

**IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
WACO DIVISION**

CORRIGENT CORPORATION

Corrigent,

v.

CISCO SYSTEMS, INC.

Cisco.

Case No. 6:22-cv-00396-ADA

JURY TRIAL DEMANDED

CISCO'S PRELIMINARY INVALIDITY CONTENTIONS

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Pursuant to the Court’s Scheduling Order (Case No. 6:22-cv-00369-ADA, D.I. 37), Cisco Systems, Inc. (“Cisco”) hereby provides its Preliminary Invalidity Contentions.

I. INTRODUCTION

On August 4, 2022, Corrigent Corporation (“Corrigent”) served its Preliminary Infringement Contentions (“Infringement Contentions”) and alleged the following claims:

- U.S. Patent No. 6,957,369 (“’369 patent”): Claims 1–26
- U.S. Patent No. 7,113,485 (“’485 patent”): Claims 1–20
- U.S. Patent No. 7,330,431 (“’431 patent”): Claims 1–30
- U.S. Patent No. 7,593,400 (“’400 patent”): Claims 1–20
- U.S. Patent No. 9,118,602 (“’602 patent”): Claims 1–26

(collectively, the “Asserted Patents” and the “Asserted Claims”). Cisco contends that certain of the Asserted Claims cover subject matter not eligible for patenting under 35 U.S.C. § 101, and that each of the Asserted Claims is invalid under at least 35 U.S.C. §§ 102, 103, and/or 112.¹

These Preliminary Invalidity Contentions address the claims identified in Corrigent’s Infringement Contentions. Cisco reserves the right to modify, amend, or supplement these Preliminary Invalidity Contentions to the extent the Court permits Corrigent to amend, supplement, or otherwise modify its Infringement Contentions, including by modifying the claims asserted.

In addition, Corrigent’s Preliminary Infringement Contentions are entirely deficient, and fail to provide allegations as to how the Accused Products infringe each and every claim limitation; rather, they simply parrot the claim language and then cite various documents—and in many

¹ Cisco applies the version of Sections 102, 103, and 112 in effect prior to the effective date of the America Invents Act (“AIA”) for the Asserted Patents.

circumstances, point to no evidence at all. Corrigent therefore has prejudiced Cisco's ability to understand, for purposes of preparing these Preliminary Invalidity Contentions, what Corrigent alleges to be the scope of the Asserted Claims. Cisco reserves the right to amend these Preliminary Invalidity Contentions if and when Corrigent provides proper infringement contentions as to each Asserted Claim.

A. Priority Date

These Preliminary Contentions are based on the earliest priority dates as identified by Corrigent in its Preliminary Infringement Contentions. In its Preliminary Infringement Contentions and Final Infringement Contentions, Corrigent did not produce any documents evidencing conception and reduction to practice. Nothing in these Preliminary Invalidity Contentions shall be understood as an agreement that any Asserted Patent is entitled to claim priority to the dates identified by Corrigent, or to any continuation-in-part, provisional, or foreign priority document. Cisco reserves the right to amend these Preliminary Invalidity Contentions and identify additional prior art references if Corrigent is permitted by the Court to later assert an earlier priority date, or is permitted by the Court to later produce documents purporting to evidence earlier conception and reduction to practice.

Any reference to an "asserted priority date" in these Preliminary Invalidity Contentions refers to the priority dates identified in Corrigent's Infringement Contentions. Reference to a "priority date" or an "asserted priority date" should not be construed to mean that Cisco agrees that any of the Asserted Patents are in fact entitled to such priority date, or that Corrigent has provided proper notice as to its contentions for a priority date.² To the extent Corrigent alleges

² Cisco reserves the right to rely on additional documents, evidence, and expert testimony, including, without limitation, the documents cited in Corrigent's Infringement Contentions, in the
(*Cont'd on next page*)

that any prior art relied on in these Preliminary Invalidity Contentions does not actually qualify as prior art to an Asserted Patent, Cisco reserves the right to rebut those allegations (e.g., by demonstrating an earlier critical date for the challenged prior art and/or a later priority date for a particular Asserted Patent and/or Asserted Claim).³ Likewise, to the extent Corrigent successfully establishes an invention date before any of the prior art references relied on by Cisco, then those references serve as evidence of secondary considerations of obviousness, particularly, contemporaneous invention by others.

Asserted Patent	Asserted Priority Date
'369 Patent	May 30, 2002
'485 Patent	September 4, 2001
'431 Patent	September 3, 2004
'400 Patent	May 19, 2006
'602 Patent	May 6, 2005

B. Claim Construction

Cisco's Preliminary Invalidity Contentions are based on (1) Cisco's present understanding of the Asserted Claims, and (2) the claim constructions Corrigent appears to be using based on the Preliminary Infringement Contentions, all without regard to whether Cisco agrees with Corrigent's apparent or expressed claim constructions. Cisco reserves the right to supplement or otherwise amend these Preliminary Invalidity Contentions in response to any court-ordered clarifications on claim constructions, any report from any expert witness for Corrigent regarding the scope of the

event that Corrigent fails to establish that any Asserted Claim of any Asserted Patent is entitled to its Asserted Priority Date.

³ Cisco reserves the right to rely on additional documents and evidence to rebut any efforts by Corrigent to allege any reference was not publicly available or otherwise available as prior art.

claims, any briefing filed by Corrigent relating to the scope of the claims, and any position taken by Corrigent concerning claim scope, infringement, or invalidity.

Cisco takes no position on any matter of claim construction in these Preliminary Invalidity Contentions, including whether any particular claim element should be construed according to 35 U.S.C. § 112, ¶ 6. If Cisco's disclosures herein are consistent with any explicit, apparent, or implied claim constructions in Corrigent's Infringement Contentions, no inference is intended and no inference should be drawn that Cisco agrees with any of Corrigent's claim constructions. Any statement herein describing or tending to describe any claim element is provided solely for the purpose of understanding and/or applying the cited prior art. In addition, to the extent that these Preliminary Invalidity Contentions rely on or otherwise embody a particular order in which the steps of method claims are performed, Cisco do not necessarily propose that the method claims must be limited to such order, although Cisco may later propose such an order.

Nothing herein should be read to suggest that Cisco agrees that any particular claim term is sufficiently definite, enabled or supported by the written description to meet the requirements of 35 U.S.C. § 112. Likewise, nothing herein should be read to suggest that Cisco agrees that the preamble of any claim is or is not limiting.

Because any positions taken in these disclosures are based on the claim scope apparently asserted by Corrigent in its Preliminary Infringement Contentions, with which Cisco may disagree, Cisco may take positions with respect to claim construction issues that are inconsistent with, or even contradictory to, positions expressed or implied in these Preliminary Invalidity Contentions.

Prior art not included in these Preliminary Invalidity Contentions, whether or not now known to Cisco, might become relevant depending on the claim constructions proposed by Cisco and/or the Court's claim construction rulings. Cisco reserves all rights to supplement or modify

the positions and information in these Preliminary Invalidity Contentions, including, without limitation, the prior art and grounds of invalidity set forth herein, after the Court has construed any term of the Asserted Claims.

C. Ongoing Discovery and Supplementation

Cisco bases these Preliminary Invalidity Contentions on its current knowledge and understanding of the Asserted Patents, Corrigent's Preliminary Infringement Contentions, and other facts and information available as of the date of these contentions. Cisco's investigation into prior art—including prior art identified in these disclosures, third-party prior art (including system art and related evidence), documents, and knowledgeable witnesses—is ongoing.⁴ Furthermore, pursuant to the Court's Order Governing Proceedings, discovery does not begin until after the *Markman* hearing. Cisco anticipates seeking and obtaining discovery, including third-party discovery, that further evidences and supports the invalidity of the Asserted Claims. Thus, Cisco expects to present additional information and evidence in support of its Preliminary Invalidity Contentions, and to revise, amend, and/or supplement these Preliminary Invalidity Contentions accordingly in a manner consistent with the Federal Rules of Civil Procedure and the Court's rules and applicable orders.

Furthermore, Cisco is investigating and pursuing information from additional sources of discovery that may bear on prior art and other invalidity bases, and may serve discovery requests

⁴ Cisco's future efforts include but are not limited to: serving subpoenas on prior artists and inventors regarding prior art, seeking additional information related to the references and systems disclosed in these Invalidity Contentions, and seeking additional information related to available prior art systems, as well as Corrigent's Preliminary Infringement Contentions and the products accused of infringing therein. No depositions have been taken as of this time, including, without limitation, depositions of any inventors, authors, or entities listed on any references or systems identified in these Invalidity Contentions. Further, Cisco reserves the right to review and supplement these Preliminary Invalidity Contentions with respect to any additional prior art that becomes apparent as discovery proceeds.

on those sources if necessary. Cisco reserves the right to revise, amend, and/or supplement these Preliminary Invalidity Contentions with any relevant information obtained from those additional sources.

Cisco further reserves the right to rely on statements or admissions from those owing a duty of candor, such as named inventors, prosecution counsel, and others involved in the prosecution of the patent applications or related applications, concerning the scope of the prior art relevant to the Asserted Patents found in, *inter alia*, the following: the respective prosecution histories of the Asserted Patents and related patent applications; any deposition testimony of the named inventors; and the papers filed and any evidence submitted by Corrigent in connection with this litigation.

Cisco reserves the right to modify and/or supplement these Preliminary Invalidity Contentions with an explanation of why the Asserted Claims are invalid under 35 U.S.C. § 102(f)-(g) in the event Cisco obtains additional evidence that the named inventors did not invent (either alone or in conjunction with others) the subject matter claimed or that the claimed subject matter was invented by others. Should Cisco obtain such evidence, they will provide the name of the person(s) from whom and the circumstances under which the invention or any part of it was derived or the name of the person(s) that invented such subject matter and the circumstances of such invention.

Prior art not identified in this disclosure, whether known or not known to Cisco, may become relevant, including prior art concerning the state of the art at the time of invention, as well as simultaneous or near-simultaneous independent invention by others. For instance, Cisco currently is unaware of the extent, if any, to which Corrigent will contend that limitations of the Asserted Claims are not disclosed in the prior art identified by Cisco. To the extent that such an

issue arises, Cisco reserves the right to identify other references that would disclose, practice, or render obvious the allegedly missing limitation(s) of the disclosed subject matter.

D. Prior Art Identification and Citations Thereto

In these Preliminary Invalidity Contentions, Cisco identifies specific portions of prior art references that disclose the elements of the Asserted Claims. While Cisco has identified exemplary prior art references for each element, they do not necessarily identify every disclosure of the same element in each prior art reference. A person of ordinary skill in the art would read a prior art reference as a whole and in the context of other publications, literature, and general knowledge in the field and would rely upon other information including other publications and general scientific or engineering knowledge. Cisco therefore reserves the right to rely upon other unidentified portions of the prior art references and on other publications and prior art products and expert testimony to provide context and to aid understanding and interpretation of the identified portions of the prior art.

Cisco also reserves the right to rely upon (1) other portions of the cited prior art references, other publications, prior art products, and the testimony of experts to establish that the alleged inventions would have been obvious to a person of ordinary skill in the art, including on the basis of modifying or combining certain cited references; (2) admissions relating to prior art in the Asserted Patents or related patents, the prosecution history of the Asserted Patents or related patents, or other admissions obtained during discovery; (3) foreign counterparts of any U.S. patents identified in Cisco's Preliminary Invalidity Contentions; and (4) any prior art references, other publications, prior art products, and the testimony of experts to establish that the alleged inventions would have been obvious to a person of ordinary skill in the art used during any reexamination, *inter partes* review, post-grant review, or any other proceeding at the Patent Office involving the

Asserted Patents. Where a prior art reference includes citations to other references, those other references are considered incorporated by reference for context.

The references discussed in the claim charts may disclose the elements of the Asserted Claims explicitly and/or inherently, and/or they may be relied upon to show the state of the art in the relevant time frame. The suggested obviousness combinations are provided in the alternative to Cisco's anticipation contentions and are not to be construed to suggest that any reference included in the combinations is not by itself anticipatory.

Where Cisco identifies in the claim charts a particular figure in a prior art reference, the identification should be understood to encompass the caption and description of the figure as well as any text relating to the figure in the specification and prosecution history in addition to the figure itself. Similarly, where an identified portion of text refers to a figure or other material, the identification should be understood to include the referenced figure or other material as well.

E. No Patentable Weight

Cisco reserves the right to argue that various portions of the Asserted Claims, such as an intended use or result, non-functional descriptive material, and certain preamble language, are entitled to no patentable weight. Mapping of a portion of an Asserted Claim to a prior art reference does not represent that such portion of the claim is entitled to patentable weight when comparing the claimed subject matter to the prior art.

* * *

Nothing herein should be read to suggest that Cisco agrees that any particular claim term is sufficiently definite, enabled or supported by the written description to meet the requirements of 35 U.S.C. § 112. In addition, nothing herein admits in any way that any of Cisco's accused products or services infringe any of the Asserted Claims. Cisco reserves the right to amend and supplement these Preliminary Invalidity Contentions, including in response to any amendments

to, and revisions of, Corrigent's Infringement Contentions or application of the Asserted Claims. Cisco further reserves the right to supplement its corresponding document production should they later find additional, responsive documents.

II. INVALIDITY UNDER 35 U.S.C. §§ 102 AND 103

Cisco contends that the Asserted Claims are invalid as anticipated by the prior art under 35 U.S.C. § 102 and/or as obvious in view of the prior art, the knowledge of a person having ordinary skill in the art, and/or secondary factors of obviousness under 35 U.S.C. § 103.

The obviousness combinations of references provided in Cisco's invalidity claim charts under 35 U.S.C. § 103 are exemplary and are not intended to be exhaustive. In particular, Cisco is currently unaware of the extent, if any, to which Corrigent will contend that limitations of the Asserted Claims are not disclosed in the art identified by Cisco as anticipatory. To the extent an issue arises with any such limitation, Cisco will identify other obviousness combinations and/or other references that would have made obvious the addition of the allegedly missing limitation to the disclosed device, system, or method of operation.

Pursuant to the Order Governing Proceedings, discovery does not begin until after the *Markman* Hearing. Cisco's prior art investigation and third-party discovery is therefore not yet complete. Cisco reserves the right to present additional items of prior art under 35 U.S.C. § 102 and/or 35 U.S.C. § 103 located during the course of discovery or further investigation. For example, Cisco expects to issue subpoenas to third parties believed to have knowledge, documentation, and/or corroborating evidence concerning some of the prior art listed below and/or additional prior art. These third parties include without limitation the authors, inventors, or assignees of the references listed in these disclosures. In addition, Cisco reserves the right to assert invalidity under other subsections of 35 U.S.C. § 102 to the extent that discovery or further investigation yields information forming the basis for such invalidity.

A patentee bears the burden of production with respect to evidence of secondary considerations of non-obviousness. *ZUP, LLC v. Nash Mfg., Inc.*, 896 F.3d 1365, 1373 (Fed. Cir. 2018). As of the date of these Preliminary Invalidity Contentions, Corrigent has not identified any evidence of secondary considerations, nor does Corrigent offer any evidence or explanation to support its allegations. As shown in these Preliminary Invalidity Contentions, other companies and individuals described, built, and/or patented the exact same concepts in the Asserted Patents before Corrigent ever did—often many years before. Even where others’ invention(s) occurred around the same time as the Asserted Patents, such simultaneous invention demonstrates the obviousness of the Asserted Patents.

Potentially relevant evidence includes any prior art reference cited herein that was publicly known or available before or around the alleged inventions claimed in the Asserted Patents. This also includes any prior art asserted in these Preliminary Invalidity Contentions that Corrigent is able to pre-date based on its asserted priority dates by proving, *inter alia*, corroborated conception and diligent reduction to practice.

Cisco reserves all rights to further respond to any secondary considerations of nonobviousness raised by Corrigent, including by updating, modifying, and/or adding to these Preliminary Invalidity Contentions. Cisco is not aware of any unexpected results (none is mentioned in the Asserted Patents or their file histories), long-felt need, commercial success (or any nexus to any allegedly successful commercial embodiment), or awards for the alleged inventions of the Asserted Patents.

