

*In the United States Patent Trial and  
Appeal Board*

**NetSocket, Inc.  
Patent Owner's Presentation**

**IPR2023-00607  
U.S. Patent No. 7,190,698**

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**Before: Richard M. Lebovitz  
Stacey G. White  
Garth D. Baer**  
*Administrative Patent Judges*

# Challenged Claim 1

## Claim 1

Method in a packet based communication network including network domains, wherein at least one domain is a Multiprotocol Label Switching MPLS domain, to establish a virtual leased line, VLL, between a source (SRC) and a destination (DST) in different domains in order to achieve packet transfer between the source (SRC) and the destination (DST), wherein the bandwidth broker (BB) is associated to each network domain and the bandwidth broker (BB) is configured to control a hierarchical routing domain, the method comprises the following steps:

- i) generate a request from an entity for a Virtual Leased Line, VLL, having a predefined Quality of Service, QoS, from a source network (SRC) to a destination network (DST) and apply the request to a Bandwidth Broker (BB) of a domain A,  $BB_A$ , associated to the source network;
  - ii)  $BB_A$  establishes the different domains involved to reach the destination network (DST);
  - iii)  $BB_A$  directly or indirectly passes requests to all Bandwidth Brokers (BB) of the involved domains regarding a VLL of the predefined QoS from ingress to egress of each domain;
  - iv) each involved bandwidth broker (BB) performs admission control in its domain;
  - v) each involved bandwidth broker (BB) returns a result of the admission control to  $BB_A$  that passes it back to the requesting entity and if the request was admitted along all domains between the source (SRC) and the destination (DST) a VLL of the predefined QoS is granted,
- characterized in that step iv) comprises the following step: performing [LSP] Label Switched Path, LSP. setup and passing resource requests from the Bandwidth Broker (BB) to at least one intra-domain (IDB), wherein each intra-domain broker (IDB) is responsible for admission control and the Label Switched Path, LSP, setup.

Corrections: Claim 1 recites “en equity” and “IDB.”

The Parties agree these are typographical errors that should read as “an entity” and “IDB” (Intra-domain broker), respectively.

# Grounds

| <b>Ground 1</b><br><b>Three Reference Combination</b>                                             | <b>Ground 2</b><br><b>Four Reference Combination</b>                                                 |
|---------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| Claims 1-5 and 7-8 are not Obvious under 35 U.S.C. 103(a) over <b>Xiao, Schelen-1, and Gibson</b> | Claims 4-8 are not Obvious under 35 U.S.C. 103(a) over <b>Xiao, Schelen-1, Gibson, and Schelen-2</b> |

# Claim Construction

# Preamble of Claim 1 is Limiting

In its Petition and Reply, Petitioner never takes a position on whether the preamble of Claim 1 is limiting or not. Instead, Petitioner argues that the claim is met regardless of construction.

If Petitioner believed that any claim terms required construction, it had a duty to identify “how the challenged claim is to be construed” in its Petition.

## **§ 42.104 Content of petition.**

In addition to the requirements of §§ 42.6, 42.8, 42.22, and 42.24, the petition must set forth:

(a) *Grounds for standing.* The petitioner must certify that the patent for which review is sought is available for *inter partes* review and that the petitioner is not barred or estopped from requesting an *inter partes* review challenging the patent claims on the grounds identified in the petition.

(b) *Identification of challenge.* Provide a statement of the precise relief requested for each claim challenged. The statement must identify the following:

(1) The claim;

(2) The specific statutory grounds under 35 U.S.C. 102 or 103 on which the challenge to the claim is based and the patents or printed publications relied upon for each ground;

(3) How the challenged claim is to be construed. Where the claim to be construed contains a means-plus-function or step-plus-function limitation as permitted under 35 U.S.C. 112(f), the construction of the claim must identify the specific portions of the specification that describe the structure, material, or acts corresponding to each claimed function;

## 37 C.F.R. § 42.104(3)

In the absence of any claim construction, it appears that Petitioner’s position is that the preamble is not limiting.

# Preamble of Claim 1 is Limiting

Patent Owner explained that Claim 1's preamble provides necessary antecedent basis for subsequent claim limitations in Claim 1 and claim terms in Dependent claims:

following steps.” ‘698 Patent, Claim 1. A preamble may be limiting if claims “depend[] on a particular disputed preamble phrase for antecedent basis” or the preamble “is essential to understand limitations or terms in the claim body.” *Catalina Mktg. Int’l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002) (citations omitted).

A person of ordinary skill in the art would have found that several terms in the preamble of Claim 1 are essential to understanding those limitations within Claim 1 and its dependent claims. Ex. 2004, ¶ 34. As an example, Claim 1's preamble recites “wherein at least one domain is a Multiprotocol Label Switching MPLS domain,” while Claim 2 adds “if said domains comprise at least one Differentiated Services, DiffServ, domain” in addition to the MPLS domain of Claim 1. *Id.* Similarly, Claim 3 also recites “said domains comprise at least one Differentiated Services, DiffServ, domain and one Multiprotocol Label Switching,

MPLS, domain.” *Id.* Each of Claim 2 and Claim 3 are dependent on Claim 1 precisely because they describe multi-domain systems adding a method with a DiffServ domain to Claim 1's method that already includes an MPLS domain. *Id.* Additionally, Claim 1 recites that a “bandwidth broker (BB) is associated to each network domain.” *Id.* A person of ordinary skill in the art would find this limitation in the preamble essential to understanding Claim 1's subsequent limitations that “BB<sub>A</sub> establishes the different domains involved to reach the destination network (DST),” “BB<sub>A</sub> directly or indirectly passes requests to all Bandwidth Brokers (BB) of the involved domains regarding a VLL of the predefined QoS from ingress to egress of each domain,” and “each involved bandwidth broker (BB) performs admission control in its domain” because each of these limitations refers to the preamble's statement that there is a bandwidth broker associated with each of the network domains involved in the path from source to destination networks. *Id.*

Paper No. 17, Patent Owner Response, 6-7.

