

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CISCO SYSTEMS, INC.,

Petitioner,

v.

OPTIMNET LLC,

Patent Owner

IPR2026-00322

U.S. Patent No. 10,020,961

PATENT OWNER'S PRELIMINARY RESPONSE

TABLE OF CONTENTS

I.	Introduction.....	1
II.	The '961 Patent.....	3
	A. Conventional single-tier overlay virtualization did not scale.....	3
	B. The '961 patent's domain tunnel end point and its claimed components.....	3
	C. The challenged claims.....	5
	D. The Examiner allowed the claims after identifying a specific data flow the prior art of record did not disclose	5
III.	The Petition and Its Single Ground.....	6
IV.	Level of Ordinary Skill in the Art.....	7
V.	The Petition Fails to Show a Reasonable Likelihood	8
	A. The Petition does not show that Ye connects “each tunnel end point with a tunnel based on” the collected tunnel-end-point information, as claims 1, 7, and 13 require	8
	B. The Petition fails to show that Ye's VSI can be mapped to the claimed “domain VSI” of claims 1 and 13.....	11
	C. Even if the Petition could map Ye to the claimed domain VSI, the Petition also fails to tie Ye's disclosed data flow to the claimed sequence in which the domain VSI switches the packet and transmits it to a tunnel packet generator that adds a tunnel header, thus failing to show claims 1 and 13 are met	12
	D. The Petition does not identify a second, distinct network virtualization domain in Ye, as claim 7 requires.....	15
VI.	Conclusion	18

TABLE OF AUTHORITIES

Cases

<i>Cisco Sys., Inc. v. C-Cation Techs., LLC</i> , IPR2014-00454, Paper 12 (PTAB Aug. 29, 2014)	11
---	----

PATENT OWNER'S EXHIBIT LIST

No.	Description
2006	Expert declaration of Dr. Mahdi Eslamimehr in Support of Patent Owner's Preliminary Response
2007	<i>Curriculum Vitae</i> of Dr. Mahdi Eslamimehr

I. Introduction

Cisco's Petition relies upon only one ground—obviousness based on a single reference, Ye, which describes a Virtual Private LAN Service (VPLS). The Petition does not show a reasonable likelihood of prevailing as to any challenged claim, for multiple reasons tied to the claim language. The first reason described below (**Section V.A**) applies to all three independent claims (i.e., claims 1, 7, and 13). The second reason described below (**Section V.B**) applies to independent claims 1 and 13, and the third reason (**Section V.C**) applies to independent claims 1 and 13, and the fourth reason (**Section V.D**) applies to independent claim 7.

The '961 patent addresses the scaling limits of conventional overlay network virtualization. Technologies such as VXLAN and NVGRE build a virtual Layer 2 network on top of a Layer 3 network by setting a full mesh of tunnels among every Tunnel End Point—an approach that, for N endpoints, requires $N \times (N-1)$ tunnels and, as a practical matter, confines a virtualization domain to a single data center. The '961 patent organizes the network into virtualization domains, each served by a domain tunnel end point that can operate like a tunnel switch to relay packets to tunnel end points not reachable by a single-hop tunnel. The challenged independent claims recite components and operations of that domain-tunnel-end-point architecture, and the Examiner allowed them after identifying a specific data flow the prior art of record did not disclose.

First, independent claims 1, 7, and 13 require connecting each tunnel end point with a tunnel *based on* the collected tunnel-end-point information. In contrast, the Ye disclosures the Petition cites describe discovering provider-edge devices and establishing pseudowires over existing tunnels or selecting among them.

Second, claims 1 and 13 require a “domain VSI” as part of the claimed domain tunnel end point, and the Petition fails to show that Ye discloses this.

Third, claims 1 and 13 require a specific new-tunnel-packet sequence involving certain functions performed by a domain VSI and certain functions performed by a tunnel packet generator. The Petition fails to show Ye discloses this.

Fourth, claim 7 requires connecting a tunnel end point in one network virtualization domain to a tunnel end point in “*another* network virtualization domain.” The Petition identifies only a single VPLS instance as the claimed domain and never identifies a second, distinct domain in Ye under that mapping, defeating the Petition’s challenge to claim 7.