A. State of the Art

The subject matter of the Asserted Claims was well understood to those of skill in the art as of the respective priority dates of the Asserted Patents. To describe the state of the art at the time of the alleged inventions, in addition to the references listed on the face of the Asserted Patents

and those references listed in Section B and charted in Exhibits A-1 to E-7, Cisco may rely on at least the references listed below and any admitted prior art discussed in the Asserted Patent and file histories:

1. U.S. Patent No. 6,957,369

- Deering, S., “Host extensions for IP multicasting”, STD 5, RFC 1112, DOI 10.17487/RFC1112, August 1989, <<https://www.rfc-editor.org/info/rfc1112>> (“RFC 1112”)
- JP 2003/304264 to Nakamura (“Nakamura”)
- Kessler, G., “A Primer On Internet and TCP/IP Tools”, STD 5, RFC 1739, December 1994, <<https://datatracker.ietf.org/doc/html/rfc1739/>> (“Kessler”)
- KR 100279930 to Lee (“Lee”)
- KR 100310241 to Han (“Han”)
- PCT Publication WO 01/93499 to Fainguelernt (“Fainguelernt”)
- Postel, J., “Internet Control Message Protocol”, STD 5, RFC 792, DOI 10.17487/RFC0792, September 1981, <https://www.rfc-editor.org/info/rfc792> (“RFC 792”)
- KR20000005711 to Hyung-cheol (“Hyung-cheol”)
- U.S. Patent No. 6,499,061 to Benayoun et al. (“Benayoun”)
- U.S. H1,860 to Asthana et al. (“Asthana”)
- U.S. Patent No. 4,074,352 to Cook et al. (“Cook”)
- U.S. Patent No. 4,149,038 to Pitroda et al. (“Pitroda”)
- U.S. Patent No. 4,393,491 to Ashlock et al. (“Ashlock”)
- U.S. Patent No. 4,510,594 to Johnson, Jr. (“Johnson, Jr.”)
- U.S. Patent No. 4,685,102 to Lewis (“Lewis”)
- U.S. Patent No. 4,881,230 to Clark (“Clark”)
- U.S. Patent No. 4,970,726 to Carn et al. (“Carn”)

- U.S. Patent No. 5,132,635 to Kennedy (“Kennedy”)
- U.S. Patent No. 5,187,705 to Mano (“Mano”)
- U.S. Patent No. 5,327,435 to Warchol (“Warchol”)
- U.S. Patent No. 5,321,393 to Carlton et al. (“Carlton”)
- U.S. Patent No. 5,420,985 to Cantrell et al. (“Cantrell”)
- U.S. Patent No. 5,541,862 to Bright et al. (“Bright”)
- U.S. Patent No. 5,453,992 to Whetsel (“Whetsel”)
- U.S. Patent No. 5,574,730 to End, III et al. (“End, III”)
- U.S. Patent No. 5,627,842 to Brown et al. (“Brown”)
- U.S. Patent No. 5,710,760 to Moll (“Moll”)
- U.S. Patent No. 5,841,788 to Ke (“Ke”)
- U.S. Patent No. 5,938,899 to Leavitt et al. (“Leavitt”)
- U.S. Patent No. 6,028,845 to Serikawa et al. (“Serikawa”)
- U.S. Patent No. 6,052,362 to Somer et al. (“Somer”)
- U.S. Patent No. 6,122,756 to Baxter et al. (“Baxter”)
- U.S. Patent No. 6,233,073 to Bowers et al. (“Bowers”)
- U.S. Patent No. 6,275,864 to Mancusi et al. (“Mancusi”)
- U.S. Patent No. 6,308,282 to Huang et al. (“Huang”)
- U.S. Patent No. 6,366,556 to Ballintine et al. (“Ballintine”)
- U.S. Patent No. 6,385,739 to Barton et al. (“Barton”)
- U.S. Patent No. 6,456,587 to Taniguchi (“Taniguchi”)
- U.S. Patent No. 6,516,442 to Wang et al. (“Wang”)
- U.S. Patent No. 6,782,336 to Shah (“Shah”)
- U.S. Patent No. 7,079,555 to Baydar et al. (“Baydar”)

- U.S. Patent No. 8,411,576 to Takasaki (“Takasaki”)
- U.S. Patent Publication No. 2001/0019553 to Orsatti (“Orsatti”)
- U.S. Patent Publication No. 2002/0107952 to Mancusi et al. (“Mancusi II”)
- U.S. Patent Publication No. 2004/0208501 to Saunders et al. (“Saunders”)

2. **U.S. Patent No. 7,113,485**

- Postel, J., “Internet Control Message Protocol: STD 5, RFC 792, DOI 10.17487/RFC0792, September 1981, <https://www.rfc-editor.org/info/rfc792> (“RFC 792”)
- NetBIOS Working Group in the Defense Advanced Research Projects Agency, Internet Activities Board, and End-to-End Services Task Force, “Protocol standard for a NetBIOS service on a TCP/UDP transport: Detailed specifications”, STD 19, RFC 1002, DOI 10.17487/RFC1002, March 1987, <https://www.rfc-editor.org/info/rfc1002> (“RFC 1002”)
- Dommety, G., “Key and Sequence Number Extensions to GRE”, RFC 2890, DOI 10.17487/RFC2890, September 2000, <https://www.rfc-editor.org/info/rfc2890> (“RFC 2890”)
- WO01/61409 (“Kryskow”)
- U.S. Patent No. 4,703,477 (“Adelmann”)
- U.S. Patent No. 6,868,094 (“Bordonaro”)
- U.S. Patent No. 5,442,623 (“Wu”)
- U.S. Patent No. 6,226,111 (“Chang”)
- U.S. Patent No. 5,903,371 (“Arecco”)
- U.S. Patent No. 6,728,207 (“Askinger”)
- U.S. Patent No. 5,179,548 (“Sandesara”)
- U.S. Patent No. 5,923,646 (“Mandhyan”)
- U.S. Patent No. 5,742,905 (“Pepe”)
- U.S. Patent No. 5,481,538 (“Yang”)
- U.S. Patent No. 5,235,593 (“Grow”)

- Andrew S. Tanenbaum, Computer Networks, Third Edition (1996)
- Vern Paxson, End-to-End Internet Packet Dynamics, IEEE/ACM Transactions on Networking, Vol. 7, No. 3 (June 1999)

3. **U.S. Patent No. 7,330,431**

- Houh, Henry H., “Designing Networks for Tomorrow’s Traffic,” Thesis for the degree of Doctor of Philosophy at the Massachusetts Institute of Technology, February 1998 (“Houh”)
- Margalit, N., “Star versus ring topologies in metropolitan area network applications,” Lightwave (Sept. 1, 1999), <https://www.lightwaveonline.com/network-design/article/16648659/star-versus-ring-topologies-in-metropolitannetwork-applications> (“Margalit”)
- U.S. Patent App. Pub. No. 2002/0103924 (“Nomura”)
- U.S. Patent App. Pub. No. 2002/0118646 (“Saint Etienne”)
- U.S. Patent App. Pub. No. 2003/0128706 (“Mark”)
- U.S. Patent App. Pub. No. 2003/0147400 (“Devi 400”)
- U.S. Patent App. Pub. No. 2004/0095946 (“Baker 946”)
- U.S. Patent App. Pub. No. 2004/0174884 (“Wright 884”)
- U.S. Patent App. Pub. No. 2004/0193724 (“Dziong”)
- U.S. Patent Appl. Pub. No. 2007/0038753 (“Jorgensen”)
- U.S. Patent No. 5,583,860 (“Iwakawa”)
- U.S. Patent No. 5,768,271 (“Seid”)
- U.S. Patent No. 6,104,699 (“Holender”)
- U.S. Patent No. 6,331,986 (“Mitra”)
- U.S. Patent No. 6,430,150 (“Azuma”)
- U.S. Patent No. 6,757,247 (“Zheng”)
- U.S. Patent No. 6,976,087 (“Westfall”)
- U.S. Patent No. 7,155,120 (“Ofek”)

- U.S. Patent No. 7,173,936 (“Semaan”)
- U.S. Patent No. 7,269,177 (“Baker 177”)
- U.S. Patent No. 7,308,198 (“Chudak”)
- U.S. Patent No. 7,382,801 (“Wright 801”)
- U.S. Patent No. 7,450,598 (“Chen”)
- U.S. Patent No. 7,675,926 (“Olsen”)
- U.S. Patent No. 7,953,888 (“Ricciulli”)

4. U.S. Patent No. 7,593,400

- U.S. Patent No. 7,616,653 to Droux et al. (“Droux”)
- U.S. Patent No. 7,539,750 to Parker et al. (“Parker”)

5. U.S. Patent No. 9,118,602

- Awduche, D., Berger, L., Gan, D., Li, T., Srinivasan, V., and G. Swallow, “RSVP-TE: Extensions to RSVP for LSP Tunnels”, RFC 3209, DOI 10.17487/RFC3209, December 2001, <https://www.rfc-editor.org/info/rfc3209> (“RFC 3209”)
- Braden, R., Ed., Zhang, L., Berson, S., Herzog, S., and S. Jamin, “Resource ReSerVation Protocol (RSVP) -- Version 1 Functional Specification”, RFC 2205, DOI 10.17487/RFC2205, September 1997, <https://www.rfc-editor.org/info/rfc2205> (“RFC 2205”)
- “IEEE Standard for Information Technology - Local and Metropolitan Area Networks - Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications-Aggregation of Multiple Link Segments,” in IEEE Std 802.3ad-2000, vol., no., pp.1-184, 28 June 2000, doi: 10.1109/IEEESTD.2000.91610 (“IEEE Standard”)
- Kireeti Kompella, “Internet Draft: Link Bundling in MPLS Traffic Engineering” Dec. 2004, Internet Engineering Task Force, <tools.ietf.org/id/draft-ietf-mpls-bundle-06.txt> (“Kompella”)
- Retana, A., White, R., Fuller, V., and D. McPherson, “Using 31-Bit Prefixes on IPv4 Point-to-Point Links”, RFC 3021, DOI 10.17487/RFC3021, December 2000, <https://www.rfc-editor.org/info/rfc3021> (“RFC 3021”).

- Rosen, E., Viswanathan, A., and R. Callon, “Multiprotocol Label Switching Architecture”, RFC 3031, DOI 10.17487/RFC3031, January 2001, <https://www.rfc-editor.org/info/rfc3031> (“RFC 3031”)
- U.S. Patent No. 6,977,932 to Hauck (“Hauk”)
- U.S. Patent No. 7,260,097 to Casey (“Casey”)
- U.S. Patent No. 7,277,386 to Ferguson et al. (“Ferguson”)
- U.S. Patent No. 7,203,762 to Yamada et al. (“Yamada”)
- U.S. Patent No. 7,466,697 to Raz et al. (“Raz”)
- U.S. Patent No. 7,477,657 to Murphy et al. (“Murphy”)
- U.S. Patent No. 7,519,056 to Ishwar et al. (“Ishwar”)
- U.S. Patent No. 7,606,235 to Ayyangar et al. (“Ayyangar”)
- U.S. Patent No. 7,974,284 to Chen et al. (“Chen”)
- U.S. Patent No. 7,983,286 to Rekhter (“Rekhter”)
- U.S. Patent No. 8,005,096 to Hardy et al. (“Hardy”)
- U.S. Patent No. 8,312,145 to Rabie et al. (“Rabie”)
- U.S. Patent No. 8,693,323 to McDysan (“McDysan”)
- U.S. Patent Publication No. 2002/101868 to Clear et al. (“Clear”)
- U.S. Patent Publication No. 2003/0152024 to Yang et al. (“Yang”)
- U.S. Patent Publication No. 2003/0020976 to Krishnaswamy et al (“Krishnaswamy”)
- U.S. Patent Publication No. 2003/0174706 to Shankar et al. (“Shankar”)
- U.S. Patent Publication No. 2004/0107285 to Larson et al. (“Larson”)

B. Identification of Prior Art

Cisco identifies the following prior art now known to Cisco that anticipates or renders obvious one or more of the Asserted Claims. Each of the following patents, publications, systems, and products is prior art under at least one or more of 35 U.S.C. § 102(a), (b), (e), (f), or (g) (pre-

AIA) or § 102(a) (post-AIA), as applicable. Cisco's reliance on each prior art reference identified throughout these Preliminary Invalidity Contentions includes the reference itself, anything incorporated by the reference, and any testimony by those with knowledge of the reference, such as named authors and inventors. On information and belief, each listed document or item became prior art at least as early as the dates specified.

To the extent any limitation of any of the Asserted Claims is construed to have a similar meaning, or to encompass similar feature(s) and/or function(s), with any other claim limitation, and to the extent at least one claim chart in Exhibits A-1 to E-7 hereto identifies any prior art reference as disclosing or teaching such similarly construed claim limitation, such identified prior art reference and Cisco's contentions with respect to same are incorporated by reference. Priority dates identified for the prior art references are based on information currently available to Cisco, and Cisco will amend this disclosure to the extent additional information becomes available.

To the extent that they are prior art, Cisco reserves the right to rely upon (1) foreign counterparts of the U.S. Patents identified in Cisco's Preliminary Invalidity Contentions, (2) U.S. counterparts of foreign patents and foreign patent applications identified in Cisco's Preliminary Invalidity Contentions, and (3) U.S. and foreign patents and patent applications corresponding to articles and publications identified in Cisco's Preliminary Invalidity Contentions.

The prior art identified below is exemplary; the claimed features are similarly described or disclosed in additional prior art. Thus, Cisco reserves the right to rely on other evidence of the prior art beyond the example references identified, including the prior art identified in Section III.A.

The primary references identified below, and as further described in Exhibits A-1 to E-7, each discloses, either expressly or inherently, every element of the Asserted Claims, thereby

anticipating those claims. To the extent Corrigent contends that any primary reference does not anticipate the Asserted Claims, it would have been obvious to combine or modify the primary references with concepts from other prior art, as explained herein and in Appendices A-E.

In particular, for each limitation of the Asserted Claims that Corrigent contends is not met by a particular primary reference, Cisco contends that the limitation (and claim as a whole) is obvious based on a combination of that particular primary reference with (1) any other primary reference disclosing that limitation, (2) any admitted prior art, as explained in the background of each patent or discussed in the file history, (3) any reference identified in Appendices A-E as disclosing that limitation, and/or (4) the knowledge of a person of ordinary skill in the art and/or any of the references and concepts discussed herein regarding the relevant background and state of the art. The specific combinations of prior art that Cisco contends render the Asserted Claims obvious are readily determinable as described herein, which is the most efficient manner of identifying the combinations in light of the fact that Corrigent has asserted 122 claims across five patents. Cisco's obviousness grounds for each dependent claim incorporate the obviousness grounds for the claim(s) from which the dependent claim depends in addition to any obviousness grounds identified in the charts for the dependent claim.

Cisco does not yet have the benefit of Corrigent's positions on the prior art, including what (if any) elements it contends are missing in each prior art reference, whether Corrigent agrees that a reference is in fact prior art, and whether Corrigent agrees that a person of ordinary skill in the art would be motivated to combine specific references. Cisco reserves the right to supplement these obviousness positions (including identifying additional prior art combinations and the associated reasons to combine) as discovery in the case progresses, including expert discovery.

1. U.S. Patent No. 6,957,369

• Prior Art Patents / Patent Publications

- KR 100279930 to Lee (“Lee”)
- U.S. H1,860 to Asthana et al. (“Asthana”)
- U.S. Patent No. 4,074,352 to Cook et al. (“Cook”)
- U.S. Patent No. 4,149,038 to Pitroda et al. (“Pitroda”)
- U.S. Patent No. 4,393,491 to Ashlock et al. (“Ashlock”)
- U.S. Patent No. 4,510,594 to Johnson, Jr. (“Johnson, Jr.”)
- U.S. Patent No. 4,881,230 to Clark (“Clark”)
- U.S. Patent No. 5,710,760 to Moll (“Moll”)
- U.S. Patent No. 6,052,362 to Somer (“Somer”)
- **Prior Invention Under § 102(g)**

For any of the prior art that Cisco has identified, Cisco may argue that the authors or inventors of that prior art invented the subject matter claimed in the ’369 patent prior to the filing date of the ’369 patent. Discovery has not started and Cisco will supplement as discovery begins.

- **Obviousness and Secondary References**

Cisco identifies each of the references listed above as primary references that render this patent anticipated, or at least obvious in view of the knowledge of a person of ordinary skill in the art. In addition, these primary references may be combined with each other or with the secondary references listed below to render this patent obvious under 35 U.S.C. § 103. One of ordinary skill in the art would be motivated to combine these references as explained in Section III.D:

- U.S. Patent No. 4,685,102 to Lewis (“Lewis”)
- U.S. Patent No. 5,321,393 to Carlton et al. (“Carlton”)
- Postel, J., “Internet Control Message Protocol”, STD 5, RFC 792, DOI 10.17487/RFC0792, September 1981, <https://www.rfc-editor.org/info/rfc792> (“RFC 792”).