# Preamble of Claim 1 is Limiting

Notably, the Court in the related District Court Litigation confirmed that the “Preamble is limiting.” Ex. 2006, 55. The Board should also construe the preamble of Claim 1 as limiting.

“The Board, in its claim construction determinations, will consider statements regarding claim construction made by patent owners and by a petitioner filed in other proceedings, if the statements are timely made of record.”

The Board, in its claim construction determinations, will consider statements regarding claim construction made by patent owners and by a petitioner filed in other proceedings, if the statements are timely made of record. *Cf. Aylus Networks, Inc. v. Apple Inc.*, 856 F.3d 1353, 1360–61 (Fed. Cir. 2017) (extending the prosecution disclaimer doctrine to include patent owner’s statements made in a preliminary response that was submitted in a prior AIA proceeding). To the extent that a party wants such information to be considered by the Board, that party should point out specifically the statements and explain how those statements support or contradict a party’s proposed claim construction in the proceeding at issue. Each party bears the burden of providing sufficient support for any construction advanced by that party. Furthermore, the Board may take into consideration statements made by a patent owner or petitioner about claim scope, such as those submitted under 35 U.S.C. § 301(a), for example.

Patent Trial and Appeal Board Consolidated Trial Practice Guide (“PTAB Trial Practice Guide”), at 48.

# Preamble of Claim 1 is Limiting

The Board should also construe the preamble of Claim 1 as limiting since the Court in the related District Court Litigation confirmed that the “Preamble is limiting.”

## APPENDIX A

| <u>Term</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <u>Parties' Agreement</u>                                           |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|
| “Method in a packet based communication network including network domains, wherein at least one domain is a Multiprotocol Label Switching MPLS domain, to establish a virtual leased line, VLL, between a source (SRC) and a destination (DST) in different domains in order to achieve packet transfer between the source (SRC) and the destination (DST), wherein the bandwidth broker (BB) is associated to each network domain and the bandwidth broker (BB) is configured to control a hierarchical routing domain”<br>(‘698 Patent, Claim 1) | Preamble is limiting.                                               |
| “at least one intra-domain broker (1DB)”<br>(‘698 Patent, Claim 1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Typographical Error.<br>Specifically, 1DB should be read as IDB.    |
| “en equity”<br>(‘698 Patent, Claim 1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Typographical Error.<br>Specifically, should be read as “an entity” |

Ex. 2006, Claim Construction Order, *NetSocket, Inc. v. Cisco Systems, Inc.*,  
Case No. 2:22-cv-00172-JRG, Dkt. 163, dated May 29, 2024, 55.

# “Bandwidth Broker”

Petitioner’s Reply confirms Patent Owner’s position that the “Board need not expressly construe” “bandwidth broker.”

**B. “bandwidth broker”**

The Petition explained that a POSITA would have understood “bandwidth broker” to include entities that manage policies for bandwidth resources by, for example, maintaining resource information, providing admission control, configuring the network, or communicating with neighboring bandwidth brokers to allocate resources across multiple domains. Patent Owner does not dispute Petitioner’s interpretation, but rather contends that “Petitioner’s construction...is not necessary.” Resp. 8. Since Patent Owner does not dispute Petitioner’s interpretation, the Board need not expressly construe this term. *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999). Ex.1046, ¶6.

Paper No. 21, Petitioner’s Reply, 7-8.

***Xiao, Schelen-1, and Gibson***  
**Do Not Render Claim 1 Obvious**

# “a packet based communication network including network domains, wherein at least one domain is a Multiprotocol Label Switching MPLS domain”

Petitioner argues that it is combining Xiao's figure of DiffServ (Fig. 4) with Xiao's separate figure on MPLS (Fig. 5) and accompanying disclosures.

attack on Xiao's disclosure is improper, when the Petition presented a rejection

based on Xiao's MPLS and DiffServ combined teachings. *In re Merck & Co., Inc.*,

## Reply, 9.

Petitioner's fabricated figure does not look like a combination of Figs. 4 and 5. It only adds a center section of Fig. 4 (in red) and re-labels it a MPLS domain although clearly from the DiffServ picture.

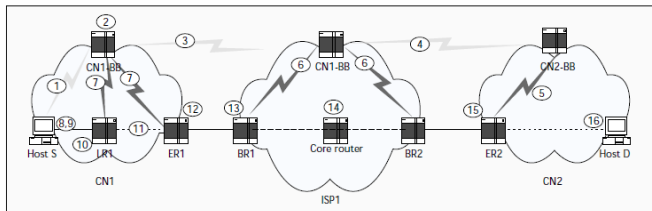


Figure 4. The delivery process of premium service with a dynamic SLA.

Ex. 1005, Xiao, Figure 4

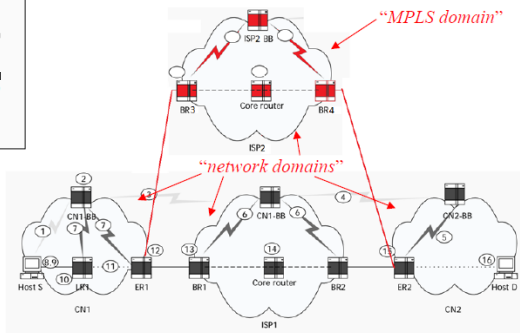


Figure 4. The delivery process of premium service with a dynamic SLA.

Petition, 21

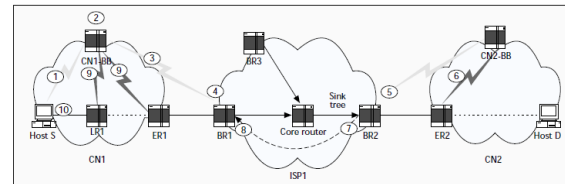


Figure 5. The signaling process of dynamic premium service in an MPLS-based architecture.

