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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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11/336,878

01/23/2006

Ki-Cheol Lee

P57716

7992

8439 7590 01/27/2009  
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EXAMINER

MURPHY, CHARLES C

ART UNIT

PAPER NUMBER

4174

MAIL DATE

DELIVERY MODE

01/27/2009

PAPER

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

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 11/336,878	<b>Applicant(s)</b> LEE ET AL.	
	<b>Examiner</b> Charles C. Murphy	<b>Art Unit</b> 4174	

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

#### Period for Reply

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

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

#### Status

- 1) ☒ Responsive to communication(s) filed on 1/23/2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 1/23/2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

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

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/23/2006 ; 4/06/2006; 5/27/2008</u> .                        | 6) <input type="checkbox"/> Other: _____                          |



### **DETAILED ACTION**

This communication is in response to application file on 1/23/2006 in which claims 1-19 are presented for examination.

#### ***Information Disclosure Statement***

The information disclosure statement (IDS) submitted on 1/23/2006 was filed on 1/23/2006. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

#### ***Claim Rejections - 35 USC § 102***

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

A person shall be entitled to a patent unless –

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

Claim 1-3, 6-13 are rejected under 35 U.S.C. 102(e) as being unpatentable by Li et al US Application Publication 2008/0172732 (hereinafter referred to as Li)

Claim 1, “ An apparatus for providing a multi protocol label switching (MPLS)-based virtual private network (VPN) in a network including at least one MPLS switch, the apparatus comprising: a label switched path (LSP) management unit for storing

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MPLS label switched path (LSP) information of the network " is disclosed by Li (*Li*, **page 5, paragraph 84; page 7, paragraph 117**). It is known in the art that when storing routes in a MPLS VPN network the routes are LSPs.

Also in claim 1, "a connection admission unit for receiving and processing a VPN establishment request message from an operator" is disclosed by Li (*Li*, **page 6, paragraph 101**).

In claim 1, "a topology/resource collection unit for collecting IP prefix information of a customer edge (CE) included in the VPN, the establishment of which is requested, from an MPLS edge switch (MES) within said at least one MPLS switch, and for creating a VPN topology table " is disclosed by Li (*Li*, **page 6-7, paragraph 110, paragraph 117, paragraph 125**)

Claim 1, "an LSP computation unit for creating a VPN LSP for the VPN, the establishment of which is requested, by referring to the stored MPLS LSP information of the network and the created VPN topology table." is disclosed by Li (*Li*, **page 6, paragraph 101**).

As per claim 2, most of the limitations of this claim have been noted in the rejection of claim 1 above.

Claim 2, "The apparatus according to claim 1, wherein the VPN establishment request message received by the connection admission unit comprises VPN establishment request information for VPN establishment" is disclosed by Li (*Li*, **page 7, paragraph 114**)

As per claim 3, most of the limitations of this claim have been noted in the rejection of claim 2 above.

Claim 3, "The apparatus according to claim 2, wherein the VPN establishment request information comprises at least one of a VPN establishment site, a VPN establishment LSP class, an LSP bandwidth, and performance conditions" is disclosed by Li (***Li, page 7 paragraph 114***)

As per claim 6, most of the limitations of this claim have been noted in the rejection of claim 1 above.

Claim 6, "The apparatus according to claim 1, wherein the IP prefix information which the topology/resource collection unit collects from the MES comprises information which the MES collects using an Internet protocol (IP) routing protocol." is disclosed by Li (***Li, page 6-7, paragraph 110, paragraph 117 and paragraph 126***).

As per claim 7, most of the limitations of this claim have been noted in the rejection of claim 1 above.

Claim 7, "The apparatus according to claim 1, further comprising a policy management unit for storing an operation policy of the network." is disclosed by Li (***Li, page 6, paragraph 104***)

As per claim 8, most of the limitations of this claim have been noted in the rejection of claim 1 above.

Claim 8, "The apparatus according to claim 7, wherein the LSP computation unit creates the VPN LSP by referring to the stored MPLS LSP information stored by the LSP management unit, the created VPN topology table, the policy stored by the policy management unit, and information included in the VPN establishment request message." is disclosed by Li (***Li, page 6, paragraph 101 and 109***). When the VPN-CRC device in Li is deciding to admit a site into the QoS-VPN (a VPN that requires a certain level of Quality of Service) the device refers to the membership maintenance module which is used to maintain the membership information table and connectivity information table. The connectivity information table contains connectivity between members of the same QoS-VPN i.e., which sites can be accessed by a specific site.

As per claim 9, most of the limitations of this claim have been noted in the rejection of claim 1 above.

Claim 9, " The apparatus according to claim 1, further comprising an LSP activation unit for transmitting, to the MPLS switch, information about the VPN LSP created by the LSP computation unit. " is disclosed by Li (***Li, page 6, paragraph 101***)

As per claim 10, most of the limitations of this claim have been noted in the rejection of claim 1 above.