- Deering, S., “Host extensions for IP multicasting”, STD 5, RFC 1112, DOI 10.17487/RFC1112, August 1989, <https://www.rfc-editor.org/info/rfc1112> (“RFC 1112”).
- Kessler, G., "A Primer On Internet and TCP/IP Tools", STD 5, RFC 1739, December 1994, <<https://datatracker.ietf.org/doc/html/rfc1739>>.

2. **U.S. Patent No. 7,113,485**

• **Prior Art Patents / Patent Publications**

- U.S. Patent No. 5,450,394 (“Gruber”)
- U.S. Patent No. 6,012,096 (“Link”)
- U.S. Patent No. 6,052,726 (“Fontenot”)
- U.S. Patent No. 6,212,171 (“LaFollette”)
- U.S. Patent No. 6,363,053 (“Schuster”)
- U.S. Patent No. 6,366,563 (“Weldon”)
- U.S. Patent No. 6,445,681 (“Pogrebinsky”)
- U.S. Patent No. 6,545,979 (“Poulin”)
- U.S. Patent No. 6,711,137 (“Klassen”)
- U.S. Patent No. 6,717,917 (“Weissberger”)
- U.S. Patent No. 6,975,656 (“Madhavapeddi”)
- U.S. Patent No. 7,154,858 (“Zhang”)
- U.S. Patent No. 7,212,490 (“Kao”)
- U.S. Patent Application Publication No. 2003/0016627 (“MeLampy”)

• **Prior Art Systems**

Cisco identifies the following systems—including constituent software, hardware, methods, and processes—as prior art that anticipate or render obvious the Asserted Claims of this

patent. Each system (1) was known or used in this country before the alleged invention of the claimed subject matter of the patent-in-suit; (2) was in public use and/or on sale in this country more than one year before the filing date of the application for the patent-in-suit; and/or (3) was invented and not abandoned, suppressed, or concealed prior to the alleged invention of the patent-in-suit. Discovery is ongoing and Cisco will supplement as discovery continues.

- **Prior Invention Under § 102(g)**

For any of the prior art that Cisco has identified, Cisco may argue that the authors or inventors of that prior art invented the subject matter claimed in the '485 patent prior to the filing date of the '485 patent. Discovery is ongoing and Cisco will supplement as discovery continues.

- **Obviousness and Secondary References**

Cisco identifies each of the references listed above as primary references that render this patent anticipated, or at least obvious in view of the knowledge of a person of ordinary skill in the art. In addition, these primary references may be combined with each other or with the secondary references listed below to render this patent obvious under 35 U.S.C. § 103. One of ordinary skill in the art would be motivated to combine these references as explained in Section III.D:

- Postel, J., "Internet Control Message Protocol", STD 5, RFC 792, DOI 10.17487/RFC0792, September 1981, <https://www.rfc-editor.org/info/rfc792> ("RFC 792")
- U.S. Patent No. 5,701,302 ("Geiger")
- U.S. Patent No. 6,252,891 ("Perches")

3. U.S. Patent No. 7,330,431

- **Prior Art Patents / Patent Publications**

- U.S. Patent App. Pub. No. 2002/0118646 ("Saint Etienne")
- U.S. Patent App. Pub. No. 2003/0147400 ("Devi 400")

- U.S. Patent App. Pub. No. 2004/0095946 (“Baker 946”)
- U.S. Patent App. Pub. No. 2004/0174884 (“Wright 884”)
- U.S. Patent App. Pub. No. 2004/0193724 (“Dziong”)
- U.S. Patent No. 5,768,271 (“Seid”)
- U.S. Patent No. 6,104,699 (“Holender”)
- U.S. Patent No. 6,331,986 (“Mitra”)
- U.S. Patent No. 6,757,247 (“Zheng”)
- U.S. Patent No. 6,976,087 (“Westfall”)
- U.S. Patent No. 7,173,936 (“Semaan”)
- U.S. Patent No. 7,269,177 (“Baker 177”)
- U.S. Patent No. 7,382,801 (“Wright 801”)

- **Prior Art Systems**

Cisco identifies the following systems—including constituent software, hardware, methods, and processes—as prior art that anticipate or render obvious the Asserted Claims of this patent. Each system (1) was known or used in this country before the alleged invention of the claimed subject matter of the patent-in-suit; (2) was in public use and/or on sale in this country more than one year before the filing date of the application for the patent-in-suit; and/or (3) was invented and not abandoned, suppressed, or concealed prior to the alleged invention of the patent-in-suit. Discovery is ongoing and Cisco will supplement as discovery continues.

- **Prior Invention Under § 102(g)**

For any of the prior art that Cisco has identified, Cisco may argue that the authors or inventors of that prior art invented the subject matter claimed in the ’431 patent prior to the filing date of the ’431 patent. Discovery is ongoing and Cisco will supplement as discovery continues.

- **Obviousness and Secondary References**

Cisco identifies each of the references listed above as primary references that render this patent anticipated, or at least obvious in view of the knowledge of a person of ordinary skill in the art. In addition, these primary references may be combined with each other or with the secondary references listed below to render this patent obvious under 35 U.S.C. § 103. One of ordinary skill in the art would be motivated to combine these references as explained in Section III.D:

- Margalit, N., “Star versus ring topologies in metropolitan area network applications,” Lightwave (Sept. 1, 1999), <https://www.lightwaveonline.com/network-design/article/16648659/star-versus-ring-topologies-in-metropolitannetwork-applications> (“Margalit”)
- U.S. Patent App. Pub. No. 2002/0103924 (“Nomura”)
- U.S. Patent App. Pub. No. 2003/0128706 (“Mark”)
- U.S. Patent No. 5,583,860 (“Iwakawa”)
- U.S. Patent No. 6,430,150 (“Azuma”)
- U.S. Patent No. 7,155,120 (“Ofek”)
- U.S. Patent No. 7,308,198 (“Chudak”)

4. U.S. Patent No. 7,593,400

- **Prior Art Patents / Patent Publications**

- U.S. Patent Pub. No. 2005/0198371 to Smith et al. (“Smith”)
- U.S. Patent Pub. No. 2005/0163115 to Dontu et al. (“Dontu”)
- JP2005/086668 to Ishimori et al. (“Ishimori”)
- U.S. Patent No. 7,877,483 to Finn (“Finn”)
- U.S. Patent No. 6,735,198 to Edsall et al. (“Edsall”)
- U.S. Patent No. 7,483,999 to Weyman (“Weyman”)

- **Prior Art Systems**

Cisco identifies the following systems—including constituent software, hardware, methods, and processes—as prior art that anticipate or render obvious the Asserted Claims of this patent. Each system (1) was known or used in this country before the alleged invention of the claimed subject matter of the patent-in-suit; (2) was in public use and/or on sale in this country more than one year before the filing date of the application for the patent-in-suit; and/or (3) was invented and not abandoned, suppressed, or concealed prior to the alleged invention of the patent-in-suit. Cisco reserves the right to rely on the below systems themselves as prior art, as well as any of the references describing these systems individually or in any combination, as well as testimony from any inventor or developer of these systems. Discovery is ongoing and Cisco will supplement as discovery continues.

- Cisco Catalyst 6000 Series
- Cisco Catalyst 6500 Series
- Cisco GSR Router Family
- Cisco CSR Router Family
- Cisco ONS 15454 ML Series Ethernet Line Cards

- **Prior Invention Under § 102(g)**

For any of the prior art that Cisco has identified, Cisco may argue that the authors or inventors of that prior art invented the subject matter claimed in the '400 patent prior to the filing date of the '400 patent. Discovery is ongoing and Cisco will supplement as discovery continues.

- **Obviousness and Secondary References**

Cisco identifies each of the references listed above as primary references that render this patent anticipated, or at least obvious in view of the knowledge of a person of ordinary skill in the

art. In addition, these primary references may be combined with each other or with the secondary references listed below to render this patent obvious under 35 U.S.C. § 103. One of ordinary skill in the art would be motivated to combine these references as explained in Section III.D:

- U.S. Patent Pub. No. 2006/0109802 to Zelig et al. (“Zelig”)
- U.S. Patent No. 7,120,834 to Bishara (“Bishara”)
- U.S. Patent Pub. No. 2003/0147387 to Devi et al. (“Devi 1”)
- U.S. Patent Pub. No. 2005/0286537 to Shimada (“Shimada”)
- U.S. Patent No. 7,551,616 to Devi (“Devi 2”)
- U.S. Patent No. 6,829,651 to Bass et al. (“Bass”)
- U.S. Patent No. 7,778,250 to Pang et al. (“Pang”)
- U.S. Patent No. 7,715,310 to Sajassi et al. (“Sajassi”)
- U.S. Patent No. 7,619,966 to Lee (“Lee”)
- U.S. Patent Pub. No. 2003/0208631 to Matters et al. (“Matters”)

5. U.S. Patent No. 9,118,602

- **Prior Art Patents / Patent Publications**

- U.S. Patent No. 6,977,932 to Hauk (“Hauk”)
- U.S. Patent No. 7,277,386 to Ferguson et al. (“Ferguson”)
- U.S. Patent No. 7,447,657 to Murphy et al. (“Murphy”)
- U.S. Patent No. 7,466,657 to Raz (“Raz”)
- U.S. Patent No. 7,519,056 to Ishwar et al. (“Ishwar”)
- U.S. Patent No. 7,606,235 to Ayyanger et al. (“Ayyanger”)
- U.S. Patent No. 8,005,096 to Hardy et al. (“Hardy”)

- **Prior Art Publications**

- Awduche, D., Berger, L., Gan, D., Li, T., Srinivasan, V., and G. Swallow, "RSVP-TE: Extensions to RSVP for LSP Tunnels", RFC 3209, DOI 10.17487/RFC3209, December 2001, <https://www.rfc-editor.org/info/rfc3209> ("RFC 3209")
- Braden, R., Ed., Zhang, L., Berson, S., Herzog, S., and S. Jamin, "Resource ReSerVation Protocol (RSVP) -- Version 1 Functional Specification", RFC 2205, DOI 10.17487/RFC2205, September 1997, <https://www.rfc-editor.org/info/rfc2205> ("RFC 2205")
- Kireeti Kompella, "Internet Draft: Link Bundling in MPLS Traffic Engineering" Dec. 2004, Internet Engineering Task Force, <tools.ietf.org/id/draft-ietf-mpls-bundle-06.txt> ("Kompella")
- Retana, A., White, R., Fuller, V., and D. McPherson, "Using 31-Bit Prefixes on IPv4 Point-to-Point Links", RFC 3021, DOI 10.17487/RFC3021, December 2000, <https://www.rfc-editor.org/info/rfc3021> "RFC 3021")
- Rosen, E., Viswanathan, A., and R. Callon, "Multiprotocol Label Switching Architecture", RFC 3031, DOI 10.17487/RFC3031, January 2001, <https://www.rfc-editor.org/info/rfc3031> ("RFC 3031")
- "IEEE Standard for Information Technology - Local and Metropolitan Area Networks - Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications-Aggregation of Multiple Link Segments," in IEEE Std 802.3ad-2000, vol., no., pp.1-184, 28 June 2000, doi: 10.1109/IEEESTD.2000.91610 ("IEEE Standard")

- **Prior Art Systems**

Cisco identifies the following systems—including constituent software, hardware, methods, and processes—as prior art that anticipate or render obvious the Asserted Claims of this patent. Each system (1) was known or used in this country before the alleged invention of the claimed subject matter of the patent-in-suit; (2) was in public use and/or on sale in this country more than one year before the filing date of the application for the patent-in-suit; and/or (3) was invented and not abandoned, suppressed, or concealed prior to the alleged invention of the patent-in-suit. Discovery is ongoing and Cisco will supplement as discovery continues.

- **Prior Invention Under § 102(g)**

For any of the prior art that Cisco has identified, Cisco may argue that the authors or inventors of that prior art invented the subject matter claimed in the '144 patent prior to the filing date of the '144 patent. Discovery is ongoing and Cisco will supplement as discovery continues.

- **Obviousness and Secondary References**

Cisco identifies each of the references listed above as primary references that render this patent anticipated, or at least obvious in view of the knowledge of a person of ordinary skill in the art. In addition, these primary references may be combined with each other or with the secondary references listed below to render this patent obvious under 35 U.S.C. § 103. One of ordinary skill in the art would be motivated to combine these references as explained in Section III.D:

- U.S. Patent No. 6,499,061 to Benayoun et al. (“Benayoun”)
- U.S. Patent No. 7,203,762 to Yamada et al. (“Yamada”)
- U.S. Patent Publication No. 2002/101868 to Clear et al. (“Clear”)
- U.S. Patent Publication No. 2003/0152024 to Yang et al. (“Yang”)

C. Claim Charts

Charts specifically identifying where each element of each Asserted Claim is found in the prior art, either expressly or inherently, are found in Exhibits A-1–E-7. However, this prior art is exemplary; the claimed features are similarly described or disclosed in other prior art.

In the claim charts included in this disclosure, Cisco identifies specific portions of prior art references that disclose or render obvious the elements of the Asserted Claims. Although Cisco has identified at least one citation per element, each and every disclosure of the same element in a given reference is not necessarily identified. That Cisco did not identify each similar disclosure should not be construed as a concession by Cisco that such disclosure is not relevant. It should be recognized that a person of ordinary skill in the art would generally read a prior art reference as a whole and in the context of other publications, literature, and general knowledge in the field. To

understand and interpret any specific statement or disclosure in a prior art reference, a person of ordinary skill in the art would rely upon other information including other publications and general scientific or engineering knowledge.

Where Cisco identifies a particular figure in a prior art reference, the identification should be understood to encompass the caption and description of the figure as well as any text relating to the figure in the specification and prosecution history in addition to the figure itself. Similarly, where an identified portion of text refers to a figure or other material, the identification should be understood to include the referenced figure or other material as well.

Certain pieces of identified prior art disclose features of the Asserted Claims inherently. Cisco may rely on any evidence, including expert testimony, to establish the inherency of certain features of the prior art to invalidate the Asserted Claims.

D. Motivations to Combine Prior Art

Cisco believes that no showing of a specific motivation to combine prior art is required to combine the references disclosed in the attached charts; there was a reason to make each combination, each combination of art would have produced no unexpected results, and each combination at most would simply represent a known alternative to one of ordinary skill in the art. *See KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 414–18 (2007) (rejecting the Federal Circuit's "rigid" application of the teaching, suggestion, or motivation to combine test instead espousing an "expansive and flexible" approach). Indeed, the Supreme Court held that a person of ordinary skill in the art is "a person of ordinary creativity, not an automaton" and "in many cases a person of ordinary skill in the art will be able to fit the teachings of multiple patents together like a pieces of a puzzle." *Id.* at 420–21.

In view of *KSR*, the PTO issued a set of new Examination Guidelines. *See Examination Guidelines for Determining Obviousness Under 35 U.S.C. § 103 in View of the Supreme Court*

Decision in *KSR International Co. v. Teleflex Inc.*, 72 Fed. Reg. 57,526 (Oct. 10, 2007). Those Guidelines identified various rationales for finding a claim obvious, including:

- a) Combining prior art elements according to known methods to yield predictable results;
- b) Simple substitution of one known element for another to obtain predictable results;
- c) Use of known technique to improve similar devices (methods, or products) in the same way;
- d) Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results;
- e) “Obvious to try”—choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success;
- f) Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations would have been predictable to one of ordinary skill in the art;
- g) Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

Id. at 57,529.

In addition, the motivation to combine or modify prior art references is significantly stronger when, as here, the references seek to solve the same problem, come from the same field, and correspond well. *In re Inland Steel Co.*, 265 F.3d 1354, 1362 (Fed. Cir. 2001) (allowing two references to be combined as invalidating art under similar circumstances where the art “focus[ed] on the same problem . . . [,] c[a]me from the same field of art [and] . . . the identified problem found in the two references correspond[ed] well”).

Cisco has identified several exemplary motivations and reasons to combine the various references cited herein, and those motivations would have been supported, in part, by a reasonable expectation of success. The various teachings, suggestions, and/or reasons to modify any of the references and/or to combine any two or more of the references in Exhibits A-1 to E-7 come from

various sources, including the prior art (specific and as a whole), common knowledge, common sense, predictability, expectations, industry trends, design incentives or need, market demand or pressure, market forces, the nature of the problem faced, and/or the knowledge possessed by one of ordinary skill in the art. In addition, it would have been obvious to try combining the prior art references identified above.