Ex. 1005, Xiao, Figure 5

# “a packet based communication network including network domains, wherein at least one domain is a Multiprotocol Label Switching MPLS domain”

Petitioner's Reply does not dispute the assertion that Xiao's Fig. 4 (and corresponding description) corresponds to DiffServ, and not MPLS (which corresponds to Xiao's Fig. 5 and corresponding description)

- Petitioner's expert actually affirms Patent Owner's understanding:

19 Q. Figures 2 to 4 are described  
20 under this heading of Differentiated  
21 Services, correct?  
22 A. That does appear to be the case  
23 in this discussion of -- in that section in  
24 Xiao.

Ex. 2003, Houh Tr., 38:19-24

8 Q. Sure. Is it your understanding  
9 that Figures 2 to 4 describe examples of  
10 DiffServ-based architecture?  
11 A. Well, I think those figures do  
12 appear in the section with the heading, you  
13 know, in the section Differentiated  
14 Services.  
15 Q. Therefore, is it your  
16 understanding that Figures 2 to 4 describe  
17 examples of DiffServ-based architecture  
18 since they appear in this section with the  
19 heading Differentiated Services?  
20 A. I mean, while they're  
21 discussing some processes, generally, and I  
22 think they are in the context of the  
23 section with the main -- with a higher  
24 level heading Differentiated Services, and  
25 they're giving examples of certain things  
2 that happen.

Ex. 2003, Houh Tr., 39:8-40:2

15 Q. And Figure 5 of Xiao shows a  
16 MPLS-based architecture, correct?  
17 A. Well, the discussion doesn't  
18 include the discussion of label switch  
19 paths, the discussion of Figure 5.  
20 Q. Do you see the label underneath  
21 Figure 5 that says, "The signalling process  
22 of dynamic premium service in a MPLS-based  
23 architecture"?  
24 A. Yes.  
25 Q. So Figure 5 shows a MPLS-based  
2 architecture, right?  
3 A. This is an example of one, one  
4 such MPLS-based architecture that's being  
5 discussed in the paper.

Ex. 2003, Houh Tr., 37:15-38:5

# “establish[ing] a virtual leased line, VLL, between a source (SRC) and a destination (DST) in different domains in order to achieve packet transfer between the source (SRC) and the destination (DST)”

## '698 Patent

An overall object of the present invention is focused on the implementation of a VLL service with bandwidth guarantees, which requires path sensitive admission control. For the service to be as useful as possible it is important that service control is dynamic and managed automatically. The service issues focused on are:

End to end-services.

Resource planning over time.

The end-to-end issue is of great importance when service requests span multiple network provider domains and possibly a mix of DiffServ and MPLS networks. A service that is only available within one provider domain is unlikely to be successful in a world where global services of all kinds are increasingly important.

'698 Patent, 4:46-59.

Xiao's explicit limitation on MPLS and DiffServ network interoperation precludes “establish[ing] a virtual leased line, VLL, between a source (SRC) and a destination (DST) *in different domains* in order to achieve packet transfer between the source (SRC) and the destination (DST).”

## Xiao

Note that, with such schemes, the MPLS effect is confined within the ISPs that use MPLS. Whether a particular ISP's

Xiao, 14

In other words, Xiao discloses, at best, a separate VLL that would be applied *within each type of domain*, where there is an interoperation of MPLS and DiffServ domains. It cannot disclose the claimed one “VLL between a source and destination in different domains.”

# “wherein the bandwidth broker (BB) is associated to each network domain and the bandwidth broker (BB) is configured to control a hierarchical routing domain”

Petitioner ignores Xiao’s statement that “it is technically better to have a BB [bandwidth broker] to allocate resources” is only in the section of Xiao related to DiffServ. The word “better” is not used generally; it refers to the binary choice of having a “host make[] its own decision” or “a resource controller [that] makes decision for all hosts.”

## *Differentiated Services*

Because of the difficulty in implementing and deploying integrated services and RSVP, differentiated services (DS) are introduced.

*Service Allocation in Customer Domains* — Given an SLA, a customer domain should decide how its hosts share the services specified by the SLA. This process is called *service allocation*.

There are basically two choices:

- Each host makes its own decision as to which service to use.
- A resource controller called the *bandwidth broker* (BB) [28] makes decision for all hosts.

A BB can be a host, a router, or a software process on an exit router. It is configured with the organizational policies and manages the resources of a domain. A domain may also have backup BBs. Since all hosts must cooperate to share a limited amount of resources specified by the SLA, it is technically better to have a BB to allocate resources.

At the initial deployment stage, hosts need no DS mechanism. They simply send their packets unmarked. The exit

Ex. 1005, Xiao, 10-12.

This claim limitation requires a bandwidth broker to be associated to each network domain, ***including the claimed MPLS domain***. This is not shown by Xiao.

# “wherein the bandwidth broker (BB) is associated to each network domain and the bandwidth broker (BB) is configured to control a hierarchical routing domain”

Whether a bandwidth broker (“BB”) generally “provides scaling benefits,” as Petitioner asserts, is inapposite as to whether a POSITA would be motivated to add the BB present in Xiao’s DiffServ embodiment with Xiao’s MPLS embodiment that specifically omits a BB.

Patent Owner’s argument regarding Xiao’s “Fig. 5...graphic representation”

is misplaced, since the Petition relied on Xiao’s express teaching to use a bandwidth broker in the MPLS ISP in Figure 4. Pet. 28-29. Dr. Houh provides confirmatory testimony that “a POSITA would have been motivated to associate a bandwidth broker in the MPLS domain ISP2 of modified Figure 4 since **‘it is technically better to have a BB [bandwidth broker] to allocate resources’** and to perform **‘admission control decisions.’**” Ex.1046, ¶10; Ex.1003, ¶165; Ex.1005, 11, 12. Additionally, as discussed in the Petition and Dr. Houh’s first declaration, a bandwidth broker **“provides scaling benefits.”** Ex.1003, ¶166; Ex.1011, 17; Ex.1025, 1; Ex.1046, ¶10.

