IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

LIONRA TECHNOLOGIES LIMITED, v. FORTINET, INC.	CASE NO. 2:22-cv-00322-JRG-RSP (Lead Case)
LIONRA TECHNOLOGIES LIMITED v. CISCO SYSTEMS, INC.	CASE NO. 2:22-cv-00305-JRG-RSP (Member Case)
LIONRA TECHNOLOGIES LIMITED v. HEWLETT PACKARD ENTERPRISE COMPANY, et al	CASE NO. 2:22-cv-00319-JRG-RSP (Member Case)
LIONRA TECHNOLOGIES LIMITED v. PALO ALTO NETWORKS, INC.	CASE NO. 2:22-cv-00334-JRG-RSP (Member Case)

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Pursuant to the Local Patent Rule 3-3, Defendants[1] provide their Invalidity Contentions.

I. INTRODUCTION

On November 4, 2022, Lionra Technologies Limited ("Lionra") served its Infringement Contentions ("Infringement Contentions") and asserted the following claims:

- U.S. Patent No. 7,302,708 ("'708 patent"): Claims 1-2, 9-11;
- U.S. Patent No. 7,685,436 ("'436 patent"): Claims 1-2, 11-13, 22;
- U.S. Patent No. 8,566,612 ("'612 patent"): Claims 1-2, 11-13, 16, 22;
- U.S. Patent No. 7,916,630 ("'630 patent"): Claims 1-8, 14-15;
- U.S. Patent No. 7,921,323 ("'323 patent"): Claims 27-28, 31, 33;

(collectively, the "Asserted Patents" or "Patents-in-Suit" and the "Asserted Claims").[2] Defendants contend that certain of the Asserted Claims are ineligible subject matter 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.

These Invalidity Contentions address the claims identified in Lionra's Infringement Contentions. Defendants reserve the right to modify, amend, or supplement these Invalidity Contentions to the extent the Court permits Lionra to amend, supplement, or otherwise modify its Infringement Contentions, including by modifying the claims asserted, and to the full extent permitted by the Local Patent Rules.

[1] Defendants are Fortinet, Inc. ("Fortinet"); Cisco Systems, Inc. ("Cisco"); Hewlett Packard Enterprise Company and Aruba Networks, LLC (collectively, "HPE"); and Palo Alto Networks, Inc. ("Palo Alto Networks").

[2] Not all claims or all patents are asserted against all Defendants. For the purposes of these invalidity contentions, Defendants address any claim that has been asserted against any Defendant. Nothing in these Invalidity Contentions, however, is an admission that other claims or other patents can be asserted against a Defendant that the claim has not been asserted against.

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

A. Priority Date

These Invalidity Contentions are based on the earliest priority dates as identified by Lionra in its Infringement Contentions. In its Infringement Contentions, Lionra did not produce any documents evidencing conception and reduction to practice. Nothing in these Invalidity Contentions shall be understood as an agreement that any Asserted Patent is entitled to claim priority to the dates identified by Lionra, or to any continuation-in-part, provisional, or foreign priority document. Defendants reserve the right to amend these Invalidity Contentions and identify additional prior art references if Lionra 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 Invalidity Contentions refers to the priority dates identified in Lionra's Infringement Contentions. Reference to a "priority date" or an "asserted priority date" should not be construed to mean that Defendants agree that any of the Asserted Patents are in fact entitled to such priority date, or that Lionra has provided proper notice

as to its contentions for a priority date.[3] To the extent Lionra alleges that any prior art relied on in these Invalidity Contentions does not actually qualify as prior art to an Asserted Patent, Defendants reserve 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).[4] Likewise, to the extent Lionra successfully establishes an invention date before any of the prior art references relied on by Defendants, then those references serve as evidence of secondary considerations of obviousness, particularly, contemporaneous invention by others.