These exemplary combinations demonstrate that there were only a finite number of predictable solutions to known problems addressed by the Asserted Patents. Furthermore, known work in one field or endeavor prompted variations based on predictable design incentives and/or market forces either in the same field or a different one. The combination of features found in the prior art references identified in these contentions would have been obvious because the claimed combinations represent the known potential options, with each such option having a reasonable expectation of success. Additionally, one of ordinary skill in the art would have been motivated to create combinations identified in these contentions using: known methods to yield predictable results; known techniques in the same way; a simple substitution of one known, equivalent element for another to obtain predictable results; and/or teaching, suggestion, or motivation in the prior art generally. Also, market forces in the industry, and the desire to improve features and performance, would motivate the addition of features to systems as they become available, become less expensive, become more commonly used, provide better performance and reliability, reduce costs, or predictably achieve other clearly desirable results.

To the extent Corrigent alleges that any other claimed limitation or limitations are not disclosed in any primary reference, it would have been obvious to combine the teachings of the reference with the background knowledge of a person of ordinary skill in the art and/or it would have been obvious to incorporate the missing limitation(s), including as disclosed in Exhibits A-1

to E-7, into the primary reference for the reasons disclosed herein. For example, one of ordinary skill in the art would have found substantial motivation to combine one or more of the primary references with one more of each other or the secondary references in order to disclose the alleged inventions recited in the Asserted Claims. Each of the references disclosed herein as invalidating an Asserted Patent was directed at the same or similar field of technology and the same or similar problem as that Asserted Patent. To the extent Corrigent alleges that any particular claim limitation is alleged to not be disclosed or inherent in the charted references, it would have been obvious to combine the charted reference with one or more of the references identified herein for the particular claim limitations. Also, as Cisco is currently unaware of the extent, if any, to which Corrigent will contend that limitations of the Asserted Claims are not disclosed in the art identified herein as anticipatory, Cisco reserves the right to identify other references and combinations that may render an allegedly missing limitation obvious. In addition, if and to the extent that Corrigent challenges the relevance of any of these references with respect to particular limitations of the Asserted Claims of the Asserted Patents, Cisco reserves its right to identify further motivation to combine particular references with additional particularity.

1. U.S. Patent No. 6,957,369

• Background State of the Art

The background state of the art includes that which is set forth in the patent, the file history, and the prior art references disclosed herein. For example, the '369 patent refers to backplane configurations being well-known prior to the patent. '369 patent, 1:25-26. The '369 patent further explains that it was well-known to use a backplane to connect a main module with subsidiary modules. *Id.* at 1:26-36. The '369 patent also explains that main and subsidiary modules had processors which could be used for self-test. *Id.* Further, the '369 patent explains that functionalities such as serializer/deserializer (SERDES) interfaces, and Simple Network

Management Protocol (SNMP) were known in the art. According to the patent, other techniques to self-test backplane-based equipment like dedicated self-test circuits and test vectors were known in the art. *Id.* at 1:37-46.

- **Exemplary Motivation to Combine**

Cisco has identified several exemplary motivations and reasons to combine the various references cited herein. For any reference for which there is a claim element that does not have a corresponding citation in that reference, it would be obvious to combine with the knowledge or a person of skill and/or any other reference in the primary or secondary charts for which there is a citation for that element. These combinations would have been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field.

- For the Asserted Claims of the '369 patent, to the extent the references charted in any of Exhibits A-1 to A-9 do not disclose “an electronic system that includes a main module and at least first and second subsidiary modules, each of said at least first and second subsidiary modules connected to the main module by one or more lines for carrying data, at least some of which lines are sometimes idle, the main module including a switch having ports connected to the lines, a method for self-testing the system,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix A, including at least Lewis, Carlton, RFC 792, and RFC 1739. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. For example, a person of skill in the art would look to RFC 792 and RFC 1739 in order to comply with industry standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known

techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the '369 patent, to the extent the references charted in any of Exhibits A-1 to A-9 do not disclose “selecting a first idle line among idle lines connecting the first subsidiary module to a first port of the switch on the main module to serve as an aid line,” an electronic system that includes a main module and at least first and second subsidiary modules, each of said at least first and second subsidiary modules connected to the main module by one or more lines for carrying data, at least some of which lines are sometimes idle, the main module including a switch having ports connected to the lines, a method for self-testing the system,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix A, including at least Lewis, Carlton, RFC 792, and RFC 1739. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. For example, a person of skill in the art would look to RFC 792 and RFC 1739 in order to comply with industry standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '369 patent, to the extent the references charted in any of Exhibits A-1 to A-9 do not disclose “instructing the first subsidiary module to loop back traffic reaching the first subsidiary module via the aid line,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix A, including at least Lewis, Carlton, RFC 792, and RFC 1739. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. For example, a person of skill in the art would look to RFC 792 and RFC 1739 in order to comply with industry standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known

techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the '369 patent, to the extent the references charted in any of Exhibits A-1 to A-9 do not disclose “selecting for testing a second idle line among the idle lines connecting the second subsidiary module to a second port of the switch on the main module,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix A, including at least Lewis, Carlton, RFC 792, and RFC 1739. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. For example, a person of skill in the art would look to RFC 792 and RFC 1739 in order to comply with industry standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '369 patent, to the extent the references charted in any of Exhibits A-1 to A-9 do not disclose “configuring the switch to link the first and second ports,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix A, including at least Lewis, Carlton, RFC 792, and RFC 1739. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. For example, a person of skill in the art would look to RFC 792 and RFC 1739 in order to comply with industry standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '369 patent, to the extent the references charted in any of Exhibits A-1 to A-9 do not disclose “transmitting test traffic over the second idle line from the second subsidiary module to the main module, wherein 20 the test traffic is conveyed

via the switch to the aid line connecting to the first subsidiary module,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix A, including at least Lewis, Carlton, RFC 792, and RFC 1739. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. For example, a person of skill in the art would look to RFC 792 and RFC 1739 in order to comply with industry standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the '369 patent, to the extent the references charted in any of Exhibits A-1 to A-9 do not disclose “reporting that a failure has occurred if the test traffic does not return to the second subsidiary module within a predetermined period of time,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix A, including at least Lewis, Carlton, RFC 792, and RFC 1739. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. For example, a person of skill in the art would look to RFC 792 and RFC 1739 in order to comply with industry standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '369 patent, to the extent the references charted in any of Exhibits A-1 to A-9 do not disclose “instructing the first subsidiary module comprises configuring the first subsidiary module to loop back the traffic to the main module substantially without processing data comprised in the test traffic,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix A, including at least Lewis, Carlton, RFC 792, and RFC 1739. A person of skill in the art would be motivated to combine these references because

they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. For example, a person of skill in the art would look to RFC 792 and RFC 1739 in order to comply with industry standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the '369 patent, to the extent the references charted in any of Exhibits A-1 to A-9 do not disclose “the first and second subsidiary modules are configured to transmit and receive data in different, respective first and second formats, and wherein the test traffic transmitted from the second subsidiary module and looped back by the first subsidiary module is in the second format,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix A, including at least Lewis, Carlton, RFC 792, and RFC 1739. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. For example, a person of skill in the art would look to RFC 792 and RFC 1739 in order to comply with industry standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '369 patent, to the extent the references charted in any of Exhibits A-1 to A-9 do not disclose “selecting one or more further idle lines for testing among the idle lines in the system, wherein the further idle lines connect to further ports of the switch on the main module; and repeating the configuring the switch, transmitting the test traffic, and reporting that the failure has occurred with respect to the further idle lines until all the idle lines have been tested,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix A, including at least Lewis, Carlton, RFC 792, and RFC 1739. A person of skill in the art would be motivated to combine these references because they each disclose

computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. For example, a person of skill in the art would look to RFC 792 and RFC 1739 in order to comply with industry standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the '369 patent, to the extent the references charted in any of Exhibits A-1 to A-9 do not disclose “the main module and said at least first and second subsidiary modules comprise cards, which are plugged into a backplane, and wherein the lines comprise traces on the backplane,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix A, including at least Lewis, Carlton, RFC 792, and RFC 1739. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. For example, a person of skill in the art would look to RFC 792 and RFC 1739 in order to comply with industry standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '369 patent, to the extent the references charted in any of Exhibits A-1 to A-9 do not disclose “sending the message comprises transmitting a synchronization packet from the first line card via a switching core of the network node to at least the second line card,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix A, including at least Lewis, Carlton, RFC 792, and RFC 1739. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many

features and functionalities were standardized by different standard organizations, e.g., IEEE. For example, a person of skill in the art would look to RFC 792 and RFC 1739 in order to comply with industry standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the '369 patent, to the extent the references charted in any of Exhibits A-1 to A-9 do not disclose “wherein transmitting the test traffic comprises testing the second idle line while continuing to use the lines that are not idle for carrying the data to the network communication trunk,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix A, including at least Lewis, Carlton, RFC 792, and RFC 1739. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. For example, a person of skill in the art would look to RFC 792 and RFC 1739 in order to comply with industry standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '369 patent, to the extent the references charted in any of Exhibits A-1 to A-9 do not disclose “modular electronic apparatus,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix A, including at least Lewis, Carlton, RFC 792, and RFC 1739. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. For example, a person of skill in the art would look to RFC 792 and RFC 1739 in order to comply with industry standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable

expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the '369 patent, to the extent the references charted in any of Exhibits A-1 to A-9 do not disclose “a backplane, which comprises traces for carrying data between modules that are plugged into the backplane,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix A, including at least Lewis, Carlton, RFC 792, and RFC 1739. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. For example, a person of skill in the art would look to RFC 792 and RFC 1739 in order to comply with industry standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '369 patent, to the extent the references charted in any of Exhibits A-1 to A-9 do not disclose “a main module, plugged into the backplane, the main module comprising a switch having ports for connection to the traces of the backplane,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix A, including at least Lewis, Carlton, RFC 792, and RFC 1739. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. For example, a person of skill in the art would look to RFC 792 and RFC 1739 in order to comply with industry standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the '369 patent, to the extent the references charted in any of Exhibits A-1 to A-9 do not disclose “at least first and second subsidiary modules, plugged into the backplane so as to be connected to the main module by the traces, at least some of which traces are sometimes idle,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix A, including at least Lewis, Carlton, RFC 792, and RFC 1739. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. For example, a person of skill in the art would look to RFC 792 and RFC 1739 in order to comply with industry standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '369 patent, to the extent the references charted in any of Exhibits A-1 to A-9 do not disclose “a system control processor, which is operative to select a first idle trace among idle traces connecting the first subsidiary module to a first port of the switch on the main module to serve as an aid trace,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix A, including at least Lewis, Carlton, RFC 792, and RFC 1739. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. For example, a person of skill in the art would look to RFC 792 and RFC 1739 in order to comply with industry standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '369 patent, to the extent the references charted in any of Exhibits A-1 to A-9 do not disclose “to select for testing a second idle trace among the idle traces connecting the second subsidiary module to a second port of the switch on the main module,” it would have been obvious to combine any of these charted references with any

of the other charted references or those detailed in Appendix A, including at least Lewis, Carlton, RFC 792, and RFC 1739. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. For example, a person of skill in the art would look to RFC 792 and RFC 1739 in order to comply with industry standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the '369 patent, to the extent the references charted in any of Exhibits A-1 to A-9 do not disclose “to select for testing a second idle trace among the idle traces connecting the second subsidiary module to a second port of the switch on the main module,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix A, including at least Lewis, Carlton, RFC 792, and RFC 1739. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. For example, a person of skill in the art would look to RFC 792 and RFC 1739 in order to comply with industry standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '369 patent, to the extent the references charted in any of Exhibits A-1 to A-9 do not disclose “to configure the switch to link the first and second ports,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix A, including at least Lewis, Carlton, RFC 792, and RFC 1739. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and

functionalities were standardized by different standard organizations, e.g., IEEE. For example, a person of skill in the art would look to RFC 792 and RFC 1739 in order to comply with industry standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the '369 patent, to the extent the references charted in any of Exhibits A-1 to A-9 do not disclose “the system control processor being further operative to cause test traffic to be transmitted over the second idle trace from the second subsidiary module to the main module, wherein the test traffic is conveyed via the switch to the aid trace connecting to the first subsidiary module, and to report that a failure has occurred if the test traffic does not return to the second subsidiary module within a predetermined period of time,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix A, including at least Lewis, Carlton, RFC 792, and RFC 1739. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. For example, a person of skill in the art would look to RFC 792 and RFC 1739 in order to comply with industry standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '369 patent, to the extent the references charted in any of Exhibits A-1 to A-9 do not disclose “the first subsidiary module is configured, under control of the system control processor, to loop back the traffic on the aid trace to the main module substantially without processing data comprised in the test traffic,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix A, including at least Lewis, Carlton, RFC 792, and RFC 1739. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. For example, a person of skill in the art would

look to RFC 792 and RFC 1739 in order to comply with industry standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

2. U.S. Patent No. 7,113,485

- **Background State of the Art**

The background state of the art includes that which is set forth in the patent, the file history, and the prior art references disclosed herein. For example, the '485 patent, which is entitled “Latency Evaluation in a Ring Network,” generally relates to measuring latency in a bi-directional ring network. *See* '485 patent, Abstract. Latency is the difference between the time of transmission and the time of receipt of a data packet. *See id.* at 7:17–9:65. The patent also describes how data packets commonly are classified into various classes of service, which determine the quality of service (QoS) the user is entitled to receive, including mean latency of packet delivery. *See id.* at 1:56–63. According to the patent, latency is particularly important for real time services like voice and video. *Id.* at 1:63–64.

The patent acknowledges that “[m]ethods of network latency measurement are known in the art.” *Id.* at 2:1–4 (citing U.S. Patent No. 5,235,593 (“Grow”)). The patent purports to improve upon “methods and devices for measuring network latency, particularly in ring topologies.” *Id.* at 2:59–61. Specifically, the patent identifies a drawback in the prior art where the latency measurement includes processing time of the packet at the destination node. *See id.* at 2:41–45. To obtain a round-trip latency that is more accurate, the patent simply “subtracts out the measured turnaround time.” *Id.* at 3:48–52. The claims recite measuring latency by sending

a packet in a particular class of service and subtracting the time it was sent from the time it returned. *See id.* at 9:54–64.

- **Exemplary Motivation to Combine**

Cisco has identified several exemplary motivations and reasons to combine the various references cited herein. For any reference for which there is a claim element that does not have a corresponding citation in that reference, it would be obvious to combine with the knowledge or a person of skill and/or any other reference in the primary or secondary charts for which there is a citation for that element. These combinations would have been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field.