Petitioner’s request for institution should be denied. As detailed herein and in the supporting declaration of Patent Owner’s expert, Dr. Mahdi Eslamimehr (Ex. 2006), the Petition and its accompanying declaration fail to show that Ye discloses or renders obvious any claim of the ’961 patent. *See, e.g.*, Ex. 2006 (summarizing key deficiencies in the Petition and declaration of Petitioner’s expert declaration).

II. The '961 Patent

A. Conventional single-tier overlay virtualization did not scale

A generally used overlay-based virtual network is a Layer 2 network realized over a Layer 3 network, in which tunneling attaches an L3 IP header to an L2 Ethernet frame transmitted between virtual machines. Ex. 1001 at 1:27-32; Ex. 2006 ¶ 16. The most representative overlay technologies—VXLAN and NVGRE—create a virtual L2 network by connecting tunnels between servers, which requires a full mesh of tunnels between all tunnel end points. Ex. 1001 at 1:32-40; Ex. 2006 ¶¶ 16-17. Setting a full mesh among N Tunnel End Points requires $N \times (N-1)$ tunnels, which “restricts expandability, thereby causing a problem of restricting the size of the network.” Ex. 1001 at 1:40-44. As a practical matter, a single network virtualization domain is generally restricted to one data center, and conventional methods could not readily provide a virtual network spanning multiple, geographically dispersed data centers. Ex. 1001 at 1:50-56. The Petition recites the same problem. Pet. at 3-4.

B. The '961 patent's domain tunnel end point and its claimed components

The '961 patent divides the network into multiple network virtualization domains and introduces a domain tunnel end point in each. Ex. 1001 at 2:31-42. Within a domain, edge tunnel end points connect to one another and to their domain tunnel end point; between domains, the domain tunnel end points connect to one another by L3 tunnels. *Id.* at 4:19-28. The domain tunnel end point is “configured to

perform like a tunnel switch which can relay the single-hop tunnel packet from each tunnel end point to any other tunnel end points not reachable by single-hop tunnel.”

Id. at 5:17-30; *see also* Ex. 2006 ¶ 18.

Independent apparatus claims 1 and 13 recite components corresponding to that domain tunnel end point, including four cooperating components: a tunnel manager, a tunnel packet end point, a domain VSI (virtual switching instance), and a tunnel packet generator. Ex. 1001 at 8:19-34 (claim 1), 10:44-59 (claim 13). The tunnel packet end point receives an inbound tunnel packet, processes it, and transmits it to the domain VSI; the domain VSI performs L2 switching and transmits the switched packet to the tunnel packet generator; and the tunnel packet generator adds a tunnel header to “the packet for which the L2 switching has been performed” to generate a “new tunnel packet,” or, in claim 13, a “new unicast tunnel packet,” and transmits it. *Id.* at 6:51-7:25, 8:19-34, 10:44-59.

The '961 patent distinguishes conventional single-tier overlay virtualization from the '961 patent's two-tier domain-tunnel-endpoint architecture. The conventional approach required a full mesh of tunnels among all tunnel end points and therefore did not scale. *See, e.g.*, Ex. 1001 at 1:32–56. The '961 patent's solution was to create multiple network virtualization domains, place a domain tunnel end point in every domain, connect edge tunnel end points to the domain tunnel end point, and connect domain tunnel end points to one another by L3 tunnels. *See, e.g.*,

id. at 2:31–42, 4:19–28, 5:17–52. This domain-tunnel-endpoint architecture provides context for the “domain VSI” recited in claims 1 and 13 and is expressly reflected in the “another network virtualization domain” limitation recited in claim 7. As explained herein, the Petition does not show that Ye’s VPLS architecture satisfies those claimed requirements.

C. The challenged claims

The Petition challenges claims 1-13. Independent claim 1 (apparatus) and independent claim 13 (apparatus, reciting a “new *unicast* tunnel packet”) recite the four components. Independent claim 7 (method) recites the corresponding operations and adds a step not found in claim 1: “connecting tunnel end points within the network virtualization domain to other[] tunnel end points within *another* network virtualization network domain with a unicast tunnel using the new tunnel packet.” Ex. 1001 at 9:23-38. Dependent claims 2-6 and 8-12 add further elements.