Asserted Patent	Asserted Priority Date
’708 patent	March 11, 2004
’436 patent	October 2, 2003
’612 patent	October 2, 2003
’630 patent	September 16, 2004
’323 patent	November 16, 2006

B. Claim Construction

Defendants’ Invalidity Contentions are based on (1) Defendants’ present understanding of the Asserted Claims, and (2) the claim constructions Lionra appears to be using based on the Infringement Contentions, all without regard to whether Defendants agree with Lionra’s apparent or expressed claim constructions. Defendants reserve the right to supplement or otherwise amend

[3] Defendants reserve the right to rely on additional documents, evidence, and expert testimony, including, without limitation, the documents cited in Lionra’s Infringement Contentions, in the event that Lionra fails to establish that any Asserted Claim of any Asserted Patent is entitled to its Asserted Priority Date.

[4] Defendants reserve the right to rely on additional documents and evidence to rebut any efforts by Lionra to allege any reference was not publicly available or otherwise available as prior art.

these Invalidity Contentions in response to any court-ordered clarifications on claim constructions, any report from any expert witness for Lionra regarding the scope of the claims, any briefing filed by Lionra relating to the scope of the claims, and any position taken by Lionra concerning claim scope, infringement, or invalidity.

In the respective invalidity charts, Defendants identified terms that it contends are governed by 35 U.S.C. § 112 ¶ 6. Defendants otherwise take no position on any matter of claim construction in these Invalidity Contentions, including whether any particular claim element should be construed according to 35 U.S.C. § 112 ¶ 6. If Defendants' disclosures herein are consistent with any explicit, apparent, or implied claim constructions in Lionra's Infringement Contentions, no inference is intended and no inference should be drawn that Defendants agree with any of Lionra'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 Invalidity Contentions rely on or otherwise embody a particular order in which the steps of method claims are performed, Defendants do not necessarily propose that the method claims must be limited to such order, although Defendants may later propose such an order.

Nothing herein should be read to suggest that Defendants agree 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 Defendants agree 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 Lionra in its Infringement Contentions, with which Defendants may disagree, Defendants may take positions with respect to claim construction issues that are inconsistent with, or even contradictory to, positions expressed or implied in these Invalidity Contentions.

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

Defendants base these Invalidity Contentions on its current knowledge and understanding of the Asserted Patents, Lionra's Infringement Contentions, and other facts and information available as of the date of these contentions. Defendants' 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.[5] Furthermore, Defendants anticipate seeking and obtaining discovery, including third-party discovery, that further evidences and supports the invalidity of the Asserted Claims. Thus, Defendants expect to present additional information and evidence in support of its Invalidity Contentions, and to revise, amend, and/or supplement these Invalidity Contentions accordingly in a manner consistent with the Federal Rules of Civil Procedure and the Court's rules and applicable orders.

[5] Defendants' 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 Lionra's 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, Defendants reserve the right to review and supplement these Invalidity Contentions with respect to any additional prior art that becomes apparent as discovery proceeds.

Furthermore, Defendants are investigating and pursuing information from additional sources of discovery that may bear on prior art and other invalidity bases, and may serve discovery requests on those sources if necessary. Defendants reserve the right to revise, amend, and/or supplement these Invalidity Contentions with any relevant information obtained from those additional sources.

Defendants further reserve 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 Lionra in connection with this litigation.

Defendants reserve the right to modify and/or supplement these Invalidity Contentions with an explanation of why the Asserted Claims are invalid under 35 U.S.C. § 102(f)-(g) in the event Defendants obtain 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 Defendants 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 Defendants, 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, Defendants currently are unaware of the extent, if any, to which Lionra will contend that limitations of the

Asserted Claims are not disclosed in the prior art identified by Defendants. To the extent that such an issue arises, Defendants reserve 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 Invalidity Contentions, Defendants identify specific portions of prior art references that disclose the elements of the Asserted Claims. While Defendants have 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. Defendants therefore reserve 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 in the understanding and interpretation of the identified portions of the prior art.

Defendants also reserve 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 Defendants' 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 Defendants' anticipation contentions and are not to be construed to suggest that any reference included in the combinations is not by itself anticipatory.