- For the Asserted Claims of the '485 patent, to the extent the references charted in any of Exhibits B-1 to B-14 do not disclose “transmitting a latency measurement packet from an originating node to a peer node in the first direction in the network,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix B, including at least Madhavapeddi, MeLampy, Link, and Fortenot. A person of skill in the art would be motivated to combine these references because they each disclose measuring latency. It is the nature of the computer networking companies to monitor latency in order to assess network performance. A person of skill would have been motivated to look at how other products and systems measured latency and adopt similar solutions. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '485 patent, to the extent the references charted in any of Exhibits B-1 to B-14 do not disclose “noting a time of receipt of the packet at the peer node,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix B, including at least Madhavapeddi, MeLampy, Link, and Perches. A person of skill in the art would be motivated to combine these references because they each disclose measuring latency. It is the nature of the computer networking companies to monitor latency in order to assess network performance by noting a time in the packet. A person of skill would have been motivated to look at how other products and systems measured latency and adopt similar

solutions. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the '485 patent, to the extent the references charted in any of Exhibits B-1 to B-14 do not disclose “noting a time of return of the packet to the originating node, so as to determine an originating node difference between a time of transmission of the packet from the originating node to the peer node and the time of return of the packet to the originating node,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix B, including at least Madhavapeddi, MeLampy, Link, and Perches. A person of skill in the art would be motivated to combine these references because they each disclose measuring latency. It is the nature of the computer networking companies to monitor latency in order to assess network performance by noting a time in the packet. A person of skill would have been motivated to look at how other products and systems measured latency and adopt similar solutions. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '485 patent, to the extent the references charted in any of Exhibits B-1 to B-14 do not disclose “calculating the latency by taking a difference between the originating node difference and the peer node difference,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix B, including at least Madhavapeddi, MeLampy, Link, and Porgrebinsky. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor latency in order to assess network performance. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized in RFCs. A person of skill would have been motivated to look at how other products and systems measured latency and adopt similar solutions. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '485 patent, to the extent the references charted in any of Exhibits B-1 to B-14 do not disclose “wherein transmitting the latency measurement packet comprises recording in the packet an indication of a class of service on the network, and transmitting the packet at a level of service accorded to the class, and wherein calculating

the latency comprises determining the latency specific to the class of service,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix B, including at least Madhavapeddi, MeLampy, Kao, and Klassen. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor latency in order to assess network performance according to a class of service. A person of skill would have been motivated to look at how other products and systems measured latency and adopt similar solutions. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the ’485 patent, to the extent the references charted in any of Exhibits B-1 to B-14 do not disclose “wherein recording the indication of the peer node difference comprises recording in the packet the time of transmission of the packet from the peer node to the originating node and the time of receipt of the packet at the peer node, both measured with respect to a peer clock maintained at the peer node,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix B, including at least Madhavapeddi, MeLampy, Kao, and Schuster. A person of skill in the art would be motivated to combine these references because they each disclose measuring latency. It is the nature of the computer networking companies to monitor latency in order to assess network performance by measuring the time with respect to a peer clock. A person of skill would have been motivated to look at how other products and systems measured latency and adopt similar solutions. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the ’485 patent, to the extent the references charted in any of Exhibits B-1 to B-14 do not disclose “comprising recording in the packet the time of transmission of the packet from the originating node to the peer node measured with respect to an originating clock maintained at the originating node, and wherein noting the time of return of the packet comprises recording the time of return with respect to the originating clock,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix B, including at least Madhavapeddi, MeLampy, Porgrebinsky, and Perches. A person of skill in the art would be motivated to combine these references because they each disclose measuring latency. It is the nature of the computer networking companies to monitor latency in order to assess network performance by measuring the time with respect to an originating clock. A person of skill would have been motivated to look at how other products and systems measured latency and adopt similar solutions. These combinations would have also been obvious to

try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the '485 patent, to the extent the references charted in any of Exhibits B-1 to B-14 do not disclose “wherein transmitting the latency measurement packet comprises transmitting a plurality of latency measurement packets in sequence at given intervals, and wherein calculating the latency comprises calculating respective latencies of the packets returned to the originating node, so as to monitor a variation in the latencies,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix B, including at least Madhavapeddi, MeLampy, Kao, and Perches. A person of skill in the art would be motivated to combine these references because they each disclose measuring latency. It is the nature of the computer networking companies to monitor latency in order to assess network performance by using a plurality of latency measurement packets in sequence. A person of skill would have been motivated to look at how other products and systems measured latency and adopt similar solutions. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '485 patent, to the extent the references charted in any of Exhibits B-1 to B-14 do not disclose “wherein transmitting the plurality of the latency measurement packets comprises recording respective serial numbers in the packets in the sequence, and wherein calculating the respective latencies comprises disregarding the latencies of the packets returned to the originating node out of the sequence, as indicated by the serial numbers,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix B, including at least Madhavapeddi, MeLampy, Kao, and Perches. A person of skill in the art would be motivated to combine these references because they each disclose measuring latency. It is the nature of the computer networking companies to monitor latency in order to assess network performance by recording serial numbers in the packets in the sequence. A person of skill would have been motivated to look at how other products and systems measured latency and adopt similar solutions. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '485 patent, to the extent the references charted in any of Exhibits B-1 to B-14 do not disclose “wherein generating the latency measurement packet comprises generating a plurality of latency measurement packets, containing respective

indications that the packets belong respectively to the plurality of the classes of services, and wherein calculating the latency comprises determining the latency for each of the classes of service respectively,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix B, including at least Madhavapeddi, McLampy, Kao, and Schuster. A person of skill in the art would be motivated to combine these references because they each disclose measuring latency. It is the nature of the computer networking companies to monitor latency in order to assess network performance by indicating that the packets belong to a plurality of a classes of services. A person of skill would have been motivated to look at how other products and systems measured latency and adopt similar solutions. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the ’485 patent, to the extent the references charted in any of Exhibits B-1 to B-14 do not disclose “wherein the network comprises a ring network, and wherein transmitting the latency measurement packet comprises transmitting the packet around the ring network so that the destination node of the latency measurement packet is the source node, and wherein calculating the latency comprises determining the latency for the selected one of the classes of service for a full circuit of the ring network,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix B, including at least Madhavapeddi, McLampy, Kao, and Schuster. A person of skill in the art would be motivated to combine these references because they each disclose measuring latency. It is the nature of the computer networking companies to monitor latency in order to assess network performance where the latency measurement packet is transmitted around the ring network. A person of skill would have been motivated to look at how other products and systems measured latency and adopt similar solutions. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

3. U.S. Patent No. 7,330,431

- **Background State of the Art**

The background state of the art includes that which is set forth in the patent, the file history, and the prior art references disclosed herein. For example, the ’431 patent indicates that packet ring, complex mesh, and irregular network topologies were all known in the art prior to

the patent. '431 patent, 1:13-17. The '431 patent further notes a then-existing “leading bi-directional protocol for high speed packet rings” entitled the “Resilient Packet Ring (RPR) protocol, defined by IEEE Standard 802.17.” *Id.* at 1:17-19. Likewise, the '431 patent states that “guaranteed bandwidth” services and methods for bandwidth allocation in an IEEE 802.17 RPR network were also well-known. *Id.* at 1:20-46.

The '431 patent describes an embodiment of the invention as “built around a high-speed ring network . . . such as a SONET or SDH network,” having “data nodes” in pairs “connected by a physical network link . . . , which typically comprises a pair of wired, fiberoptic, and/or wireless links . . . that are configured to carry data traffic in clockwise and counterclockwise directions around the ring.” *Id.* at 6:38-47. All of these aspects of SONET or SDH networks were known prior to the '431 patent. Likewise, the '431 patent notes that its system “may be configured to support traffic of other types, in accordance with other protocols that are known in the art,” in addition to then-existing virtual private LAN and Ethernet networks. *Id.* at 6:66-7:7. And, the “network” of the embodiments in the '431 patent are “assumed to be configured as a bi-directional Resilient Packet Ring (RPR) network, as defined by the [existing] IEEE standard 802.17.” *Id.* at 7:7-11.

- **Exemplary Motivation to Combine**

Cisco has identified several exemplary motivations and reasons to combine the various references cited herein. For any reference for which there is a claim element that does not have a corresponding citation in that reference, it would be obvious to combine with the knowledge or a person of skill and/or any other reference in the primary or secondary charts for which there is a citation for that element. These combinations would have been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a

reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field.

- For the Asserted Claims of the '431 patent, to the extent the references charted in any of Exhibits C-1 to C-13 do not disclose “defining between the nodes logical connections associated with a data transmission service to be provided over the network, the logical connections having a connection topology different from the physical topology,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix C, including at least Margalit, Nomura, Mark, Iwakawa, Azuma, Ofek, and Chudak. A person of skill in the art would be motivated to combine these references because they each disclose the allocation of resources of an underlying physical topology for overlaid logical topologies. Resource allocation in an underlying physical network is essential to support logical networks having disparate classes of service and bandwidth requirements. A person of skill would have been motivated to look at how other products and systems allocated bandwidth in systems having different logical connection topologies and physical topologies, and adopt similar solutions. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '431 patent, to the extent the references charted in any of Exhibits C-1 to C-13 do not disclose “determining respective bandwidth requirements for the logical connections based on parameters of the service,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix C, including at least Margalit, Nomura, Mark, Iwakawa, Azuma, Ofek, and Chudak. A person of skill in the art would be motivated to combine these references because they each disclose the allocation of resources of an underlying physical topology for overlaid logical topologies. Resource allocation in an underlying physical network is essential to support logical networks having disparate classes of service and bandwidth requirements. A person of skill would have been motivated to look at how other products and systems determined bandwidth requirements for logical connections based on the parameters of a data transmission service, and adopt similar solutions. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the '431 patent, to the extent the references charted in any of Exhibits C-1 to C-13 do not disclose “mapping the connection topology to the physical topology, so that each of the logical connections is associated with one or more links of the physical topology,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix C, including at least Margalit, Nomura, Mark, Iwakawa, Azuma, Ofek, and Chudak. A person of skill in the art would be motivated to combine these references because they each disclose the allocation of resources of an underlying physical topology for overlaid logical topologies. Resource allocation in an underlying physical network is essential to support logical networks having disparate classes of service and bandwidth requirements. A person of skill would have been motivated to look at how other products and systems mapped a logical connection topology to a physical topology, and adopt similar solutions. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '431 patent, to the extent the references charted in any of Exhibits C-1 to C-13 do not disclose “allocating a bandwidth for the service on each of the links in response to the bandwidth requirements of the logical connections and to the mapping,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix C, including at least Margalit, Nomura, Mark, Iwakawa, Azuma, Ofek, and Chudak. A person of skill in the art would be motivated to combine these references because they each disclose the allocation of resources of an underlying physical topology for overlaid logical topologies. Resource allocation in an underlying physical network is essential to support logical networks having disparate classes of service and bandwidth requirements. A person of skill would have been motivated to look at how other products and systems allocated bandwidth to links of a physical topology in light of bandwidth requirements of logical connections and their mappings to the physical links, and adopt similar solutions. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '431 patent, to the extent the references charted in any of Exhibits C-1 to C-13 do not disclose “a ring network” or “a ring topology,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix C, including at least Margalit, Nomura, Mark, Iwakawa, Azuma, Ofek, and Chudak. A person of skill in the art would

be motivated to combine these references because they each disclose the allocation of resources of an underlying physical topology for overlaid logical topologies. Resource allocation in an underlying physical network is essential to support logical networks having disparate classes of service and bandwidth requirements. A person of skill would have been motivated to look at how other products and systems allocated bandwidth in networks having various physical topologies, and adopt similar solutions. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the '431 patent, to the extent the references charted in any of Exhibits C-1 to C-13 do not disclose “a hub-and-spoke topology” or “a full mesh topology,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix C, including at least Margalit, Nomura, Mark, Iwakawa, Azuma, Ofek, and Chudak. A person of skill in the art would be motivated to combine these references because they each disclose the allocation of resources of an underlying physical topology for overlaid logical topologies. Resource allocation in an underlying physical network is essential to support logical networks having disparate classes of service and bandwidth requirements. A person of skill would have been motivated to look at how other products and systems allocated bandwidth in networks having various logical connection topologies, and adopt similar solutions. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '431 patent, to the extent the references charted in any of Exhibits C-1 to C-13 do not disclose “a guaranteed bandwidth service,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix C, including at least Margalit, Nomura, Mark, Iwakawa, Azuma, Ofek, and Chudak. A person of skill in the art would be motivated to combine these references because they each disclose the allocation of resources of an underlying physical topology for overlaid logical topologies. Resource allocation in an underlying physical network is essential to support logical networks having disparate classes of service and bandwidth requirements. A person of skill would have been motivated to look at how other products and systems allocated bandwidth for various data transmission services, such as a guaranteed bandwidth service, and adopt similar solutions. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply

implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the '431 patent, to the extent the references charted in any of Exhibits C-1 to C-13 do not disclose “a class of service defined by a protocol under which the network operates,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix C, including at least Margalit, Nomura, Mark, Iwakawa, Azuma, Ofek, and Chudak. A person of skill in the art would be motivated to combine these references because they each disclose the allocation of resources of an underlying physical topology for overlaid logical topologies. Resource allocation in an underlying physical network is essential to support logical networks having disparate classes of service and bandwidth requirements. A person of skill would have been motivated to look at how other products and systems allocated bandwidth for various classes of service defined under then-existing network protocols, and adopt similar solutions. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '431 patent, to the extent the references charted in any of Exhibits C-1 to C-13 do not disclose “multiplying the bandwidth by a correction factor to determine an actual bandwidth,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix C, including at least Margalit, Nomura, Mark, Iwakawa, Azuma, Ofek, and Chudak. A person of skill in the art would be motivated to combine these references because they each disclose the allocation of resources of an underlying physical topology for overlaid logical topologies. Resource allocation in an underlying physical network is essential to support logical networks having disparate classes of service and bandwidth requirements. A person of skill would have been motivated to look at how other products and systems adjusted allocated bandwidths, and adopt similar solutions. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '431 patent, to the extent the references charted in any of Exhibits C-1 to C-13 do not disclose “generating a bandwidth requirement for each of the links,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix C, including at

least Margalit, Nomura, Mark, Iwakawa, Azuma, Ofek, and Chudak. A person of skill in the art would be motivated to combine these references because they each disclose the allocation of resources of an underlying physical topology for overlaid logical topologies. Resource allocation in an underlying physical network is essential to support logical networks having disparate classes of service and bandwidth requirements. A person of skill would have been motivated to look at how other products and systems generated bandwidth requirements for physical links, and adopt similar solutions. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the '431 patent, to the extent the references charted in any of Exhibits C-1 to C-13 do not disclose “parameters of the service comprise respective node-bandwidths required by each of the nodes to provide the service,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix C, including at least Margalit, Nomura, Mark, Iwakawa, Azuma, Ofek, and Chudak. A person of skill in the art would be motivated to combine these references because they each disclose the allocation of resources of an underlying physical topology for overlaid logical topologies. Resource allocation in an underlying physical network is essential to support logical networks having disparate classes of service and bandwidth requirements. A person of skill would have been motivated to look at how other products and systems determined bandwidth requirements for logical connections based on various parameters of a data transmission service, such as the node-bandwidths required by each node to provide a service, and adopt similar solutions. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '431 patent, to the extent the references charted in any of Exhibits C-1 to C-13 do not disclose “monitoring traffic generated in the network by the data transmission service, and adjusting the bandwidth in response to the traffic,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix C, including at least Margalit, Nomura, Mark, Iwakawa, Azuma, Ofek, and Chudak. A person of skill in the art would be motivated to combine these references because they each disclose the allocation of resources of an underlying physical topology for overlaid logical topologies. Resource allocation in an underlying physical network is essential to support logical networks having disparate classes of service and bandwidth requirements. A person of skill would have been motivated to look at how other products and systems adjusted

bandwidth in response to network traffic conditions, and adopt similar solutions. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the '431 patent, to the extent the references charted in any of Exhibits C-1 to C-13 do not disclose that “the data transmission service comprises a plurality of subclasses of traffic, and wherein allocating the bandwidth comprises allocating a reserved bandwidth to one of the subclasses,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix C, including at least Margalit, Nomura, Mark, Iwakawa, Azuma, Ofek, and Chudak. A person of skill in the art would be motivated to combine these references because they each disclose the allocation of resources of an underlying physical topology for overlaid logical topologies. Resource allocation in an underlying physical network is essential to support logical networks having disparate classes of service and bandwidth requirements. A person of skill would have been motivated to look at how other products and systems allocated and reserved bandwidth for subclasses of various data transmission services, and adopt similar solutions. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '431 patent, to the extent the references charted in any of Exhibits C-1 to C-13 do not disclose that “comparing a mapping bandwidth determined in response to the bandwidth requirements of the logical connections and to the mapping with a full bandwidth determined by assuming all possible logical connections in the network are provided for,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix C, including at least Margalit, Nomura, Mark, Iwakawa, Azuma, Ofek, and Chudak. A person of skill in the art would be motivated to combine these references because they each disclose the allocation of resources of an underlying physical topology for overlaid logical topologies. Resource allocation in an underlying physical network is essential to support logical networks having disparate classes of service and bandwidth requirements. A person of skill would have been motivated to look at how other products and systems handled bandwidth allocation for multiple logical connections that utilize the same underlying physical network, and adopt similar solutions. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations

would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the '431 patent, to the extent the references charted in any of Exhibits C-1 to C-13 do not disclose that “summing the first and the second bandwidths to determine a total allocation for each of the links,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix C, including at least Margalit, Nomura, Mark, Iwakawa, Azuma, Ofek, and Chudak. A person of skill in the art would be motivated to combine these references because they each disclose the allocation of resources of an underlying physical topology for overlaid logical topologies. Resource allocation in an underlying physical network is essential to support logical networks having disparate classes of service and bandwidth requirements. A person of skill would have been motivated to look at how other products and systems handled bandwidth allocation for multiple logical connections that utilize the same underlying physical network, and adopt similar solutions. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

4. U.S. Patent No. 7,593,400

- **Background State of the Art**

The background state of the art includes that which is set forth in the patent, the file history, and the prior art references disclosed herein. For example, the '400 patent discloses MAC bridges with forwarding databases (FDBs) were well-known prior to the patent. '400 patent, 1:33-46. The '400 patent further explains that flooding was a known way to determine where to send an incoming message if the packet is intended for an unknown destination. The '400 patent also acknowledges a number of standards that define certain functionality and features in these bridges, e.g., layer 2 functionality. *Id.*, 1:13-32. According to the patent, moreover, other techniques like virtual LANs, VPLS, and link aggregation groups were likewise well-known. *Id.*, 1:62-2:56.