Reply, 11-12.

# **“wherein the bandwidth broker (BB) is associated to each network domain and the bandwidth broker (BB) is configured to control a hierarchical routing domain”**

Petitioner argues (without any support other than Dr. Houh’s conclusory remark) that “‘BBs may not be needed in MPLS-based ISP networks’ leaves open circumstances where using a bandwidth broker are in fact needed or at the very least beneficial” somehow discloses (i) a system with both DiffServ and MPLS network domains; and (ii) a BB in each of the DiffServ and MPLS network domains. It does not.

Patent Owner also confuses Xiao’s example of Figure 5 (which does not “require” a bandwidth broker), as somehow categorically excluding or generally teaching away from using bandwidth brokers in MPLS networks. To the contrary, as Dr. Houh explains “Xiao’s statement that ‘BBs may not be needed in MPLS-based ISP networks’ leaves open circumstances where using a bandwidth broker are in fact needed or at the very least beneficial.” Ex.1046, ¶12. “A POSITA

Reply, 12

12. I also note that Xiao’s statement that ‘BBs may not be needed in MPLS-based ISP networks’ leaves open circumstances where using a bandwidth broker are in fact needed or at the very least beneficial. A POSITA would have understood that Xiao does not teach away from using a bandwidth broker in the MPLS domain ISP2 since Xiao recognizes that it is technically better to use a bandwidth broker.

Ex. 1046, Houh Second Declaration, ¶ 12

**“wherein the bandwidth broker (BB) is associated to each network domain and the bandwidth broker (BB) is configured to control a hierarchical routing domain”**

Even if there were a possibility of a BB in an MPLS system (*i.e.*, where all the network domains are MPLS), Xiao lists only one example – without any BBs.

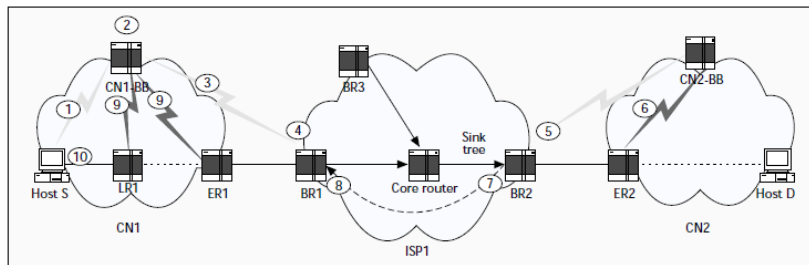


Figure 5. The signaling process of dynamic premium service in an MPLS-based architecture.

Without BBs in the ISP networks, the signaling process for dynamic SLAs is slightly different from the one described earlier. It is depicted in Fig. 5 and described below. The data

Ex. 1005, Xiao, 14

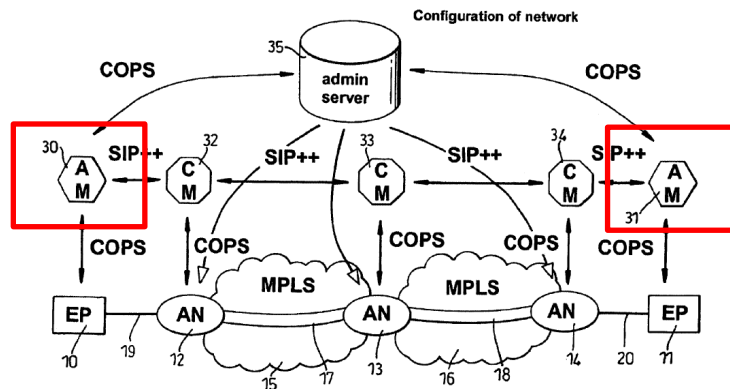
**“wherein the bandwidth broker (BB) is associated to each network domain and the bandwidth broker (BB) is configured to control a hierarchical routing domain”**

Schelen-1 does not mention MPLS:

- Petitioner argues that “Schelen-1’s teaching is not limited to any particular network.” Reply, 13. Whether a reference is not limited in a particular way does not affirmatively teach, disclose, or suggest a limitation for a particular network domain.
- In this case, Claim 1 recites “at least one domain is a Multiprotocol Label Switching MPLS domain” so this claim limitation requires a bandwidth broker associated to that MPLS network domain”

**“wherein the bandwidth broker (BB) is associated to each network domain and the bandwidth broker (BB) is configured to control a hierarchical routing domain”**

Gibson's admission managers are not BBs since they are not respectively associated to each network domain. They are at the edges of the network broadly, as shown below:



Ex. 1006, Gibson, Fig. 1

## “ii) $BB_A$ establishes the different domains involved to reach the destination network (DST)”

Since Petitioner fails to show how the combination of Xiao, Schelen-1, and Gibson discloses, teaches, or suggests “wherein *the bandwidth broker (BB) is associated to each network domain*,” it therefore cannot disclose, teach, or suggest “ *$BB_A$  establishes the different domains* involved to reach the destination network (DST).”

## “ii) $BB_A$ establishes the different domains involved to reach the destination network (DST)”

The claim language explicitly recites that *one*  $BB$ ,  $BB_A$ , establishes *all the different domains* required to reach the destination network.

Second, the Petition explained that Schelen-1 teaches listening to a multicast address, where all bandwidth brokers “giv[e] their identity and which routing domain (AS) they are responsible for,” so that a bandwidth broker establishes the existence of all other bandwidth brokers and their domains. Pet. 43-44; Ex.1032,

Reply, 15.