Where Defendants identify 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

Defendants reserve the right to argue that various portions of the Asserted Claims, such as an intended use or result, nonfunctional 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 Defendants agree 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 Defendants' accused products infringe any of the Asserted Claims. Defendants reserve the right to amend and supplement these Invalidity Contentions, including in response to any amendments to, and revisions of, Lionra's Infringement Contentions or application of the Asserted Claims.

Defendants further reserve 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

Defendants contend 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 Defendants' invalidity claim charts under 35 U.S.C. § 103 are exemplary and are not intended to be exhaustive. In particular, Defendants are currently unaware of the extent, if any, to which Lionra will contend that limitations of the Asserted Claims are not disclosed in the art identified by Defendants as anticipatory. To the extent an issue arises with any such limitation, Defendants 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.

Defendants reserve 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, Defendants expect 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, Defendants reserve 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 nonobviousness. *ZUP, LLC v. Nash Mfg., Inc.*, 896 F.3d 1365, 1373 (Fed. Cir. 2018). As of the date of these Invalidity Contentions, Lionra has not identified any evidence of

secondary considerations, nor does Lionra offer any evidence or explanation to support its allegations. As shown in these Invalidity Contentions, other companies and individuals described, built, and/or patented the exact same concepts in the Asserted Patents before Lionra 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 Invalidity Contentions that Lionra is able to pre-date based on its asserted priority dates by proving, *inter alia*, corroborated conception and diligent reduction to practice.

Defendants reserve all rights to further respond to any secondary considerations of nonobviousness raised by Lionra, including by updating, modifying, and/or adding to these Invalidity Contentions. Defendants are 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 A1–A8, B1–B17, C1–C10, and D1–D24, and Appendices A–D, Defendants 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. 7,302,708

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. A more detailed discussion is provided below.

Receiving Access Requests From Entity with Predetermined Access Level

The Asserted Claims of the '708 Patent require, e.g., "receiving . . . a request from an entity with a predetermined access level for access to a first base node representing at least one of an information type and a computer system function." '708 patent, cl. 1; *see also id.* at cl. 9, 10. Receiving access requests from a user or application for information or computer resources (e.g., computer system functions) was well known in the art, as acknowledged by the '708 patent itself. '708 patent at 1:22-26. Indeed, the very operation of a computer requires users and/or applications to request information or computer system functions. For example, Albornoz discloses applications making function calls and system calls. *See e.g.*, Albornoz at [0044] and [0054]; *see also, e.g.*, Tajalli at [0048], [0053]. Similarly, Karch discusses monitoring user requests in a data access system. *See, e.g.*, Karch at 3:57-60, 4:30-42; *see also, e.g.*, Harp at [0025]; Funabashi at Abstract. Gladstone also discusses access to various system resources and processes for purposes of securing a computer system. *See, e.g.*, Gladstone at 1:22-45, 3:46-48, 5:2-9. Ben-Itzhak similarly details the operation of a security system that allows or denies request access in a computerized environment. *See, e.g.*, Ben-Itzhak at Abstract, [0001], [0031], [0033], [0051-0053].

Likewise, it was well known in the art for a user or application to be assigned a predetermined access level. As the '708 patent explains, in the prior art, "[m]ethods for implementing logical security safeguards typically provide access based on a user/group/role identifier and an access control list for the file, database, or system function to be accessed." '708 patent at 1:22-25; *see also* 1:33-36. It was well known that not all users should have administrative-level access to a computer system, or that not all users should have access to highly

sensitive information. For example, Funabashi discloses that different users had different access rights. *See, e.g.*, Funabashi at Abstract. Satterlee discloses checking whether a computer program is authorized to operate, and Albornoz discloses applications having access to perform certain actions and tasks. *See, e.g.*, Satterlee at [0012], [0013], [0037]; Albornoz at [0028]. Likewise, Gladstone discloses access decisions based on the identity of the user and individual permissions associated with each user. *See., e.g.*, Gladstone at 1:64-67, 2:7-20, 2:30-33. Meanwhile, Ben-Itzhak discloses predefined attributes in implementing security policies. *See, e.g.*, Ben-Itzhak at [0014], [0025], [0117], [0122]-[0123], [0055-0060], [0066]. In addition, disclosures regarding security policies that implement access rules for handling sensitive or classified information were well known, such that entities whose "predetermined access level" was too low would not be able to access classified information. *See, e.g.*, Department of Defense, Trusted Computer System Evaluation Criteria dated December 26, 1985.