D. The Examiner allowed the claims after identifying a specific data flow the prior art of record did not disclose

During prosecution, claims 1 and 7 were rejected under § 102 over U.S. Publication No. 2015/0100704 to Davie, which is an overlay-virtualization reference. Following amendment and argument, the Examiner issued a Statement of Reasons for Allowance, explaining:

The prior art in the record (in particular, US Pub. 2015/0100704 to Davie et al. ...) does not disclose, with respect to claim 1, the virtual switching instance performing the L2 switching on the processed

packet and transmitting the packet to the tunnel packet generator and the tunnel packet generator adding a tunnel header to the packet for which the L2 switching has been performed to generate a new tunnel packet, and to transmit the new tunnel packet as claimed. Rather, Davie teaches encapsulating packet and forwarding the encapsulated packet to the virtual switching instance [0135]. The same reasoning applies to claims 7 and 15 [issued claim 13] *mutatis mutandis*.

Ex. 1002 at 198. The inventive distinction the Examiner identified is a sequence: L2 switching is performed on the processed packet; that switched packet is transmitted to the tunnel packet generator; and the generator then adds a tunnel header to that packet to generate and transmit a new tunnel packet. Davie was distinguished because it encapsulated the packet *before* forwarding it to the virtual switching instance. The applicant also amended claim 7 to add the inter-domain unicast-tunnel step and added new claim 13 reciting a “new unicast tunnel packet.” The Petition’s mapping of Ye must be measured against this sequence noted by the Examiner.

III. The Petition and Its Single Ground

The Petition advances one ground: that claims 1-13 are obvious under § 103 in view of Ye. Pet. at 1, 27. Ye describes a Virtual Private LAN Service in which provider-edge (PE) devices connect customer sites over an MPLS or GRE backbone; each PE connects to customer-edge devices by attachment circuits (ACs) and to other PEs by pseudowires (PWs), and PE devices “may be fully meshed” within a VPLS instance. Ex. 1004 ¶¶ [0029]-[0032], [0040].

The Petition’s “State of the Art” section generically contends that the additional materials it cites (including Nagapudi, Yong, Figueira, Ghosh, the H3C white paper, the Mahalingam VXLAN draft, Qu, and Kancherla) “provide additional factual support and motivation to modify and combine the teachings in the references” with “a reasonable expectation of success.” Pet. at 14-15. But the Petition asserts only Ye in its sole ground, and where Petitioner relies on these additional materials in its claim-specific analysis, the Petition offers bare assertions of what “a POSITA understood” without identifying particular modifications to Ye or explaining, for the limitation at issue, why a person of ordinary skill would have made those modifications.

Cisco proposes that each term receive its plain and ordinary meaning and that no construction is necessary, supported by the declaration of Dr. A.L. Narasimha Reddy (Ex. 1003). Pet. at 14; Ex. 1003 ¶ 51.

IV. Level of Ordinary Skill in the Art

For purposes of this Preliminary Response only, Patent Owner applies Petitioner’s definition of a person of ordinary skill in the art—a bachelor’s degree in electrical engineering, computer science, or a related field, with at least two to three years of training or additional work experience in communications networks, or a related field as of December 2013. Pet. at 14. The level of skill does not change the analysis below.

V. The Petition Fails to Show a Reasonable Likelihood

The Petition's single ground does not establish a reasonable likelihood of prevailing as to any challenged claim. The independent claims all require that each tunnel end point be connected with a tunnel based on the collected tunnel-end-point information, and the Petition fails to show this requirement is met by Ye. While this is sufficient to deny institution, Patent Owner also describes below additional deficiencies in the Petition's mapping for claims 1 and 13 (a failure to show the claimed "domain VSI" and a failure to adequately map the claimed sequence and division of labor among a domain VSI and tunnel packet generator) and an additional deficiency in the Petition's mapping for claim 7 (a failure to show "another" network virtualization domain). Institution should be denied.