Petitioner confirms that Schelen-1 only discloses each bandwidth broker establishing their own domain and communicating with each other.

## “ii) BB<sub>A</sub> establishes the different domains involved to reach the destination network (DST)”

Patent Owner contends that Schelen-1’s teaching is insufficient because “every reservation agent in Schelen-1 must work *together*.” Resp. 18 (emphasis in original). This argument is meritless. Patent Owner does not identify a claim limitation that precludes a bandwidth broker from communicating with other bandwidth brokers on a multicast address to establish the different domains involved. Ex.1046, ¶16.

Reply, 16.

Petitioner’s de facto claim construction is wrong in view of the explicit claim language requiring one BB to establish all domains.

It is not Patent Owner’s burden to propose claim construction (or suggest preclusions in a claim limitation), especially where the claim language is clear and Petitioner’s proposed construction blatantly contradicts the claim language.

**“iii) BB<sub>A</sub> directly or indirectly passes requests to all Bandwidth Brokers (BB) of the involved domains regarding a VLL of the predefined QoS from ingress to egress of each domain”**

Since Petitioner fails to show how the combination of Xiao, Schelen-1, and Gibson discloses, teaches, or suggests a “[m]ethod in a packet based communication network including network domains, wherein at least one domain is a Multiprotocol Label Switching MPLS domain, to establish *a virtual leased line, VLL, between a source (SRC) and a destination (DST) in different domains* in order to achieve packet transfer between the source (SRC) and the destination (DST)” or “wherein *the bandwidth broker (BB) is associated to each network domain*,” it therefore cannot disclose, teach, or suggest “BB<sub>A</sub> directly or indirectly passes requests to *all Bandwidth Brokers (BB) of the involved domains*.”

## “iv) each involved bandwidth broker (BB) performs admission control in its domain”

Since Petitioner fails to show how the combination of Xiao, Schelen-1, and Gibson discloses, teaches, or suggests “wherein *the bandwidth broker (BB)* is associated to each network domain,” it therefore cannot disclose, teach, or suggest “iv) *each involved bandwidth broker (BB)* performs admission control in its domain.”

**“v) each involved bandwidth broker (BB) returns a result of the admission control to BB<sub>A</sub> that passes it back to the requesting entity and if the request was admitted along all domains between the source (SRC) and the destination (DST) a VLL of the predefined QoS is granted”**

Since Petitioner fails to show how the combination of Xiao, Schelen-1, and Gibson discloses, teaches, or suggests “a packet based communication network including network domains, wherein at least one domain is a Multiprotocol Label Switching MPLS domain, to establish a virtual leased line, *VLL, between a source (SRC) and a destination (DST) in different domains* in order to achieve packet transfer between the source (SRC) and the destination (DST),” “wherein the *bandwidth broker (BB) is associated to each network domain*,” or “iv) *each involved bandwidth broker (BB)* performs admission control in its domain,” it therefore cannot disclose, teach, or suggest “*each involved bandwidth broker (BB)* returns a result of the admission control to BB<sub>A</sub> that passes it back to the requesting entity and *if the request was admitted along all domains between the source (SRC) and the destination (DST) a VLL* of the predefined QoS is granted.”

***“characterized in that step iv) comprises the following step: performing [LSP] Label Switched Path, LSP setup, passing resource requests from the Bandwidth Broker (BB) to at least one intra-domain (IDB), wherein each intra-domain broker (IDB) is responsible for admission control and the Label Switched Path, LSP, setup”***

Since Petitioner fails to show how the combination of Xiao, Schelen-1, and Gibson discloses, teaches, or suggests either “*iv) each involved bandwidth broker (BB) performs admission control in its domain,*” it therefore cannot disclose, teach, or suggest “characterized in that *step iv) comprises* the following step: performing [LSP] Label Switched Path, LSP setup, *passing resource requests from the Bandwidth Broker (BB) to at least one intra-domain (IDB)*, wherein each intra-domain broker (IDB) is responsible for admission control and the Label Switched Path, LSP, setup.”

## “intra-domain broker (IDB)”

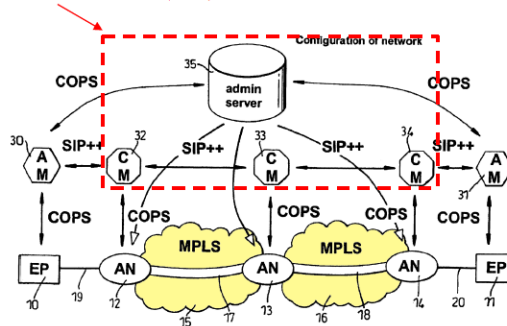
The claim limitation requires an intra-domain broker, which is a broker within the domain.

The plain language of this limitation precludes the possibility that a broker corresponds to multiple domains (*i.e.*, an inter-domain broker).

## “intra-domain broker (IDB)”

Petitioner ignores the term “intra-domain” since it points to an admin server and connection managers associated with the entire “configuration or network” as corresponding to the IDB instead of a singular domain within a network. As Claim 1 recites, “a packet based communication network include[es] network domains, ...wherein the bandwidth broker (BB) is associated to each network domain.” That means there are several network domains within a network that each have associated IDBs.

*“at least one intra-domain (IDB)”*



Petition, 58

### Request Mechanism

The Administrative Server 35 has a COPS interface to all the admission managers at the edge of the network. This interface is used by those admission managers to request new high capacity label switch paths across the MPLS network, or to request a change in the capacity of an existing LSP.

Ex. 1006, Gibson, 8:48-54

## “...wherein each intra-domain broker (IDB) is responsible for admission control and the Label Switched Path, LSP, setup”

Petitioner relies on conflicting components of Gibson to allegedly disclose the claimed intra-domain broker

- Petition: *connection manager* with the administrative server
- Reply: *admission manager* with the administrative manager

First, Gibson similarly discloses that its MPLS network includes

**“connection managers and administrative server.”** Ex.1006, 6:14-16. The

administrative server together with one or more connection manager, corresponds to “at least one intra-domain (IDB),” as discussed below. Ex.1003, ¶263.