Monitoring Temporal Access Patterns

The Asserted Claims of the '708 patent require, e.g., "determining if said access requests completes a prohibited temporal access pattern." '708 patent, cl. 1; *see also id.* at cl. 9, 10. This is the purported point of novelty of the '708 patent. However, it was well known in the art to monitor temporal access patterns of users and/or applications in order to identify suspicious or malicious behavior. The '708 patent acknowledges that U.S. Patent No. 6,334,121 to Primeaux et al. ("Primeaux") disclosed this requirement, but alleges incorrectly that Primeaux "does not address enforcement of a security policy based on such flagging." *Compare* '708 patent at 1:46-51, *with* Primeaux at Abstract ("perform[ing] automatic responses when confronted with non-authenticated users"), 3:29-34 ("[T]he system can be implemented to automatically alert the system administrator, block further logins from the suspected intruder, or take some other action automatically."). Further, Harp, for example, discloses monitoring user inputs and activities. Harp

at [0025], [0026], [0034]. Trajalli likewise discloses monitoring for unacceptable behavior. Trajalli at [0186], [0251]. Funabashi discloses monitoring operation patterns and characteristics of a user, including time-series patterns. Funabashi at pp. 3, 7-10, 16. Jones discloses behavioral monitoring, including an ordered sequence of actions that comprise an intrusion. Jones at pp. 3, 9, 10, 14; *see also* Karch at 3:23-27, 4:30-39, 5:31-60; Albornoz at [0055-57]; Ben-Itzhak at [0055-60], [0081], [0097-109], [0126]; Van Oorschot at 9:6-25. Similarly, Gladstone also discloses the detection of anomalous behavior, including detection of a prohibited combination and sequence of events within a prescribed timeframe. *See, e.g.*, Gladstone at 6:13-19, 9:11-14, 9:54-55, 13:8-21.

Granting or Denying Access

The Asserted Claims of the '708 patent require, e.g., "granting said access request" and/or "denying said request" based on whether the request "completes a prohibited temporal access pattern" and whether the "minimum access level" for the requested node exceeds the "predetermined access level." '708 patent, cl. 1, 2, 9, 10, 11. Granting or denying access based on allowed or prohibited access rights was well known in the art. *See* '708 patent at 1:16-19 ("Providing system security in such multi-user environments requires a balance between permitting access to resources necessary to perform the business functions of the enterprise and limiting access."). For example, Funabashi discloses controlling access based on user access authorizations. Funabashi at pp. 3, 9. Harp likewise discloses checking whether a user is a valid user for accessing information. Harp at [0025], [0040], [0117]. Trajalli discloses that applications and users can have defined appropriate access. Trajalli at [0044], [0137]; *see also* Satterlee at [0103], [0035]; Lortz at 1:64-2:9, 2:44-56. Gladstone also discloses permitting or denying access based on user permissions and other attributes. Gladstone at 6:13-24, 9:11-27, 9:54-55, 13:8-21.

Moreover, it was well known in the art to grant or deny a request based on a "temporal access pattern." For example, Funabashi discloses preventing fraudulent access. Funabashi at pp.

2, 7, 14. Jones discloses preventing access by freezing a user's account. Jones at p. 14. Albornoz discloses that an application may be terminated. *See, e.g.,* Albornoz at [0056-57], cl. 9. Karch likewise discloses preventing intrusions and suspicious actions. Karch at 5:18-21, 6:6-14; *see also* Harp at [0027], [0126]. Gladstone discloses permitting or denying access based on user permissions and sequence of actions. Gladstone at 6:13-24, 9:11-27, 9:54-55, 13:8-21. Finally, despite the '708 patent's statement that admitted prior art Primeaux "does not address enforcement of a security policy based on such flagging" ('708 patent at 1:49-51), Primeaux teaches an adjustable system that can take a range of actions upon discovering improper activity, including "prevent[ing] a destructive command from being executed" and logging off a user and blocking a user ID from future logins. Primeaux at 2:45-46, 10:60-65, 11:24-31, cl. 4, 17.

