered to practice before the Patent and Trademark Office who has filed and has been granted power of attorney in this application. I also certify that this Fee(s) Transmittal form is being transmitted to the USPTO via EFS-WEB on the date indicated below.

Signature	/Michael V. North/	**Date**	05-08-2019
Name	Michael V. North	**Registration Number**	46963

WEB IFEE 1.0

Electronic Patent Application Fee Transmittal

Application Number:	15182513
Filing Date:	14-Jun-2016
Title of Invention:	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS
First Named Inventor/Applicant Name:	Peter Chow
Filer:	Michael V. North/Nita Miller
Attorney Docket Number:	20145-049USC

Filed as Large Entity

Filing Fees for Utility under 35 USC 111(a)

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
UTILITY APPL ISSUE FEE	1501	1	1000	1000
PUBL. FEE- EARLY, VOLUNTARY, OR NORMAL	1504	1	0	0
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**1000**

Electronic Acknowledgement Receipt

EFS ID:	35952381
Application Number:	15182513
International Application Number:	
Confirmation Number:	6886
Title of Invention:	SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS
First Named Inventor/Applicant Name:	Peter Chow
Customer Number:	146571
Filer:	Michael V. North/Nita Miller
Filer Authorized By:	Michael V. North
Attorney Docket Number:	20145-049USC
Receipt Date:	08-MAY-2019
Filing Date:	14-JUN-2016
Time Stamp:	13:10:22
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1000
RAM confirmation Number	050819INTEFSW13102000
Deposit Account	502776
Authorized User	Nita Miller
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.20 (Post Issuance fees) 37 CFR 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)	Web85b.pdf	47200 a730f85fb541d74083b5376f4d07a42bc379b12f	no	2
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	32209 5a3028d9d974b92cf7962397fbadd9eeda473ddd	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	79409		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
15/182,513	06/14/2016	2467	730	20145-049USC	1	1

CONFIRMATION NO. 6886

CORRECTED FILING RECEIPT

146571
North Weber & Baugh LLP - ASSIA
3260 Hillview Avenue, 1st Floor
Palo Alto, CA 94304

OC000000108085893

Date Mailed: 05/10/2019

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. 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 submit a written request for a corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction 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 provided that the request is grantable.

Inventor(s)

Peter Chow, Los Altos, CA;
Wonjong Rhee, San Francisco, CA;
Ardavan Maleki Tehrani, Atheton, CA;
Marc Goldburg, Redwood City, CA;

Applicant(s)

ASSIA SPE, LLC, Wilmington, CA;

Assignment For Published Patent Application

ASSIA SPE,LLC, Wilmington, CA

Power of Attorney: The patent practitioners associated with Customer Number 146571

Domestic Priority data as claimed by applicant

This application is a CON of 13/995,900 07/08/2014 PAT 9369370
which is a 371 of PCT/US11/21003 01/12/2011

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.) - None.
Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 06/24/2016
The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/182,513**
Projected Publication Date: Not Applicable
Non-Publication Request: No
Early Publication Request: No
Title

SYSTEMS AND METHODS FOR JOINTLY OPTIMIZING WAN AND LAN NETWORK COMMUNICATIONS

Preliminary Class

370

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

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 (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

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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 0 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.

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