Petition, 57

Regardless of the combination, Gibson’s administrative manager, connection manager, or admission manager are neither the bandwidth brokers nor the intra-domain brokers, and therefore cannot play either role since they lie outside any network domain.

coordination among multiple network devices. For example, limitation [1.6.1]

recites “*passing resource requests from the Bandwidth Broker (BB) to at least one intra-domain (IDB), wherein each intra-domain broker (IDB) is responsible for admission control and the Label Switched Path, LSP, setup.*” “A POSITA would

have understood that **Gibson’s coordination among the admission manager and the administrative server is consistent with the claimed approach to LSP setup.”**

Ex.1046, ¶20.

Reply, 21

***Xiao, Schelen-1, Gibson, and  
Schelen-2 Do Not Render  
Claims 2-5 and 7-8 Obvious***

# *Xiao, Schelen-1, Gibson, and Schelen-2* Do Not Render Claims 2-5 and 7-8 Obvious

Claims 2-5 and 7-8 depend upon Claim 1, and for at least the same reasons as Claim 1, any combination of Xiao, Schelen-1, Gibson, and Schelen-2 fails to obviate Claims 2-5 and 7-8.

***Xiao, Schelen-1, Gibson, and  
Schelen-2 Do Not Render  
Claim 6 Obvious***

# Challenged Claim 6

## Claim 6

Method according to Claim 4, characterized in that the bandwidth broker (BB) comprises a data structure which keeps resource usage information over time for each link in the topology which enables ability to plan ahead of time.

## “...a data structure which keeps resource usage information over time...”

Claim 6 recites that “the bandwidth broker (BB) comprises a data structure which keeps resource usage information over time for each link in the topology which enables ability to plan ahead of time.”

In the absence of a claim construction, which neither party proposed, the plain and ordinary meaning of the words apply.

Put simply, a bandwidth broker comprises a database (*i.e.*, data structure) that keeps historical (*i.e.*, “over time”) resource usage information for each link in the topology. The historical resource usage data can be used to predict availability or bandwidth of a topology link in the future (*i.e.*, plan ahead of time).

# “...a data structure which keeps resource usage information over time...”

Petitioner’s Reply underscores its failure to meet this claim limitation by requiring a construction where the claimed “data structure which keeps resource usage information over time” may include “information about resources (e.g., bandwidth) currently reserved and used and information about resources (e.g., bandwidth) reserved for future use,” as in Schelen-2.

Patent Owner argues that claim 6 is patentable because, allegedly, “a person of ordinary skill in the art, and Petitioner’s expert, would understand that Schelen-2’s ‘maintain[ed] information about *reserved* resources’ does not imply or correlate to ‘resource *usage* information’ or ‘*used* resource information.’” Resp.

28-29 (emphasis in original). This argument is meritless. Although the claimed “resource usage information” may include information about resources “used”

(past tense), it is not so limited. As Dr. Houh explains, “the claimed ‘resource usage information’ would be understood to include information about resources (e.g., bandwidth) currently reserved and used and information about resources (e.g., bandwidth) reserved for future use.” Ex.1046, ¶27.

Reply at 26-27 (citing Ex. 1046, ¶ 27).

In this work we focus on agent-based admission control where the objective is to administer resources exactly, i.e., admission control in an agent maintains information about reserved resources on each link in its domain

Ex. 1007, Schelen-2, 215

28. Moreover, contrary to this argument, the claimed “resource usage information” would be understood to include information about resources (e.g., bandwidth) currently reserved and used and information about resources (e.g., bandwidth) reserved for future use.

Ex. 1046, Dr. Houh’s Second Declaration, ¶ 28 (including the same conclusory statement as Petitioner’s Reply with no support).

# “...a data structure which keeps resource usage information over time...”

Petitioner's and Dr. Houh's argument that Schelen-2's current reservation information meets “resource usage information over time” does not comport with the plain and ordinary meaning of the term, nor does Dr. Houh actually believe that such current “*reservation* information” corresponds to the claimed “*usage* information.”

9 Q. Based on your understanding of  
10 Schelen-2, does a reserved resource  
11 necessarily imply that a resource is used?  
12 A. I mean, Schelen in 3.1, the  
13 second paragraph talks about how, "The  
14 metrics used in measurement-based admission  
15 control involve also measurements of used  
16 resources. Such a scheme can detect  
17 reserved resources that are not utilized  
18 and grant those resources to other  
19 requests. The benefit of measurement-based  
20 admission control is better resource  
21 utilization. On the other hand, there is no  
22 guarantee that reserved resources are  
23 available when needed. The scheme may also"  
24 -- I think this is talking about other  
25 measurement methods, but they talk -- but

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2 in -- it goes on to say that, "In our agent  
3 scheme we use only parameter-based  
4 admission control for a number of reasons."  
5 So I think what it's saying  
6 generally is that, you know, there are  
7 other measurement methods that may grant  
8 unused resources to other -- to other  
9 requests but that may be bad because it  
10 then -- the unused resources become like,  
11 say bandwidth wasn't being used now but is  
12 being used in the future. But I think what  
13 it's generally saying is that, you know --  
14 like, if I make a reservation at a  
15 restaurant, I might not show up, or I might  
16 make a reservation for 12 but 11 people  
17 show up, and so I'm not using the full  
18 reservation.

Ex. 2003, Deposition of Henry H. Houh, 74:9-75:18.

# “...a data structure which keeps resource usage information over time...”

Petitioner did not propose any construction for this claim limitation that would expand its meaning beyond the explicit language that “resource usage information [is kept] over time.”