- **Exemplary Motivation to Combine**

Cisco has identified several exemplary motivations and reasons to combine the various references cited herein. For any reference for which there is a claim element that does not have a corresponding citation in that reference, it would be obvious to combine with the knowledge or a person of skill and/or any other reference in the primary or secondary charts for which there is a citation for that element. These combinations would have been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field.

- For the Asserted Claims of the '400 patent, to the extent the references charted in any of Exhibits D-1 to D-6 do not disclose “configuring a network node having a plurality of ports, and at least first and second line cards with respective first and second ports, to operate as a distributed media access control (MAC) bridge in a Layer 2 data network,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix D, including at least Smith, Dontu, Ishimori, Finn, Edsall, Weyman, Shimada, Zelig, and Devi 1. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. For example, it would have been obvious to a person of skill to look at how line cards were used to operate as a MAC bridge in a layer 2 network and MAC bridges were well known layer 2 devices at the time. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '400 patent, to the extent the references charted in any of Exhibits D-1 to D-6 do not disclose “configuring a link aggregation (LAG) group of parallel physical links between two endpoints in said Layer 2 data network joined together into a single logical link, said LAG group having a plurality of LAG ports and a plurality of conjoined member line cards,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix D, including at least Smith, Dontu, Ishimori, Weyman, Shimada, Sajassi, Bishara, and Devi

1. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. For example, LAGs were well-known at the time and it would have been obvious to a person of skill that MAC bridges could utilize LAGs to provide redundancy and higher throughput. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the '400 patent, to the extent the references charted in any of Exhibits D-1 to D-6 do not disclose “providing for each of said member line cards a respective forwarding database (FDB) to hold records associating MAC addresses with ports of said plurality of ports of said network node,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix D, including at least Smith, Dontu, Ishimori, Finn, Edsall, Weyman, Shimada, Zelig, Bass, Bishara, and Devi 1. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. For example, it would have been obvious to a person of skill to use an FDB per line card since the line cards at the time often had routing ASICs or other processing units that controlled routing and storing the FDB on the line card would prevent latency associated with reading the FDB not located on the line card. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '400 patent, to the extent the references charted in any of Exhibits D-1 to D-6 do not disclose “receiving a data packet on an ingress port of said network node from a MAC source address, said data packet specifying a MAC destination address on said Layer 2 data network,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix D, including at least Smith, Dontu, Ishimori, Finn, Edsall, Weyman, Shimada, Pang, Bass,

Bishara, and Devi 1. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. For example, it was well-known to learn the MAC address of the source port to avoid needing to flood the network to learn a MAC address the device already had a chance to learn. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the '400 patent, to the extent the references charted in any of Exhibits D-1 to D-6 do not disclose “conveying, by transmitting said data packet to said MAC destination address via said first port, said received data packet in said network node to at least said first line card for transmission to said MAC destination address, if said MAC destination address does not appear in said FDB, flooding said data packet via one and only one LAG port of said plurality of LAG ports,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix D, including at least Smith, Dontu, Ishimori, Finn, Edsall, Weyman, Shimada, Zelig, Matters, Lee, Pang, Bass, Devi 1, Devi 2. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. For example, this was a well-known way to learn MAC addresses or use the MAC addresses in the FDB. If a MAC address was in the FDB, the device knows where to send the packet. If not, flooding was a well-known way to learn the MAC address. And it would have been obvious to a person of skill to only via one LAG port since the LAG ports form one logical port. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '400 patent, to the extent the references charted in any of Exhibits D-1 to D-6 do not disclose “checking said MAC source address of the data packet against records in said FDB of said first line card; and if said FDB of said first line card

does not contain a record of an association of said MAC source address with said ingress port, creating a new record of said association, adding said new record to the FDB of said first line card, and sending a message of the association to each member line card of said plurality of member line cards,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix D, including at least Smith, Dontu, Ishimori, Finn, Edsall, Weyman, Bishara, and Devi 1, Devi 2. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. For example, it was well-known to learn the MAC address of the source port to avoid needing to flood the network to learn a MAC address the device already had a chance to learn. Given that each line card has its own FDB, it would have been obvious to a person of skill to share information between the different line cards to avoid flooding when the MAC address is already known. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the ’400 patent, to the extent the references charted in any of Exhibits D-1 to D-6 do not disclose “sending the message comprises sending messages periodically at predefined times to inform at least the second line card of new associations between the MAC addresses and the respective ports,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix D, including at least Smith, Dontu, Ishimori, Finn, Edsall, Weyman. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. For example, it was well-known to learn the MAC address of the source port to avoid needing to flood the network to learn a MAC address the device already had a chance to learn. Given that each line card has its own FDB, it would have been obvious to a person of skill to share information between the different line cards to avoid flooding when the MAC address is already known, such as on a periodic basis. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been

the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the '400 patent, to the extent the references charted in any of Exhibits D-1 to D-6 do not disclose “receiving the message at the second line card, and responsively to the message, adding the record of the association to the FDB of the second line card if the record does not already exist in the FDB of the second line card,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix D, including at least Smith, Dontu, Ishimori, Finn, Edsall, Weyman. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. For example, it was well-known to learn the MAC address from incoming packets to avoid needing to flood the network to learn a MAC address the device already had a chance to learn. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '400 patent, to the extent the references charted in any of Exhibits D-1 to D-6 do not disclose “marking the records in the respective FDB of each line card to distinguish a first type of the records, which are added in response to data packets transmitted via a port of the line card, from a second type of the records, which are added in response to messages received from another of the line cards,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix D, including at least Smith, Dontu, Ishimori, Finn, Edsall, Weyman. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. For example, given that each line card has its own FDB, it would have been obvious to a person of skill to share information between the different line cards to avoid flooding when the MAC address is already known. It also would have been obvious that tracking where the MAC addresses were learned from would be helpful in case there are any inconsistencies or issues with connectivity. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable

expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the '400 patent, to the extent the references charted in any of Exhibits D-1 to D-6 do not disclose “associating a respective aging time with each of the records; refreshing the records in the FDB responsively to further packets transmitted by the line cards; and removing the records from the respective FDB if the records are not refreshed within the respective aging time,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix D, including at least Smith, Dontu, Ishimori, Finn, Edsall, Weyman, Bass, . A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. For example, given that each line card has its own FDB, it would have been obvious to a person of skill to share information between the different line cards to avoid flooding when the MAC address is already known. It also would have been obvious that tracking where the MAC addresses were learned from and making sure the entries were not stale would be helpful in case there are any inconsistencies or issues with connectivity. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '400 patent, to the extent the references charted in any of Exhibits D-1 to D-6 do not disclose “sending the message comprises transmitting a synchronization packet from the first line card via a switching core of the network node to at least the second line card,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix D, including at least Smith, Dontu, Ishimori, Finn, Edsall, Weyman. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. For example, it was well-known to learn the MAC address from incoming packets to avoid needing to flood the network to learn a MAC address the device already had a chance to learn. These combinations would have also been obvious to try

given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the '400 patent, to the extent the references charted in any of Exhibits D-1 to D-6 do not disclose “sending the synchronization packet comprises, if the record in the FDB associates the MAC source address with a port different from the one of the ports on which the data packet was received, changing the record in the FDB of the first line card and sending a synchronization update packet to at least the second line card to indicate that the record has been changed,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix D, including at least Smith, Dontu, Ishimori, Finn, Edsall, Weyman, Zelig. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. For example, it was well-known to learn the MAC address of the source port to avoid needing to flood the network to learn a MAC address the device already had a chance to learn. Given that each line card has its own FDB, it would have been obvious to a person of skill to share information between the different line cards to avoid flooding when the MAC address is already known, such as by sending a synchronization packet when information is learned or changed. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '400 patent, to the extent the references charted in any of Exhibits D-1 to D-6 do not disclose “the network node is configured to operate as multiple virtual MAC bridges in a Layer 2 virtual private network (VPN), wherein each virtual MAC bridge is configured to serve a respective VPN instance, and wherein the records associating the MAC addresses with the respective ports are maintained independently for each of the VPN instances,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix D, including at least Smith, Dontu, Ishimori, Finn, Edsall, Weyman, Zelig. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and

functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. For example, VPNs were well known at the time and a person of ordinary skill would have known that bridges supported VPNs. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the '400 patent, to the extent the references charted in any of Exhibits D-1 to D-6 do not disclose “the VPN instance is a VPLS instance among multiple VPLS instances served by the network node, and wherein sending the message comprises identifying the VPLS instance in the message so as to inform all the line cards that serve the VPLS instance,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix D, including at least Smith, Dontu, Ishimori, Finn, Edsall, Weyman, Zelig. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. For example, VPLS and VPNs were well known at the time and a person of ordinary skill would have known that bridges supported VPLS and VPNs. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '400 patent, to the extent the references charted in any of Exhibits D-1 to D-6 do not disclose “conveying a further data packet, received from a further MAC source address, to the second line card for transmission over the network; checking the further MAC source address against the records in the FDB of the second line card; and responsively to the further data packet, adding a further record with respect to the MAC source address to the FDB of the second line card and sending a further message to inform at least the first line card of the further record,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix D, including at least Smith, Dontu, Ishimori, Finn, Edsall, Weyman.

A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. For example, it was well-known to learn the MAC address of the source port to avoid needing to flood the network to learn a MAC address the device already had a chance to learn. Given that each line card has its own FDB, it would have been obvious to a person of skill to share information between the different line cards to avoid flooding when the MAC address is already known, such as by sending a synchronization packet when information is learned or changed. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the '400 patent, to the extent the references charted in any of Exhibits D-1 to D-6 do not disclose “a plurality of member line cards conjoined in a link aggregation (LAG) group of parallel physical links between two endpoints in a Layer 2 data network joined together into a single logical link, having a plurality of LAG ports to forward packets through said switching core so that the node operates as a virtual media access control (MAC) bridge in said Layer 2 data network, said plurality of member line cards including at least first and second line cards, each line card having respective ports and having a respective forwarding database (FDB) to hold records associating MAC addresses with said respective ports of said line cards,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix D, including at least Smith, Dontu, Ishimori, Finn, Edsall, Weyman. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. For example, LAGs were well-known at the time and it would have been obvious to a person of skill that MAC bridges could utilize LAGs to provide redundancy and higher throughput. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the '400 patent, to the extent the references charted in any of Exhibits D-1 to D-6 do not disclose “wherein said line cards are arranged so that upon receiving a data packet on an ingress line card from a MAC source address, said data packet specifying a MAC destination address, said ingress line card conveys said data packet via said switching core to at least said first line card for transmission to said MAC destination address, whereupon said first line card checks said MAC source address of said data packet against records in said FDB of said first line card, and if said FDB database of said first line card does not contain a record of an association of said MAC source address with said ingress port, adds said record to the FDB of said first line card and sends a message to at least said second line card informing said second line card of said association, and arranged, when said MAC destination address does not appear in said FDB, to flood said data packet via one and only one of said LAG ports,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix D, including at least Smith, Dontu, Ishimori, Finn, Edsall, Weyman. A person of skill in the art would be motivated to combine these references because they each disclose computer networking systems. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IEEE. For example, it was well-known to learn the MAC address of the source port to avoid needing to flood the network to learn a MAC address the device already had a chance to learn. Given that each line card has its own FDB, it would have been obvious to a person of skill to share information between the different line cards to avoid flooding when the MAC address is already known, such as by sending a synchronization packet when information is learned or changed. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

5. **U.S. Patent No. 9,118,602**

• **Background State of the Art**

The background state of the art includes that which is set forth in the patent, the file history, and the prior art references disclosed herein. For example, the '602 patent explains Multiprotocol Label Switching (MPLS), Internet Protocol, and Resource ReSerVation Protocol (RSVP) were well-known in the art. '602 patent, 1:25-56. The '602 patent also discloses that Ethernet Link Aggregation Group (LAG) and “other tunneling and link aggregation protocols” were well-known

in the art. *Id.* at 2:35-41. The '602 patent also discloses that hashing functions were known in the art. *Id.* at 7:47-52.

- **Exemplary Motivation to Combine**

Cisco has identified several exemplary motivations and reasons to combine the various references cited herein. For any reference for which there is a claim element that does not have a corresponding citation in that reference, it would be obvious to combine with the knowledge or a person of skill and/or any other reference in the primary or secondary charts for which there is a citation for that element. These combinations would have been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field.

- For the Asserted Claims of the '602 patent, to the extent the references charted in any of Exhibits E-1 to E-7 do not disclose “assigning and utilizing an Ethernet physical data port in an Ethernet Link Aggregation Group (LAG) in a Multi-Protocol Label Switching (MPLS) network,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix E, including at least Benayoun, Yamada, Clear, or Yang. A person of skill in the art would be motivated to combine these references because they each disclose improvements to Multiprotocol Label Switching. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IETF. In fact, the '602 patent refers to several standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. Specifically, a person of skill in the art would look to see how other products allocated bandwidth and delivered packets most efficiently. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '602 patent, to the extent the references charted in any of Exhibits E-1 to E-7 do not disclose “assigning, by a first MPLS/LAG switch, a single physical tunnel port of a LAG to a network tunnel, wherein the single physical tunnel port

of the LAG meets a bandwidth requirement of the network tunnel, and wherein said single physical tunnel port of the LAG has a port serial number,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix E, including at least Benayoun, Yamada, Clear, or Yang. A person of skill in the art would be motivated to combine these references because they each disclose improvements to Multiprotocol Label Switching. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IETF. In fact, the ’602 patent refers to several standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. Specifically, a person of skill in the art would look to see how other products allocated bandwidth and delivered packets most efficiently. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the ’602 patent, to the extent the references charted in any of Exhibits E-1 to E-7 do not disclose “dedicating a sub-set of bits in a data packet label prepared by the first MPLS/LAG switch to encode said port serial number of said single physical tunnel port of the LAG into the data packet label,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix E, including at least Benayoun, Yamada, Clear, or Yang. A person of skill in the art would be motivated to combine these references because they each disclose improvements to Multiprotocol Label Switching. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IETF. In fact, the ’602 patent refers to several standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. Specifically, a person of skill in the art would look to see how other products allocated bandwidth and delivered packets most efficiently. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the ’602 patent, to the extent the references charted in any of Exhibits E-1 to E-7 do not disclose “sending, by said first MPLS/LAG switch, the data packet label, in which said port serial number of said single physical tunnel port is encoded,

to a preceding node,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix E, including at least Benayoun, Yamada, Clear, or Yang. A person of skill in the art would be motivated to combine these references because they each disclose improvements to Multiprotocol Label Switching. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IETF. In fact, the ’602 patent refers to several standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. Specifically, a person of skill in the art would look to see how other products allocated bandwidth and delivered packets most efficiently. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the ’602 patent, to the extent the references charted in any of Exhibits E-1 to E-7 do not disclose “receiving from the preceding node, by said first MPLS/LAG switch, a data packet comprising said data packet label, in which said port serial number of said single physical tunnel port is encoded,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix E, including at least Benayoun, Yamada, Clear, or Yang. A person of skill in the art would be motivated to combine these references because they each disclose improvements to Multiprotocol Label Switching. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IETF. In fact, the ’602 patent refers to several standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. Specifically, a person of skill in the art would look to see how other products allocated bandwidth and delivered packets most efficiently. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the ’602 patent, to the extent the references charted in any of Exhibits E-1 to E-7 do not disclose “sending said data packet from said first MPLS/LAG switch to a second MSPLS/LAG switch via said single physical tunnel port having the port serial number encoded in the data packet label,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed

in Appendix E, including at least Benayoun, Yamada, Clear, or Yang. A person of skill in the art would be motivated to combine these references because they each disclose improvements to Multiprotocol Label Switching. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IETF. In fact, the '602 patent refers to several standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. Specifically, a person of skill in the art would look to see how other products allocated bandwidth and delivered packets most efficiently. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the '602 patent, to the extent the references charted in any of Exhibits E-1 to E-7 do not disclose “receiving from a preceding node located upstream from said first MPLS/LAG switch, by said first MPLS/LAG switch, a request message requesting configuration of said network tunnel, the message further requesting said data packet label associated with said network tunnel,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix E, including at least Benayoun, Yamada, Clear, or Yang. A person of skill in the art would be motivated to combine these references because they each disclose improvements to Multiprotocol Label Switching. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IETF. In fact, the '602 patent refers to several standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. Specifically, a person of skill in the art would look to see how other products allocated bandwidth and delivered packets most efficiently. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '602 patent, to the extent the references charted in any of Exhibits E-1 to E-7 do not disclose “request message comprises an RSVP-TE PATH message augmented with a LABEL_REQUEST object,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix E, including at least Benayoun, Yamada, Clear, or Yang. A person