A. The Petition does not show that Ye connects "each tunnel end point with a tunnel based on" the collected tunnel-end-point information, as claims 1, 7, and 13 require

Claims 1 and 13 require a tunnel manager "configured to collect tunnel end point information within a network, and to connect each tunnel end point with a tunnel based on the tunnel end point information collected," and claim 7 recites a corresponding method step. Ex. 1001 at cls. 1, 7, 13. The limitation thus requires that the tunnel manager be configured to (1) "collect tunnel end point information," and further to (2) "connect each tunnel end point with a tunnel *based on*" the collected end point information. Ex. 2006 ¶¶ 22-23.

The Petition relies on Ye's automatic discovery of provider-edge (PE) devices and its signaling procedures. Pet. at 36-41. It argues that each PE maintains the endpoint information necessary to reach other PEs over individual label-switched path (LSP) segments and uses that information to direct tunnel traffic. Pet. at 38-41 (citing Ex. 1004 ¶¶ [0054], [0056], [0059]-[0063]; Ex. 1003 ¶¶ 89-95). And the Petition points to Ye's use of a label distribution protocol (LDP) or border gateway protocol (BGP) to establish a pseudowire after PE devices have been manually configured or automatically discovered, with tunnels carrying the pseudowires. Ex. 1004 ¶¶ [0032]-[0034].

But the cited Ye disclosures do not show tunnel end points being connected “with a tunnel *based on*” the collected tunnel-end-point information, as the independent claims require. Ye states that “[t]unnels are used to carry PWs [pseudowires].” Ex. 1004 ¶ [0031]-[0032]. In Ye's implementation sequence, the system first creates a first MP2MP LSP, then creates the VPLS instance, discovers the PE devices, creates the VSIs, and establishes pseudowires between the VSIs. *Id.* ¶¶ [0059]-[0063]; Ex. 2006 ¶¶ 25-26. Other passages describe selecting a tunnel for communication with an opposing PE and storing the selected tunnel ID. Ex. 1004 ¶¶ [0078]-[0079]; Ex. 2006 ¶ 27. Across these disclosures, Ye describes using end-point information to direct traffic over existing LSP segments, discovering PE devices and establishing pseudowires over existing tunnels, and selecting a tunnel

from among the tunnels between PEs. Ex. 2006 ¶ 28. The cited passages of Ye thus do not establish the specific relationship claims 1, 7, and 13 require—connecting each tunnel end point with a tunnel based on the collected information. Ex. 2006 ¶ 28.

And nothing in the Petition changes this conclusion, because the Petition’s *own characterization* of Ye does not satisfy the requirement that the endpoints are “connect[ed] ... with a tunnel based on the tunnel end point information collected.” Instead, the Petition only alleges that “the collected end point information” is used “to establish a PW [pseudowire] with another PE device ... using tunnels to carry the PWs.” Pet. at 37.

In other words, the Petition contends that the creation of a *pseudowire* is “based on the tunnel end point information collected.” Pet. at 37. But the alleged establishment of a *pseudowire* to connect end points together does not satisfy the claim requirement of “*connect[ing] each tunnel end point with a tunnel* based on the tunnel end point information collected.” The cited passages of Ye do not show connecting each tunnel end point with a tunnel based on the tunnel end point information collected.

The declaration of Petitioner’s expert, Dr. Reddy (Ex. 1003), does not identify any different disclosure in Ye that better maps to the claim language. And even if the Petition relied on his declaration to develop analysis the Petition itself does not

contain, the Board should not import it. *Cisco Sys., Inc. v. C-Cation Techs., LLC*, IPR2014-00454, Paper 12 (PTAB Aug. 29, 2014) (informative).

Because the “based on” requirement is present in all independent claims (i.e. claims 1, 7, and 13), the Petition cannot prevail as to *any* challenged claim, and institution should be denied.

B. The Petition fails to show that Ye’s VSI can be mapped to the claimed “domain VSI” of claims 1 and 13

Independent claims 1 and 13 recite a “domain VSI,” and although the Petition points to Ye’s disclosure of a VSI, it fails to show that Ye’s VSI can be mapped to the claimed “domain VSI.” This is an additional reason the Petition cannot succeed as to apparatus claims 1 and 13, along with their dependents.