If Petitioner believed that any claim terms required construction, it had a duty to identify “how the challenged claim is to be construed” in its Petition. Petitioner did not do so, and its belated attempt to read new meaning into this claim limitation should be rejected.

## **§ 42.104 Content of petition.**

In addition to the requirements of §§ 42.6, 42.8, 42.22, and 42.24, the petition must set forth:

(a) **Grounds for standing.** The petitioner must certify that the patent for which review is sought is available for *inter partes* review and that the petitioner is not barred or estopped from requesting an *inter partes* review challenging the patent claims on the grounds identified in the petition.

(b) **Identification of challenge.** Provide a statement of the precise relief requested for each claim challenged. The statement must identify the following:

(1) The claim;

(2) The specific statutory grounds under 35 U.S.C. 102 or 103 on which the challenge to the claim is based and the patents or printed publications relied upon for each ground;

(3) How the challenged claim is to be construed. Where the claim to be construed contains a means-plus-function or step-plus-function limitation as permitted under 35 U.S.C. 112(f), the construction of the claim must identify the specific portions of the specification that describe the structure, material, or acts corresponding to each claimed function;

37 C.F.R. § 42.104(3)

# Petitioner's New Expert Declaration & New Arguments

# Petitioner Circumvents the Board's Trial Practice Guide

Petitioner blatantly circumvents the Board's Trial Practice Guide:

Generally, a reply or sur-reply may only respond to arguments raised in the preceding brief. 37 C.F.R. § 42.23, except as noted above. "Respond," in the context of 37 C.F.R. § 42.23(b), does not mean proceed in a new direction with a new approach as compared to the positions taken in a prior filing. While replies and sur-replies can help crystalize issues for decision, a reply or sur-reply that raises a new issue or belatedly presents evidence may not be considered. The Board is not required to attempt to sort proper from improper portions of the reply or sur-reply.

PTAB Trial Practice Guide, 74

However, that is exactly what Petitioner does in its Reply by introducing a new expert declaration (*i.e.*, introducing new evidence).

# New Dr. Houh Declaration / Reply – New Argument #1 (Xiao's MPLS and DiffServ combined teachings)

Petitioner argues that it is combining Xiao's figure of DiffServ (Fig. 4) with Xiao's separate figure on MPLS (Fig. 5) and accompanying disclosures.

attack on Xiao's disclosure is improper, when the Petition presented a rejection

based on Xiao's MPLS and DiffServ combined teachings. *In re Merck & Co., Inc.*,

## Reply, 9.

Notably, the Petition never cited to Xiao's Fig. 5 and Petitioner's fabricated figure is only based on manipulating Xiao's Fig. 4.

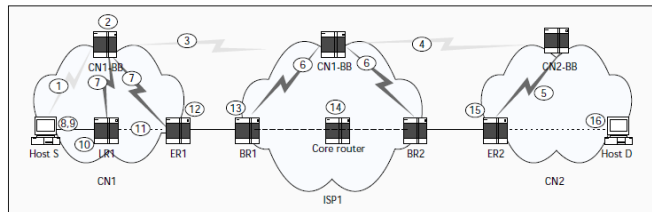


Figure 4. The delivery process of premium service with a dynamic SLA.

Xiao, Figure 4

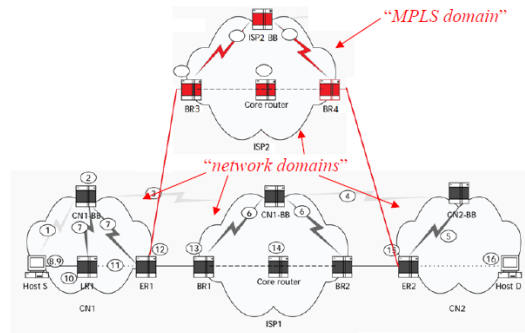


Figure 4. The delivery process of premium service with a dynamic SLA.

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# New Dr. Houh Declaration / Reply – New Argument #2 (“intra-domain broker (IDB)”)

## Dr. Houh’s First Declaration / Petition

First, Gibson similarly discloses that its MPLS network includes

“**connection managers and administrative server.**” Ex.1006, 6:14-16. The administrative server together with one or more connection manager, corresponds to “*at least one intra-domain (IDB),*” as discussed below. Ex.1003, ¶263.

Petition, 57; see *also* Ex. 1003,  
Houh First Declaration, ¶ 117.

## Dr. Houh’s Second Declaration / Reply

coordination among multiple network devices. For example, limitation [1.6.1] recites “*passing resource requests from the Bandwidth Broker (BB) to at least one intra-domain (IDB), wherein each intra-domain broker (IDB) is responsible for admission control and the Label Switched Path, LSP, setup.*” “A POSITA would have understood that Gibson’s coordination among the admission manager and the administrative server is consistent with the claimed approach to LSP setup.”

Ex.1046, ¶20.

Reply, 21; see *also* Ex. 1046,  
Houh Second Declaration, ¶ 20

Petitioner clearly switched IDB arguments from a “*connection manager* works together with the administrative server” to setup LSPs to “coordination among the *admission manager* and the administrative manager” for LSP setup.

# New Dr. Houh Declaration / Reply – New Argument #3 (COPS / RATES)

Petitioner newly argues that RATES requires COPS such that Gibson's teaching of COPS is within the scope of the '698 Patent's disclosure:

Patent Owner provides no explanation or evidence that communicating via a COPS interface renders Gibson's administrative server incapable of being an "intra-domain broker." The evidence is entirely against Patent Owner's position since the '698 patent describes an intra-domain bandwidth broker using RATES, which performs LSP set up using COPS. Ex.1001, 6:60-64 ("For MPLS networks the LSP set-up mechanism used in [RATES] is used"); Ex.1016, 9 ("RATES has components with functions similar to those needed in a bandwidth broker and is extensible for use as an intra-domain bandwidth broker."); 4 ("Given that RATES needs COPS extensions to be implemented at the ingress routers for LSP set-up, provision of classifiers has been bundled into COPS extensions."); Ex.1046, ¶25.