of skill in the art would be motivated to combine these references because they each disclose improvements to Multiprotocol Label Switching. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IETF. In fact, the '602 patent refers to several standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. Specifically, a person of skill in the art would look to see how other products allocated bandwidth and delivered packets most efficiently. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the '602 patent, to the extent the references charted in any of Exhibits E-1 to E-7 do not disclose “request comprises an indication of a service property, and wherein said selecting comprises identifying a physical port in compliance with said service property,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix E, including at least Benayoun, Yamada, Clear, or Yang. A person of skill in the art would be motivated to combine these references because they each disclose improvements to Multiprotocol Label Switching. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IETF. In fact, the '602 patent refers to several standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. Specifically, a person of skill in the art would look to see how other products allocated bandwidth and delivered packets most efficiently. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '602 patent, to the extent the references charted in any of Exhibits E-1 to E-7 do not disclose “service property comprises at least one of: a guaranteed bandwidth; a peak bandwidth; and a class of service,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix E, including at least Benayoun, Yamada, Clear, or Yang. A person of skill in the art would be motivated to combine these references because they each disclose improvements to Multiprotocol Label Switching. It is the nature of the computer networking companies to monitor developments in competing products and combine

relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IETF. In fact, the '602 patent refers to several standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. Specifically, a person of skill in the art would look to see how other products allocated bandwidth and delivered packets most efficiently. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the '602 patent, to the extent the references charted in any of Exhibits E-1 to E-7 do not disclose “selecting comprises selecting a single physical tunnel port having a maximum available bandwidth of said plurality of physical data ports,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix E, including at least Benayoun, Yamada, Clear, or Yang. A person of skill in the art would be motivated to combine these references because they each disclose improvements to Multiprotocol Label Switching. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IETF. In fact, the '602 patent refers to several standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. Specifically, a person of skill in the art would look to see how other products allocated bandwidth and delivered packets most efficiently. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '602 patent, to the extent the references charted in any of Exhibits E-1 to E-7 do not disclose “selecting comprises selecting a port having a minimum available bandwidth of said plurality of physical data ports which is not less than said bandwidth requirement of the network tunnel,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix E, including at least Benayoun, Yamada, Clear, or Yang. A person of skill in the art would be motivated to combine these references because they each disclose improvements to Multiprotocol Label Switching. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by

different standard organizations, e.g., IETF. In fact, the '602 patent refers to several standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. Specifically, a person of skill in the art would look to see how other products allocated bandwidth and delivered packets most efficiently. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the '602 patent, to the extent the references charted in any of Exhibits E-1 to E-7 do not disclose “switching said data packet is according to a mapping function,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix E, including at least Benayoun, Yamada, Clear, or Yang. A person of skill in the art would be motivated to combine these references because they each disclose improvements to Multiprotocol Label Switching. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IETF. In fact, the '602 patent refers to several standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. Specifically, a person of skill in the art would look to see how other products allocated bandwidth and delivered packets most efficiently. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '602 patent, to the extent the references charted in any of Exhibits E-1 to E-7 do not disclose “preparing comprises inserting into said data packet label a set of bits that identify said single physical tunnel port; and wherein said switching said data packet comprises extracting said set of bits to determine an identity of said single physical tunnel port,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix E, including at least Benayoun, Yamada, Clear, or Yang. A person of skill in the art would be motivated to combine these references because they each disclose improvements to Multiprotocol Label Switching. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IETF. In fact, the '602 patent refers to several standards. A person of skill would have been motivated to look at how other products and systems routed network

traffic and mimic that behavior or at least be able to interoperate with those products. Specifically, a person of skill in the art would look to see how other products allocated bandwidth and delivered packets most efficiently. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the '602 patent, to the extent the references charted in any of Exhibits E-1 to E-7 do not disclose “preparing comprises storing said data packet label along with an identifier of said single physical tunnel port in a memory, and wherein said switching said data packet comprises retrieving said identifier from said memory responsively to said data packet label,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix E, including at least Benayoun, Yamada, Clear, or Yang. A person of skill in the art would be motivated to combine these references because they each disclose improvements to Multiprotocol Label Switching. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IETF. In fact, the '602 patent refers to several standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. Specifically, a person of skill in the art would look to see how other products allocated bandwidth and delivered packets most efficiently. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '602 patent, to the extent the references charted in any of Exhibits E-1 to E-7 do not disclose “selecting a backup port from among the plurality of physical data ports, different from said single physical tunnel port; and responsively to a service interruption of said single physical tunnel port, switching said data packet to said backup port and sending said data packet to said second MPLS/LAG switch via said backup port,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix E, including at least Benayoun, Yamada, Clear, or Yang. A person of skill in the art would be motivated to combine these references because they each disclose improvements to Multiprotocol Label Switching. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IETF. In fact, the '602 patent refers to several standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior

or at least be able to interoperate with those products. Specifically, a person of skill in the art would look to see how other products allocated bandwidth and delivered packets most efficiently. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the '602 patent, to the extent the references charted in any of Exhibits E-1 to E-7 do not disclose “responsive to a restoral of said service interruption of said single physical tunnel port, reverting switching of said data packet from said backup port and sending said data packet to said second MPLS/LAG switch via said single physical tunnel port,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix E, including at least Benayoun, Yamada, Clear, or Yang. A person of skill in the art would be motivated to combine these references because they each disclose improvements to Multiprotocol Label Switching. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IETF. In fact, the '602 patent refers to several standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. Specifically, a person of skill in the art would look to see how other products allocated bandwidth and delivered packets most efficiently. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '602 patent, to the extent the references charted in any of Exhibits E-1 to E-7 do not disclose “first MPLS/LAG switch comprises a Label Switched Router (LSR),” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix E, including at least Benayoun, Yamada, Clear, or Yang. A person of skill in the art would be motivated to combine these references because they each disclose improvements to Multiprotocol Label Switching. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IETF. In fact, the '602 patent refers to several standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. Specifically, a person of skill in the art would look to see how other products allocated bandwidth and delivered packets most efficiently. These combinations would have also been obvious to try given that there were

a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the '602 patent, to the extent the references charted in any of Exhibits E-1 to E-7 do not disclose “designating by said first MPLS/LAG switch, the plurality of physical data ports in said first MPLS/LAG switch as a single logical port,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix E, including at least Benayoun, Yamada, Clear, or Yang. A person of skill in the art would be motivated to combine these references because they each disclose improvements to Multiprotocol Label Switching. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IETF. In fact, the '602 patent refers to several standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. Specifically, a person of skill in the art would look to see how other products allocated bandwidth and delivered packets most efficiently. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '602 patent, to the extent the references charted in any of Exhibits E-1 to E-7 do not disclose “apparatus for assigning and utilizing an Ethernet physical data port in an Ethernet Link Aggregation Group (LAG) located downstream from a preceding node in a Multi-Protocol Label Switching (MPLS) network tunnel employing Resource Reservation Protocol Traffic Engineering (RSVP-TE) tunnel provisioning, the LAG having a first MPLS/LAG switch and a second MPLS/LAG switch,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix E, including at least Benayoun, Yamada, Clear, or Yang. A person of skill in the art would be motivated to combine these references because they each disclose improvements to Multiprotocol Label Switching. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IETF. In fact, the '602 patent refers to several standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. Specifically, a person of skill in the art would look to see how other products allocated bandwidth and delivered packets most efficiently. These combinations would have also been obvious to try given that there were

a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the '602 patent, to the extent the references charted in any of Exhibits E-1 to E-7 do not disclose “a processor,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix E, including at least Benayoun, Yamada, Clear, or Yang. A person of skill in the art would be motivated to combine these references because they each disclose improvements to Multiprotocol Label Switching. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IETF. In fact, the '602 patent refers to several standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. Specifically, a person of skill in the art would look to see how other products allocated bandwidth and delivered packets most efficiently. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '602 patent, to the extent the references charted in any of Exhibits E-1 to E-7 do not disclose “assign a single physical tunnel port of a LAG to a network tunnel, wherein said single physical tunnel port meets a bandwidth requirement of the network tunnel, and wherein said single physical tunnel port has a port serial number,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix E, including at least Benayoun, Yamada, Clear, or Yang. A person of skill in the art would be motivated to combine these references because they each disclose improvements to Multiprotocol Label Switching. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IETF. In fact, the '602 patent refers to several standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. Specifically, a person of skill in the art would look to see how other products allocated bandwidth and delivered packets most efficiently. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been

the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the '602 patent, to the extent the references charted in any of Exhibits E-1 to E-7 do not disclose “dedicate a sub-set of bits in a data packet label to encode said port serial number of said single physical tunnel port of the LAG into the data packet label,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix E, including at least Benayoun, Yamada, Clear, or Yang. A person of skill in the art would be motivated to combine these references because they each disclose improvements to Multiprotocol Label Switching. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IETF. In fact, the '602 patent refers to several standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. Specifically, a person of skill in the art would look to see how other products allocated bandwidth and delivered packets most efficiently. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '602 patent, to the extent the references charted in any of Exhibits E-1 to E-7 do not disclose “publish said packet label upstream,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix E, including at least Benayoun, Yamada, Clear, or Yang. A person of skill in the art would be motivated to combine these references because they each disclose improvements to Multiprotocol Label Switching. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IETF. In fact, the '602 patent refers to several standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. Specifically, a person of skill in the art would look to see how other products allocated bandwidth and delivered packets most efficiently. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

- For the Asserted Claims of the '602 patent, to the extent the references charted in any of Exhibits E-1 to E-7 do not disclose “a mapper,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix E, including at least Benayoun, Yamada, Clear, or Yang. A person of skill in the art would be motivated to combine these references because they each disclose improvements to Multiprotocol Label Switching. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IETF. In fact, the '602 patent refers to several standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. Specifically, a person of skill in the art would look to see how other products allocated bandwidth and delivered packets most efficiently. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '602 patent, to the extent the references charted in any of Exhibits E-1 to E-7 do not disclose “receive a data packet from an upstream node,” it would have been obvious to combine any of these charted references with any of the other charted references or those detailed in Appendix E, including at least Benayoun, Yamada, Clear, or Yang. A person of skill in the art would be motivated to combine these references because they each disclose improvements to Multiprotocol Label Switching. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IETF. In fact, the '602 patent refers to several standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. Specifically, a person of skill in the art would look to see how other products allocated bandwidth and delivered packets most efficiently. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.
- For the Asserted Claims of the '602 patent, to the extent the references charted in any of Exhibits E-1 to E-7 do not disclose “detect said data packet label in said data packet; and if said data packet contains said data packet label, send said data packet to the second MPLS/LAG switch via said single physical tunnel port,” it would have been obvious to combine any of these charted references with any of the other charted references or those

detailed in Appendix E, including at least Benayoun, Yamada, Clear, or Yang. A person of skill in the art would be motivated to combine these references because they each disclose improvements to Multiprotocol Label Switching. It is the nature of the computer networking companies to monitor developments in competing products and combine relevant features and functionalities. Furthermore, because networking systems need to interact with third party devices, many features and functionalities were standardized by different standard organizations, e.g., IETF. In fact, the '602 patent refers to several standards. A person of skill would have been motivated to look at how other products and systems routed network traffic and mimic that behavior or at least be able to interoperate with those products. Specifically, a person of skill in the art would look to see how other products allocated bandwidth and delivered packets most efficiently. These combinations would have also been obvious to try given that there were a finite number of identified, predictable solutions in the prior art, and there would have been a reasonable expectation of success to simply implement one prior art solution with concepts from prior art in the same field. Moreover, these combinations would have been the result of applying known techniques to a known method—that was ready for improvement—to yield predictable results.

III. INVALIDITY UNDER 35 U.S.C. § 112

Cisco alleges that the Asserted Claims are invalid under 35 U.S.C. § 112 as indefinite (Section 112, ¶ 2) and for failing to satisfy the written description and enablement requirements (Section 112, ¶ 1). Cisco reserves all rights to amend its Preliminary Invalidity Contentions under 35 U.S.C. § 112, including after the Asserted Claims are ultimately construed by the Court, in response to any interpretation of the Asserted Claims embodied in Corrigent's infringement positions, and/or to account for any changes in the law concerning invalidity under 35 U.S.C. § 112. Cisco also reserves the right to provide additional explanation and/or argument for its Preliminary Invalidity Contentions under Section 112, including, for example, based on expert testimony. Cisco's contentions that the Asserted Claims are invalid under Section 112 are not admissions regarding the construction or scope of the claims of the Asserted Patents, or that any of the claims of the Asserted Patents are not anticipated or rendered obvious by any prior art. All of the below statements are by way of example only. Any item disclosed below with respect to

any patent or claim may, as appropriate, be asserted as a defense against any other patent or claim that has a similar claim limitation and patent disclosure.

A. INVALIDITY UNDER 35 U.S.C. § 112, ¶ 1

35 U.S.C. § 112, ¶ 1 requires that the specification contain a written description of the invention. “[T]he hallmark of written description is disclosure.” *Boston Scientific Corp. v. Johnson & Johnson*, 647 F.3d 1353, 1361–62 (Fed. Cir. 2011) (citation omitted). The test for whether a specification adequately describes an invention is “whether the disclosure of the application relied upon reasonably conveys to those skilled in the art that the inventor had possession of the claimed subject matter as of the filing date. . . . [T]he test requires an objective inquiry into the four corners of the specification from the perspective of a person of ordinary skill in the art [It] is a question of fact.” *Ariad Pharms., Inc. v. Eli Lilly and Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc); *Boston Scientific*, 647 F.3d at 1362.

The enablement requirement of Section 112 demands that the patent specification enable “those skilled in the art to make and use the full scope of the claimed invention without ‘undue experimentation.’” *Genentech, Inc. v. Novo Nordisk A/S*, 108 F.3d 1361, 1365 (Fed. Cir. 1997) (quoting *In re Wright*, 999 F.2d 1557, 1561 (Fed. Cir. 1993)). “[T]he scope of the claims must be less than or equal to the scope of the enablement.” *Nat’l Recovery Tech., Inc. v. Magnetic Separation Sys., Inc.*, 166 F.3d 1190, 1196 (Fed. Cir. 1999). In other words, the claims must be enabled over their entire claimed range. *See id.* (finding lack of enablement because the “claim [] [was] broader than the enablement as taught in the specification”).

Cisco contends that the following Asserted Claims are invalid under 35 U.S.C. § 112, ¶ 1. Each Asserted Claim identified below (and each Asserted Claim that depends therefrom) is invalid under Section 112, ¶ 1 because the specification of the Asserted Patent fails to provide a sufficient written description, enabling disclosure. For each listed term or phrase, Cisco believes the term

or phrase is invalid under Section 112, ¶ 1, as is any limitation including such terms or phrases, for the same reason(s).