Claim 10, "The apparatus according to claim 9, wherein the LSP activation unit transmits VPN topology information, EXP field mapping information, and label forwarding information base (LFIB) information to the MES, and transmits the LFIB information to an MPLS core switch (MCS) of the MPLS switch." is disclosed by Li (***Li, page 5-6, paragraph 91 and paragraph 101***)

As per claim 11, most of the limitations of this claim have been noted in the rejection of claim 1 above.

Claim 11, "The apparatus according to claim 1, wherein the connection admission unit determines whether there are sufficient resources in the network to provide the VPN, the establishment of which is requested, and determines whether to admit the VPN establishment request based on sufficiency of resources in the network." is disclosed by Li (***Li, page 6, paragraph 101***). Li describes the process the VPN-CRC follows in deciding to grant a service request.

As per claim 12, most of the limitations of this claim have been noted in the rejection of claim 11 above.

Claim 12, "The apparatus according to claim 11, wherein the LSP management unit stores network establishment information and resource information which the connection admission unit refers to in determining whether there are sufficient resources in the network." is disclosed by Li (***Li, page 6, paragraph 109***)



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As per claim 13, most of the limitations of this claim have been noted in the rejection of claim 1 above.

Claim 13, "The apparatus according to claim 1, wherein the LSP management unit stores information relative to the VPN LSP created by the topology/resource collection unit." is disclosed by Li (***Li, page 6, paragraph 109***)

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4-5, and 14-19 are rejected under 35 USC 103 (a) as being unpatentable over Li et al US Application Publication 2008/0172732 (hereinafter referred to as Li) in view of Hama Patent Application Publication 2004/0202171 (hereinafter known as Hama).

As per claim 4, most of the limitations of this claim have been noted in the rejection of claim 1 above.

Li discloses that upon receiving a service request the "VPN-CRC [VPN Central Resource Controller ] determines whether to admit the access (if necessary,

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participation of other VPN-CRCs in the bearer control network is required); if it admits the access, the VPN-CRC will calculate the routes that can meet the QoS requirement and send the routing information (representing a set of serial LSPs from an ingress PE to an egress PE) to the ingress PE ” Li ( *Li, page 6, paragraph 101*).

Li does not appear to explicitly disclose “assigning a VPN identifier to the VPN, the establishment of which is requested, and for transmitting it to the MES”

However, Hama discloses “The edge routers 1, 5 assign VPN-IDs (VPN identifiers) per individual user-line interfaces beforehand. In FIG. 26, the edge router 1 assigns a VPN-ID of 13 to a network address 192.168.0. X possessed by the VPN-A site, and the edge router 5 assigns a VPN-ID of 13 to a network address 192.168.1”(Hama, page 3, paragraph 23)

Li and Hama are analogous art because they are from the same field of endeavor, VPNs using a MPLS network structure

At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of Li and Hama before him or her, to modify the VPN-CRC device of Li to include the ability of Hama to assign VPN IDs because it would give the VPN-CRC more control when allocating resources to different VPNs.

The suggestion/motivation for doing so would have been to” create a system for ensuring quality of service (QoS) in a virtual private network” (*Li, Abstract*)

Therefore, it would have been obvious to combine Hama with Li to obtain the invention as specified in the instant claim(s).

As per claim 5, most of the limitations of this claim have been noted in the rejection of claim 1 above.

Li discloses that upon receiving a service request the “VPN-CRC [VPN Central Resource Controller ] determines whether to admit the access (if necessary, participation of other VPN-CRCs in the bearer control network is required); if it admits the access, the VPN-CRC will calculate the routes that can meet the QoS requirement and send the routing information (representing a set of serial LSPs from an ingress PE to an egress PE) to the ingress PE ” Li ( ***Li, page 6, paragraph 101***). In this instance the routing information referred to by the reference is interpreted to be establishment information of a VPN network.

Li does not appear to explicitly disclose “assigning a VPN identifier to the VPN, the establishment of which is requested, and for transmitting it to the MES”

However, Hama discloses “The edge routers 1, 5 assign VPN-IDs (VPN identifiers) per individual user-line interfaces beforehand. In FIG. 26, the edge router 1 assigns a VPN-ID of 13 to a network address 192.168.0. X possessed by the VPN-A site, and the edge router 5 assigns a VPN-ID of 13 to a network address 192.168.1” ***(Hama, page 3, paragraph 23)***

Li and Hama are analogous art because they are from the same field of endeavor, VPNs using a MPLS network structure.

At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of Li and Hama before him or her, to modify the VPN-CRC device of Li to include the ability of Hama to assign VPN IDs because it would give the VPN-CRC more control when allocating resources to different VPNs.

The suggestion/motivation for doing so would have been to "create a system for ensuring quality of service (QoS) in a virtual private network" (**Li, Abstract**)

Therefore, it would have been obvious to combine Hama with Li to obtain the invention as specified in the instant claim(s).