As reflected in Figures 1 and 3, the ’961 patent describes the domain VSI as connecting Edge Tunnel End Points (TEPs) of the same domain with Domain TEPs of other domains. *See, e.g.*, Ex. 1001 at Figs. 1, 3. The Petition does not establish that Ye discloses such a domain VSI. In Ye, the VSI (e.g., VSI 112-1 of Fig. 1) connects a CE device (e.g., CE device 106-1), which does not have a TEP, with PE devices (e.g., PE devices 108-2 and 108-4) in the same VPLS instance. *See* Ex. 1004 at Fig. 1. The Petition does not reconcile these differences and fails to show that Ye’s VSI is a domain VSI within the scope of claims 1 and 13.

As explained above in Section II.B, the ’961 patent distinguishes conventional single-tier overlay virtualization from the ’961 patent’s two-tier domain tunnel

endpoint architecture. That architecture provides context for the independent claims, including in the recitation of “domain VSI” in claims 1 and 13.

Ye discloses a different architecture. In Ye, the connection from the customer edge (CE) device to the provider edge (PE) device is an attachment circuit (AC). *E.g.*, Ex. 1004 ¶¶ [0027]-[0029] (AC “is a link between a CE device and a PE device” where “[i]ts ends use Ethernet interfaces”). That is different from an overlay tunnel from an edge tunnel endpoint to a domain tunnel endpoint. Ex. 2006 ¶¶ 29-31. Ye’s PE devices/VSIs are co-equal members of the same VPLS instance; they are not domain tunnel endpoints in separate network virtualization domains. Given these differences, the Petition fails to show that the claimed domain VSI can be mapped to Ye’s disclosure.

C. Even if the Petition could map Ye to the claimed domain VSI, the Petition also fails to tie Ye’s disclosed data flow to the claimed sequence in which the domain VSI switches the packet and transmits it to a tunnel packet generator that adds a tunnel header, thus failing to show claims 1 and 13 are met

Independent claims 1 and 13 recite certain operations that must be performed in a sequence using a division of labor between a domain VSI and a tunnel packet generator. The Petition fails to show Ye discloses this, providing another reason the Petition cannot succeed as to apparatus claims 1 and 13, along with their dependents.

Claims 1 and 13 each recite “a tunnel packet end point configured to receive a tunnel packet and process *the packet*,” “the domain VSI configured to perform the

L2 switching on *the processed packet*, and to transmit *the packet* to a tunnel packet generator,” and “the **tunnel packet generator** configured to add a tunnel header to *the packet* for which the L2 switching has been performed to generate a new [unicast] tunnel packet” and to transmit it. Ex. 1001 at cls. 1, 13 (emphasis added); *see also* Ex. 2006 ¶ 20. The Examiner’s Statement of Reasons for Allowance explicitly recognized this as a basis for distinguishing the Davie prior art reference. Ex. 1002 at 198. As the Examiner explained, Davie fell outside the scope of the claims because it teaches encapsulating the packet *before* forwarding it to the virtual switching instance. *Id.* (“Rather, Davie teaches encapsulating [the] packet and forwarding the encapsulated packet to the virtual switching instance [0135].”). Claims 1 and 13 require a particular sequence and division of labor between the domain VSI, which performs the L2 switching and then transmits the packet, and the tunnel packet generator, which adds the tunnel header and generates the new tunnel packet. Ex. 1001 at cls. 1, 13; Ex. 2006 ¶ 20, 33-35.

The Petition fails to show that Ye discloses this. Ex. 2006 ¶ 36. Instead, the Petition points to one embodiment of Ye as purportedly disclosing the claimed order of steps and points to a different Ye embodiment as purportedly disclosing the claimed division of labor, and does so without connecting the two disclosures. Ex. 2006 ¶¶ 37-39.