As Dr. Houh explains, "a POSITA would have understood that Gibson's teaching of using COPS is within the scope of the '698 patent's disclosure, which relies on the RATES inter-domain bandwidth broker that also uses COPS for communication." Ex.1046, ¶. Patent Owner's Dr. Congdon agrees that RATES

Reply, 24; see also Ex. 1046,  
Houh Second Declaration, ¶ 25

The Petition only refers to COPS twice and not in the context of RATES.

For all three new arguments, at least the portions of Dr. Houh's declaration and corresponding portions of the Reply should be rejected.

# New Dr. Houh Declaration / Reply – Correction of Prior Deposition Testimony

Dr. Houh's new declaration attempts to correct Dr. Houh's deposition testimony where he clearly agreed that the "reserved resource" of Schelen-2 **does not** "necessarily imply that a resource is used" (*i.e.*, the claimed "resource usage information").

2004, ¶¶71-72. As an initial matter, Patent Owner's assertion mischaracterizes my testimony since I did not testify, and I do not agree, that Schelen-2's maintained resource information does not correlate to "resource usage information" or to "used resource information."

Ex. 1046, Houh Second Declaration, ¶ 27

Q. Based on your understanding of Schelen-2, does a reserved resource necessarily imply that a resource is used?

A. I mean, Schelen in 3.1, the second paragraph talks about how, "The metrics used in measurement-based admission control involve also measurements of used resources. Such a scheme can detect reserved resources that are not utilized and grant those resources to other requests. The benefit of measurement-based admission control is better resource utilization. On the other hand, there is no guarantee that reserved resources are available when needed. The scheme may also" -- I think this is talking about other measurement methods, but they talk -- but

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in -- it goes on to say that, "In our agent scheme we use only parameter-based admission control for a number of reasons."

So I think what it's saying generally is that, you know, there are other measurement methods that may grant unused resources to other -- to other requests but that may be bad because it then -- the unused resources become like, say bandwidth wasn't being used now but is being used in the future. But I think what it's generally saying is that, you know -- like, if I make a reservation at a restaurant, I might not show up, or I might make a reservation for 12 but 11 people show up, and so I'm not using the full reservation.

Ex. 2003, Deposition of Henry H. Houh, 74:9-75:18.

# Dr. Houh's New Declaration Contains Unexplained Errors That Indicate An Attorney-Drafted Declaration

Dr. Houh's latest declaration refers to claim limitations not in the '698 Patent Challenged Claims:

## II. CLAIM CONSTRUCTION

### A. “selecting ...”

5. Patent Owner and Dr. Congdon contend that the preamble is limiting because “several terms in the preamble of Claim 1 are essential to understanding those limitations within Claim 1 and its dependent claims.” Resp. 5-8; 2004, ¶¶33-35. Regardless of whether the preamble is limiting, the prior art renders obvious the preamble as analyzed in the Petition and further discussed below.

### B. “working entity” and “protection entity”

6. Patent Owner and Dr. Congdon do not dispute the construction for “bandwidth broker” presented in my first declaration and only argue that “Petitioner’s construction...is not necessary.” Resp. 8; 2004, ¶36. Since this term’s interpretation does not appear to be disputed by Patent Owner, the Board need not expressly construe this term.

Ex. 1046, Houh Second Declaration, ¶¶ 5-6 (referring to “selecting . . .,” “working entity,” and “protection entity” in the context of claim construction where no such claim limitations exist).

# Dr. Houh's New Declaration Contains Unexplained Errors That Indicate An Attorney-Drafted Declaration

Dr. Houh's declaration includes a citation to a "Xu" prior art reference that is not in the record and seemingly unrelated arguments to this proceeding:

23. Accordingly, a POSITA would have understood that Xu's failure model corresponds to "*logic*." A POSITA would have also recognized that the network operator inputting failure scenarios (with a predetermined probability of occurrence) for links and nodes that are shared among different paths, "*configures*" the failure model "*to determine a probability of concurrent failure concurrent failure*" because the probability of failure for shared links and nodes corresponds to a probability of simultaneous failure for a pair that has the links or nodes in common.

Ex. 1046, Houh Second Declaration, ¶ 23

This and the previous error are indications that Dr. Houh probably did not write this expert declaration, and therefore constitute further rationale for why this expert declaration should be rejected, at a bare minimum.

# Dr. Houh's Second Declaration Should Be Rejected

Creating new arguments, changing arguments from the Petition, and attempting to recharacterize earlier deposition testimony rises to the level of a “newly raised rationale to combine the prior art references that was not expressed in the petition” that is barred by the Board.

- “It is of the utmost importance that petitioners in the IPR proceedings adhere to the requirement that the initial petition identify ‘with particularity’ the ‘evidence that supports the grounds for the challenge to each claim.’” (citing 35 U.S.C. § 312(a)(3))
- *Intelligent Bio-Systems, Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1369 (Fed. Cir. 2016) (“Once the Board identifies new issues raised for the first time in reply, neither this court nor the Board must parse the reply brief to determine which, if any, parts of that brief are responsive and which are improper. As the Board noted, ‘it will not attempt to sort proper from improper portions of the reply.’”).

The Board should refuse the Reply brief and the Supplemental Reply Declaration as untimely and improper:

- Patent Owner recognizes that the Board will address whether Petitioner's Reply exceeds the proper scope of a reply and that a reply that raises new issues or belatedly introduces new evidence will not be considered. *See Cyanotech Corp. v. The Bd. of Trs. of the Univ. of Ill.*, IPR2013-00401, Paper 44 (P.T.A.B. June 6, 2014).