Regarding Claim 14 "A method for providing a multi protocol label switching (MPLS)-based virtual private network (VPN) in a network including at least one MPLS switch" is disclosed by Li (**Li, page 4, paragraph 57-60**)

Also in Claim 14, "receiving a VPN establishment request message from an operator" is disclosed by Li (**Li, page 7, paragraph 114**)

Li discloses "receiving, from the MES, IP prefix information of a customer edge (CE) included in the VPN; receiving, from the MES, IP prefix information of a customer edge (CE) included in the VPN;" Li. (**Li, page 7-8, paragraph 125 and paragraph 138**)

Li also discloses "creating a VPN label switched path (LSP) for the VPN, the establishment of which is requested, by referring to the created VPN topology table and preset MPLS LSP information of the network. (**Li, page 6-7, paragraph 110, paragraph 117 and paragraph 125**)

Also in Claim 14, Li discloses sending data to an MES. (**Li, page 6, paragraph 101**).

Li does not appear to explicitly disclose assigning a VPN identifier to the VPN, the establishment of which is requested, and transmitting it to an MPLS edge switch (MES) of said at least one MPLS switch.

However, Hama discloses "The edge routers 1, 5 assign VPN-IDs (VPN identifiers) per individual user-line interfaces beforehand. In FIG. 26, the edge router 1 assigns a VPN-ID of 13 to a network address 192.168.0. X possessed by the VPN-A site, and the edge router 5 assigns a VPN-ID of 13 to a network address 192.168.1" (**Hama, page 3, paragraph 23**)

Li and Hama are analogous art because they are from the same field of endeavor, VPNs using a MPLS network structure

At the time of the invention, it would have been obvious to one of ordinary skill in the art, having the teachings of Li and Hama before him or her, to modify the VPN-CRC device of Li to include the ability of Hama to assign VPN IDs because it would give the VPN-CRC more control when allocating resources to different VPNs.

The suggestion/motivation for doing so would have been to "create a system for ensuring quality of service (QoS) in a virtual private network" (**Li, Abstract**)

Therefore, it would have been obvious to combine Hama with Li to obtain the invention as specified in the instant claim(s).

As per claim 15, most of the limitations of this claim have been noted in the rejection of claim 14 above.

Claim 15, "The method according to claim 14, further comprising the step of transmitting information about the created VPN LSP to said at least one MPLS switch" is disclosed by Li (***Li, page 6, paragraph 101***) as "the VPN-CRC will calculate the routes that can meet the QoS requirement and send the routing information (representing a set of serial LSPs from an ingress PE to an egress PE) to the ingress PE"

As per claim 16, most of the limitations of this claim have been noted in the rejection of claim 14 above.

Claim 16, "The method according to claim 14, wherein the received VPN establishment request message comprises VPN establishment request information for VPN establishment." is disclosed by Li (***Li, page 6, paragraph 114***) as "When a site is added in the QoS-VPN, a service request (containing VPN-ID, local site ID, remote site ID, and QoS requirement) will be transmitted to the VPN-CRC of the current domain;"

As per claim 17, most of the limitations of this claim have been noted in the rejection of claim 16 above.

Claim 17, "The method according to claim 16, wherein the VPN establishment request information comprises at least one of a VPN establishment site, a VPN establishment LSP class, an LSP bandwidth, and performance conditions" is disclosed by Li (***Li, page 6, paragraph 114***) as "When a site is added in the QoS-VPN, a service request (containing VPN-ID, local site ID, remote site ID, and QoS requirement) will be transmitted to the VPN-CRC of the current domain;"

As per claim 18, most of the limitations of this claim have been noted in the rejection of claim 14 above.

Claim 18, "The method according to claim 14, wherein the IP prefix information received from the MES comprises information which the MES collects using an Internet protocol (IP) routing protocol." is disclosed by . (***Li, page 7-8, paragraph 125 and paragraph 138***)

As per claim 19, most of the limitations of this claim have been noted in the rejection of claim 14 above.

Claim 19, "The method according to claim 14, wherein the step of creating the VPN LSP is performed by referring to the created VPN topology table, policy stored in a policy management unit, and information included in the VPN establishment request message" is disclosed by Li (***Li, page 6, paragraph 101 and 109***). When the VPN-

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CRC device in Li is deciding to admit a site into the QoS-VPN (a VPN that requires a certain level of Quality of Service) the device refers to the membership maintenance module which is used to maintain the membership information table and connectivity information table. The connectivity information table contains connectivity between members of the same QoS-VPN i.e., which sites can be accessed by a specific site.

### ***Conclusion***

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

*Liu United State Patent 6079020*

*Weill et al United States Patent Application Publication US 2007/0121615*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles C. Murphy whose telephone number is (571)270-5444. The examiner can normally be reached on 9AM - 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frantz Coby can be reached on 571-272-4017. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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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.

Charles C Murphy  
Examiner  
Art Unit 4174

CM

**/Asad M Nawaz/**

**Examiner, Art Unit 2455**