To meet the limitations of claims 1 and 13 (specifically claim elements 1.3, 1.4, 13.3, and 13.4, using the Petition’s numbering scheme), the Petition must establish that Ye shows (1) the domain VSI is configured to perform the L2 switching on the processed packet; (2) the domain VSI transmits that switched packet to the claimed tunnel packet generator; (3) the generator adds a tunnel header to the same packet for which the L2 switching was performed; and (4) the operation generates the claimed “new tunnel packet.” For the order of these steps (but not the division of labor), the Petition points to **Ye’s Figure 12** (*see* Pet. at 42), which describes “a method 1200 for a PE device” that “receives a unicast packet from [a] PW ... and removes the tunnel label from the packet to expose [the] VSI label,” maps the VSI label “to [a] VSI ... and its MAC address table,” “determines if the packet has a known MAC destination address,” and—if the address is known—“removes the VSI label and forwards the packet to the path or port ... identified in the matching entry,” by “add[ing] a VSI label and a tunnel label to encapsulate and forward the packet.” Ex. 1004 ¶¶ [0099]-[0102]; *see* Pet. at 44 (citing ¶ [0102]); Ex. 2006 ¶¶ 37-38.

The Petition’s mapping is deficient because Ye does not describe the *domain VSI* performing the L2 switching and then *transmitting the switched packet to a tunnel packet generator* that adds the header, which is the division of labor claims 1 and 13 recite. Ex. 2006 ¶¶ 38, 42. To supply that division of labor, the Petition then

points to Ye's module descriptions in **Figures 17 and 18**, as purportedly disclosing a domain VSI ("searching module") and tunnel packet generator ("sending module"). Pet. at 43-45 (citing Ex. 1004 ¶¶ [0127]-[0132]; Ex. 1003 ¶¶ 99-101); Ex. 2006 ¶ 39. But notably, the label-addition disclosure that the Petition relies on from the discussion of searching and sending modules is tied to a packet received *from an AC* (attachment circuit): "Receiving module 1710 is to receive a unicast packet from an AC. Searching module 1720 is to search a MAC address forwarding table of a VSI associated with the AC." Ex. 1004 ¶ [0128]. The Petition does not establish that the module division reflected in Figures 17 and 18 operates within Figure 12's tunnel-packet (PW-ingress) flow, or that, in that flow, the domain VSI transmits the switched packet to a tunnel packet generator that adds a header to the same packet. Ex. 2006 ¶ 40-42. This deficiency is fatal to the Petition's mapping for claims 1 and 13, and their dependents.

Dr. Reddy's declaration again does not offer any different disclosure in Ye that better maps to the claim language, nor any analysis beyond what the Petition provides. And even if the declaration did offer further analysis, the Board should not import it.

D. The Petition does not identify a second, distinct network virtualization domain in Ye, as claim 7 requires

The Petition also fails to establish that an additional requirement of claim 7 is met, namely the step of claim [7.5] (using the Petition's numbering), which recites

“connecting tunnel end points within the network virtualization domain to other[] tunnel end points within *another* network virtualization network domain with a unicast tunnel using the new tunnel packet.” Ex. 1001 at 9:23-38 (emphasis added). The applicant added that step by amendment to secure allowance. Pet. at 13. It requires *two different domains*, whereas the Petition’s mapping identifies only one. Ex. 2006 ¶¶ 45, 47.

As explained above in Section II.B, the ’961 patent distinguishes conventional single-tier overlay virtualization from the ’961 patent’s two-tier domain tunnel endpoint architecture. That architecture is expressly reflected in the recitation of “another network virtualization network domain” in claim 7.

The specification of the ’961 patent describes a two-tier architecture in which edge tunnel end points communicate through a domain tunnel end point that can operate “like a tunnel switch” to relay packets to otherwise-unreachable tunnel end points. Ex. 1001 at 5:17-30; *see also id.* at 2:31-42. Ye, by contrast, describes a VPLS architecture in which PE devices may be fully meshed within a given VPLS instance through pseudowires. Ex. 1004 ¶ [0040]; Ex. 2006 ¶ 48. In Ye, the connection from the customer edge (CE) device to the provider edge (PE) device is an attachment circuit (AC). *E.g.*, Ex. 1004 ¶¶ [0027]-[0029] (AC “is a link between a CE device and a PE device” where “[i]ts ends use Ethernet interfaces”). That is different from an overlay tunnel from an edge tunnel endpoint to a domain tunnel

endpoint. Ex. 2006 ¶ 49. Ye's PE devices/VSI's are co-equal members of the same VPLS instance; they are not domain tunnel endpoints in separate network virtualization domains.