1. U.S. Patent No. 6,957,369

- “idle line” (claim 1, 3, 7)
- “idle trace” (claim 15, 18, 20)
- “line” (claim 1, 4, 5, 6, 7, 8, 10, 11, 12, 18, 23)
- “loop back” (claim 1, 2, 3, 9, 15, 16, 17, 21, 22)
- “main module” (claim 1, 2, 4, 5, 8, 9, 10, 11, 15, 16, 18, 21, 22, 23)
- “selecting a first idle line” (claim 1)
- “select a first idle trace” (claim 15)
- “selecting for testing a second idle line” (claim 1)
- “select for testing a second idle trace” (claim 15)
- “trace” (claim 5, 10, 15, 16, 18, 19, 20, 21, 23, 24)

2. U.S. Patent No. 7,113,485

- “latency measurement packet” (all claims)
- “originating node” (claims 1–5)
- “peer node” (claims 1–3)
- “indication” (claims 1–2, 6–7, 11–12, 16–17)
- “class of service” (all claims)
- “serial numbers” (claims 5, 9, 15, 19)

3. U.S. Patent No. 7,330,431

- “class of service” (claims 5, 16)

- “determin[ing/e] . . . bandwidth requirements for . . . logical connections” (1, 12, 24, 25, 28)
- “correction factor” (claims 6, 17)
- “receive a definition of logical connections between the nodes” (claims 25, 28)
- “data transmission service” (1, 4–5, 9–10, 12, 15–16, 20–21, 24–25, 28)

4. U.S. Patent No. 7,593,400

- “distributed media access control (MAC) bridge” (claim 1)
- “virtual media access control (MAC) bridge” (claim 8, 11, 18)
- “layer 2 data network” (claims 1, 11)
- “said FDB” (claims 1, 11)
- “conjoined member line cards” (claim 1)
- “member line cards conjoined in a link aggregation (LAG) group” (claim 11)
- “configuring a link aggregation (LAG) group of parallel physical links between two endpoints in said Layer 2 data network joined together into a single logical link, said LAG group having a plurality of LAG ports and a plurality of conjoined member line cards” (claim 1)
- “a plurality of member line cards conjoined in a link aggregation (LAG) group of parallel physical links between two endpoints in a Layer 2 data network joined together into a single logical link” (claim 11)
- “having a plurality of LAG ports to forward packets through said switching core so that the node operates as a virtual media access control (MAC) bridge in said Layer 2 data network” (claim 11)
- “network node” (claims 1, 11)

- “the network node is configured to operate as multiple virtual MAC bridges in a Layer 2 virtual private network (VPN), wherein each virtual MAC bridge is configured to serve a respective VPN instance, and wherein the records associating the MAC addresses with the respective ports are maintained independently for each of the VPN instances” (claims 8, 18)
- “wherein the VPN instance is a VPLS instance among multiple VPLS instances served by the network node, and wherein sending the message comprises identifying the VPLS instance in the message so as to inform all the line cards that serve the VPLS instance” (claims 9, 19)

5. U.S. Patent No. 9,118,602

- “preceding node” (claim 1, 2, 15, 26)
- “request message” (claim 2, 3, 26)

B. INVALIDITY UNDER 35 U.S.C. § 112, ¶ 2

Claims are indefinite under 35 U.S.C. § 112, ¶ 2 when they “fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2124 (2014). For example, to the extent an asserted apparatus claim includes both apparatus and method limitations, that claim is invalid for indefiniteness under Section 112, ¶ 2 because it fails to identify or notify the public of what constitutes direct infringement. *See IPXL Holdings, L.L.C. v. Amazon.com, Inc.*, 430 F.3d 1377 (Fed. Cir. 2005). Similarly, a claim that uses means-plus function claiming is indefinite “[i]f the patentee fails to disclose adequate corresponding structure.” *Williamson v. Citrix Online, LLC*, 792 F. 3d 1339, 1352 (Fed. Cir. 2015). A claim can also be found indefinite if it uses terms of degree. *See Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1371 (Fed. Cir. 2014). As the Federal Circuit has

“explained, a term of degree fails to provide sufficient notice of its scope if it depends ‘on the unpredictable vagaries of any one person’s opinion.’” *Id.* (citation omitted). In addition, “a claim term that lacks an antecedent basis may . . . render a claim indefinite.” *In re Downing*, 754 F. App’x 988, 996 (Fed. Cir. 2018).

Cisco contends that the following Asserted Claims are invalid under Section 112, ¶ 2. Each Asserted Claim identified below (and each Asserted Claim that depends therefrom) is invalid under Section 112, ¶ 2 because they fail to inform, with reasonable certainty, those skilled in the art about the scope of the claimed invention. For each listed term or phrase, Cisco believes the term or phrase is invalid under Section 112, ¶ 2, and any limitation including such term or phrase is also indefinite.

1. U.S. Patent No. 6,957,369

- “idle line” (claim 1, 3, 7)
- “idle trace” (claim 15, 18, 20)
- “line” (claim 1, 4, 5, 6, 7, 8, 10, 11, 12, 18, 23)
- “loop back” (claim 1, 2, 3, 9, 15, 16, 17, 21, 22)
- “main module” (claim 1, 2, 4, 5, 8, 9, 10, 11, 15, 16, 18, 21, 22, 23)
- “selecting a first idle line” (claim 1)
- “select a first idle trace” (claim 15)
- “selecting for testing a second idle line” (claim 1)
- “select for testing a second idle trace” (claim 15)
- “trace” (claim 5, 10, 15, 16, 18, 19, 20, 21, 23, 24)

2. U.S. Patent No. 7,113,485

- “noting a time of receipt of the packet” (claims 1, 2, 6, 11, 12, 16)

- “noting a time of return of the packet” (claims 1, 3, 11)
- “originating node difference” (claim 1)
- “peer node difference” (claims 1, 2)
- “transmitting a sequence of latency measurement packets at given intervals”
(claims 9, 14, 19)

3. **U.S. Patent No. 7,330,431**

- “determin[ing/e] . . . bandwidth requirements for . . . logical connections” (1, 12, 24, 25, 28)
- “receive a definition of logical connections between the nodes” (claims 25, 28)
- “network” (claims 1–2, 5, 9, 11, 12–13, 16, 20, 23–25, 27, 28, 30)
- “controller” (claims 25–30)
- “nodes” (claims 1, 8, 12, 19, 24–26, 28–29)
- “links” (claims 1, 7, 12, 18, 23–25, 28)

4. **U.S. Patent No. 7,593,400**

- “distributed media access control (MAC) bridge” (claim 1)
- “virtual media access control (MAC) bridge” (claim 8, 11, 18)
- “said FDB” (claims 1, 11)
- “layer 2 data network” (claims 1, 11)
- “conjoined member line cards” (claim 1)
- “member line cards conjoined in a link aggregation (LAG) group” (claim 11)
- “configuring a link aggregation (LAG) group of parallel physical links between two endpoints in said Layer 2 data network joined together into a single logical link, said

LAG group having a plurality of LAG ports and a plurality of conjoined member line cards” (claim 1)

- “a plurality of member line cards conjoined in a link aggregation (LAG) group of parallel physical links between two endpoints in a Layer 2 data network joined together into a single logical link” (claim 11)
- “having a plurality of LAG ports to forward packets through said switching core so that the node operates as a virtual media access control (MAC) bridge in said Layer 2 data network” (claim 11)
- “network node” (claims 1, 11)
- “the network node is configured to operate as multiple virtual MAC bridges in a Layer 2 virtual private network (VPN), wherein each virtual MAC bridge is configured to serve a respective VPN instance, and wherein the records associating the MAC addresses with the respective ports are maintained independently for each of the VPN instances” (claims 8, 18)
- “wherein the VPN instance is a VPLS instance among multiple VPLS instances served by the network node, and wherein sending the message comprises identifying the VPLS instance in the message so as to inform all the line cards that serve the VPLS instance” (claims 9, 19)
- “the MAC addresses and the respective ports” (claims 2, 12)
- “the record of the association to the FDB of the second line card” (claims 3, 4, 5, 7, 8, 13, 14, 15, 17, 18)
- “the line card” (claims 4, 14)
- “said member line cards” (claim 1)

5. U.S. Patent No. 9,118,602

- “preceding node” (claim 1, 2, 15, 26)
- “request message” (claim 2, 3, 26)

IV. INVALIDITY UNDER 35 U.S.C. § 101

The Asserted Claims of the patents identified below are not patent-eligible under 35 U.S.C. § 101. Cisco reserves all rights to amend its Preliminary Invalidity Contentions under 35 U.S.C. § 101, including after the Asserted Claims are ultimately construed by the Court, in response to any interpretation of the Asserted Claims embodied in Corrigent’s infringement positions, and/or to account for any changes in the law concerning ineligibility under 35 U.S.C. § 101. Cisco also reserves the right to provide additional explanation and/or argument for its Preliminary Invalidity Contentions under 35 U.S.C. § 101, including, for example, based on expert testimony. In particular, the abstract ideas set forth below are exemplary and based on Cisco’s current understanding of the patents.

The law regarding patent-eligible subject matter under 35 U.S.C. § 101 has changed significantly since the issuance of several of the Asserted Patents. The Supreme Court has articulated a two-step framework for determining patent eligibility. *Alice Corp. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2355 (2014). At Step One, the court determines “whether the claims at issue are directed to” a “patent-ineligible concept[,]” such as “laws of nature, natural phenomena, and abstract ideas.” *Id.* This first step of the inquiry has been “described . . . as looking at the ‘focus’ of the claims,” or “their ‘character as a whole.’” *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016).

If the claims are directed to one of those ineligible concepts, the Step Two inquiry asks whether the claims contain an “inventive concept,” or “an element or combination of elements that is sufficient to ensure that the patent in practice amounts to significantly more than a patent upon

the [ineligible concept] itself.” *Alice*, 134 S. Ct. at 2355 (quoting *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289, 1294 (2012)) (internal quotation marks omitted). At Step Two, “well-understood, routine, conventional activit[ies]” are insufficient to confer an inventive concept. *Mayo*, 132 S. Ct. at 1294. In the realm of computer-implemented inventions, merely adding “purely functional and generic” components does not “transform an abstract idea into a patent-eligible invention” because “[n]early every computer will include [such components] capable of performing the basic . . . functions required by the . . . claims.” *Alice*, 134 S. Ct. at 2360. The Asserted Claims fail to meet that standard.

1. U.S. Patent No. 6,957,369

Step One. The claims are directed towards an abstract idea, e.g., transmitting a test communication and reporting whether the communication is received—i.e., transmitting and reporting information about a communication path. See *Corrigent v. Dell Techs. Inc.*, No. 1:22-cv-00496, Dkt. 11 (D. Del. June 24, 2022). This same basic idea has been repeatedly held to be abstract by the courts. See e.g., *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1354 (Fed. Cir. 2016) (“presenting the results of abstract processes of collecting and analyzing information”); *Two-Way Media Ltd. v. Comcast Cable Communications LLC*, 874 F.3d 1329 (Fed. Cir. 2017) (“1) sending information, 2) directing the sent information, 3) monitoring the receipt of the sent information, and 4) accumulating records about receipt of that sent information”).

Step Two. There is no inventive concept recited in the claims that would transform the claims away from the abstract idea. The claims merely require conventional computer components operating with their basic functions (e.g., backplane, modules and lines). This is nothing more than an abstract idea. *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1370 (Fed. Cir. 2018) (“The limitations amount to no more than performing the abstract idea . . . with conventional computer components.”).

2. U.S. Patent No. 7,113,485

Step One. All of the claims of the '485 patent are directed towards the abstract idea of measuring latency of communications in a particular class of service. Measuring latency is not a technological improvement; it is nothing more than a measurement of time. *See* Grow at 3:58–59. It is also something humans have done throughout history. For example, one may measure the latency of communications sent via the U.S. Postal Service by calculating the difference between the time a letter was sent and the time the letter was received. Moreover, specifying that the calculation be done for communications in a particular class of service does nothing to make the idea non-abstract. Different shipping speeds, for example, Express Mail, Priority Mail, or First-Class Mail, determine how quickly mail will be sent through the post office network, and can all be measured the same way. These are akin to the classes of service that the data packet experiences in a data network, which may have different latency tolerances.

Step Two. The claims do not contain an inventive concept. The claims do not recite “significantly more” than the abstract idea itself. *Alice*, 573 U.S. at 217–18. None of the limitations, whether considered individually or as an ordered combination, adds inventive concept. The patent itself acknowledges that classifying packets based on a class of service was well-known in the art. *See* '485 patent at 1:56–58. The patent also acknowledges that measuring latency was known in the art. *See id.* at 2:1–4.

3. U.S. Patent No. 7,330,431

Step One. The claims are directed towards an abstract idea, e.g., bandwidth allocation. This is a basic and abstract idea in both the technical context and non-technical context. For example, shipping couriers such as USPS, FedEx, and UPS operate multimodal transport networks through which they provide various classes of shipping services (e.g., next-day, second-day, and day-definite). These services have different “parameters” specifically, urgent next-day packages

are guaranteed to be delivered the day after shipping, second-day packages within two days after shipping, and less urgent day-definite packages within a set number of days (*e.g.*, 3–5) from the shipping date. Shipping carriers define “logical connections” for each of these services by designating particular routes/modes of transport for each class of shipping service. For example, a package shipped via next-day service from Washington, DC to Waco would likely be transported by air to Dallas, and then by ground on to Waco. By contrast, a package shipped via day-definite service from Washington, DC to Waco may be routed using ground transport, for example, from: Washington, DC -> Charlotte, NC -> Atlanta, GA -> Dallas, TX -> Waco, TX. And, because both routes share the same final link from Dallas to Waco, the shipping carrier must “allocate” bandwidth on that particular route to ensure that there is room on the truck for all next-day packages, whereas less urgent day-definite packages can be held in Dallas until sufficient “bandwidth” is available to transport the package on to Waco.

Step Two. There is no inventive concept recited in the claims that would transform the claims away from an abstract idea. The claims merely require conventional computer components operating with their basic functions (*e.g.*, a network, nodes, links, and a nondescript “controller”). This is nothing more than an abstract idea. *Berkheimer*, 881 F.3d at 1370 (Fed. Cir. 2018) (“The limitations amount to no more than performing the abstract idea . . . with conventional computer components.”).

4. U.S. Patent No. 7,593,400

Step One. The claims are directed to an abstract idea, *e.g.*, collecting information (*e.g.*, source MAC address), analyzing information (*e.g.*, whether the destination MAC address is known), and sending information (*e.g.*, updated MAC address information to another line card). This is a basic and abstract idea in both the technical context and non-technical context. This same basic idea has been held over and over to be an abstract idea. *See, e.g., Electric Power Group*,

LLC v. Alstom S.A., 830 F.3d 1350 (Fed. Cir. 2016) (collecting cases); *see also Digitech Image Techs., LLC v. Elecs. for Imaging, Inc.*, 758 F.3d 1344, 1351 (Fed. Cir. 2014) (“[A] process that employs mathematical algorithms to manipulate existing information to generate additional information is not patent eligible.”); *Parker v. Flook*, 437 U.S. 584, 595 (1978) (“If a claim is directed essentially to a method of calculating, using a mathematical formula, even if the solution is for a specific purpose, the claimed method is nonstatutory.”); *cf. SAP Am., Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1165 (Fed. Cir. 2018) (finding as abstract, claims covering a statistical analysis of investment data).

Step Two. The claims do not recite any inventive concept. The claims do not identify any specific hardware that is required to perform the claim, other than what was already in the prior art (e.g., bridges, line cards, ports). This is nothing more than an abstract idea. “[A] claimed invention’s use of the ineligible concept to which it is directed cannot supply the inventive concept that renders the invention significantly more than that ineligible concept.” *BSG Tech LLC v. Buyseasons, Inc.*, 899 F.3d 1281, 1290 (Fed. Cir. 2018); *see also Trading Techs. Int’l, Inc. v. IBG LLC*, 921 F.3d 1378, 1385 (Fed. Cir. 2019) (“The abstract idea itself cannot supply the inventive concept, no matter how groundbreaking the advance.”).

5. U.S. Patent No. 9,118,602

Step One. The claims are directed towards the abstract idea of analyzing information (bandwidth requirements), assigning information (encoding the port serial number), sending information (transmitting the data packet), directing the information (the packet is sent to the assigned port) and receiving information (receiving the data packet from the preceding node). This is a basic and abstract idea in both the technical context and non-technical context. *See, e.g., Two-Way Media Ltd. v. Comcast Cable Communications LLC*, 874 F.3d 1329 (Fed. Cir. 2017) (“1) sending information, 2) directing the sent information, 3) monitoring the receipt of the sent

information, and 4) accumulating records about receipt of that sent information”); *see also Digitech Image Techs., LLC v. Elecs. for Imaging, Inc.*, 758 F.3d 1344, 1351 (Fed. Cir. 2014) (“[A] process that employs mathematical algorithms to manipulate existing information to generate additional information is not patent eligible.”); *Parker v. Flook*, 437 U.S. 584, 595 (1978) (“If a claim is directed essentially to a method of calculating, using a mathematical formula, even if the solution is for a specific purpose, the claimed method is nonstatutory.”).

Step Two. The claims do not contain an inventive concept. The claims do not identify any specific hardware that is required to perform the claim, other than what was already in the prior art (e.g., switches, ports, nodes). This is nothing more than an abstract idea. “[A] claimed invention’s use of the ineligible concept to which it is directed cannot supply the inventive concept that renders the invention significantly more than that ineligible concept.” *BSG Tech LLC v. Buyseasons, Inc.*, 899 F.3d 1281, 1290 (Fed. Cir. 2018); *see also Trading Techs. Int’l, Inc. v. IBG LLC*, 921 F.3d 1378, 1385 (Fed. Cir. 2019) (“The abstract idea itself cannot supply the inventive concept, no matter how groundbreaking the advance.”).

V. ACCOMPANYING DOCUMENT PRODUCTION

Pursuant to the Scheduling Order (D.I. 37), Cisco has produced all prior art referenced in its Preliminary Invalidity Contentions (*see* documents with the prefix “CISCO-CORRIGENT-PA” produced herewith). *See* documents with the prefix “CISCO-CORRIGENT-PA” produced herewith. Cisco will promptly produce any documents uncovered during discovery, including through third-party subpoenas.

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