The Petition addresses the limitation of claim [7.5] (*see* Pet. at 61-62), but its mapping first identifies Ye's VPLS instance as the claimed network virtualization domain, and then relies on connections between PE devices and VSIs that Ye identifies as belonging to that *same* VPLS instance. Ex. 1004 ¶¶ [0048]-[0050]. Notably, the Petition inserts the "another network virtualization domain" language in brackets without identifying a second, distinct network virtualization domain in Ye, and without explaining how another PE device within the same VPLS instance is a tunnel end point in "another" network virtualization domain. Connecting two endpoints inside one domain is not connecting an endpoint in one domain to an endpoint in another. Ex. 2006 ¶¶ 48, 50. The Petition tries to bridge the difference by quoting Ye's intra-instance pseudowire disclosure as though it described inter-domain connectivity, but it does not even identify a second network virtualization domain in Ye. Dr. Reddy's declaration offers nothing further and merely repeats Petitioner's argument for limitation [7.5] without adding any substantive analysis. Ex. 1003 ¶ 136.

The Petition has not shown that Ye discloses the inter-domain step of limitation [7.5]. As a result, the Petition fails to establish a reasonable likelihood of prevailing as to claim 7 (and its dependents), for this additional reason.

VI. Conclusion

The Petition has not shown a reasonable likelihood that any challenged claim is unpatentable. *First*, it does not establish that Ye connects each tunnel end point with a tunnel based on the collected tunnel-end-point information, as claims 1, 7, and 13 require. *Second*, it does not establish that Ye discloses the claimed domain VSI of claims 1 and 13. *Third*, it does not establish that Ye discloses the claimed sequence and division of labor for generating the new [unicast] tunnel packet required by claims 1 and 13. *Fourth*, it does not identify a second, distinct network virtualization domain for claim 7's inter-domain step. Accordingly, Petitioner's request for institution should be denied.

Date: July 2, 2026

Respectfully submitted,

/James A. Milkey/
James A. Milkey, Reg. No. 79,503
RUSS, AUGUST & KABAT
12424 Wilshire Blvd., 12th Fl.
Los Angeles, CA 90025

Counsel for Patent Owner

CERTIFICATION REGARDING WORD COUNT

Pursuant to 37 C.F.R. §42.24(d), Patent Owner certifies that there are 4,310 words in the paper excluding the portions exempted under 37 C.F.R. §42.24(a)(1).

Date: July 2, 2026

/James A. Milkey/
James A. Milkey, Reg. No. 79,503
Russ August & Kabat
12424 Wilshire Blvd., 12th Floor
Los Angeles, CA 90025

Counsel for Patent Owner

CERTIFICATE OF SERVICE (37 C.F.R. § 42.6(e)(1))

The undersigned hereby certifies that the above document was served on July 2, 2026 by filing this document through the Patent Trial and Appeal Case Tracking System (P-TACTS) as well as delivering a copy via electronic mail upon the following attorneys of record for the Petitioner:

Patrick D. McPherson, Reg. No. 46,255
PDMcpherson@duanemorris.com
DUANE MORRIS LLP
901 New York Avenue NW
Suite 700 East
Washington, D.C. 20001
T: (202) 776-7800

Patrick C. Muldoon, Reg. No. 47,343
PCMuldoon@duanemorris.com
DUANE MORRIS LLP
901 New York Avenue NW
Suite 700 East
Washington, D.C. 20001
T: (202) 776-7800

Joseph A. Powers, Reg. No. 47,006
JAPowers@duanemorris.com
DUANE MORRIS LLP
30 South 17th Street
Philadelphia, PA 19103-4196
T: (215) 979-1000

John O. Hillman, Reg. No. 84,186
DUANE MORRIS LLP
30 South 17th Street
Philadelphia, PA 19103-4196
T: (215) 979-1000

Date: July 2, 2026

/James A. Milkey/
James A. Milkey, Reg. No. 79,503
Russ August & Kabat
12424 Wilshire Blvd., 12th Floor
Los Angeles, CA 90025

Counsel for Patent Owner