Nodes Arranged in the Form of a Tree Hierarchy

Asserted claims 9 and 10 require, e.g., "a plurality of higher-level nodes arranged together with . . . base nodes in the form of a tree hierarchy." '708 patent, cl. 9, 10. The use of tree hierarchies was well known in the art. For example, Harp discloses the use of tree hierarchies. Harp at [0043-44], [0047-48], Figs. 4, 7, 8, 9A-9D, 9E-9G; *see also* Trajalli at [0160-0161]; Lortz at 2:57-3:18, 3:29-45; Salazar at [0007], [0009], [0019], [0020-22], [0026], [0038], [0040], [0042]. Similarly, Ben-Itzhak teaches "a tree indicating all the application locations, and their related paths." Ben-Itzhak at [0081]. Gladstone also discloses higher level nodes in a graphical representation representing information. Gladstone at 3:2-6.

Other documents that disclose the state of the art, in addition to what is cited on the face of the '708 patent, are listed below:

- U.S. Patent App. Pub. No. 2005/0086500 ("Albornoz")
- U.S. Patent App. Pub. No. 20050038881A1 ("Ben-Itzhak")
- WO9731317A1 ("Funabashi")

- U.S. Patent No. 7,290,266 ("Gladstone")
- U.S. Patent App. Pub. No. 2004/0103296A1 ("Harp")
- U.S. Patent No. 7,096,219 ("Karch")
- U.S. Patent App. Pub. No. 2004/0025015A1 ("Satterlee")
- U.S. Patent App. Pub. No. 2004/0143749A1 ("Tajalli")
- U.S. Patent No. 7,107,610 ("Lortz")
- U.S. Patent No. 7,546,633 ("Garg")
- U.S. Patent App. Pub. No. 2005/0076030A1 ("Hada")
- U.S. Patent App. Pub. No. 2004/0122792A1 ("Salazar")
- U.S. Patent No. 6,229,894B1 ("Van Oorschot")
- U.S. Patent No. 5,375,244 ("McNair")
- U.S. Patent App. Pub. No. 2005/0071643 ("Moghe")
- WO01/25882A1 ("Simpson")
- Jones, "Computer Sys Intrusion Detection: A survey" ("Jones")
- Hofmeyr, Forrest & Somayaji, "Intrusion Detection using Sequences of System Calls" ("Hofmeyr")
- Lane & Brodley, "Sequence Matching and Learning in Anomaly Detection for Computer Security" ("Lane")
- Department of Defense, Trusted Comptuer System Evaluation Criteria ("DoD")
- U.S. Patent No. 6,754,820 ("Scheidt")
- Denning, "Cryptography and Data Security" ("Denning")

2. U.S. Patent Nos. 7,685,436 & 8,566,612

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.

<u>Security Processor</u>

The Asserted Claims are directed to a "security processor" or "security processing system." '436 patent, cl. 1, 13; '612 patent, cl. 1, 13. However, the '436 and '612 patents explain that "network and security processing systems and methods, and related communications interfaces and protocols" were well known in the prior art. *See, e.g.*, '436 patent, 4:62-5:6. For example, Gupta discloses "network security devices … to implement … security operations." *See, e.g.*, Gupta at 3:19-33. Kim similarly describes an "integrated security gateway for integrating intrusion detection functions as well as virtual private networking and firewall functions." *See, e.g.*, Kim at Abstract, [0015]-[0016]. Lai discusses a "network security device" that is an "IPSec processor." *See, e.g.*, Lai at [0005]. Ke 716 similarly described an "Internet security device," such as a firewall or secure gateway, for processing packets. *See, e.g.,* Ke 716 at Abstract, 1:58-3:32. Intel IXP describes that it is a "network processor" that can be used for "IPSec and Virtual Private Network (VPN) solutions." *See, e.g.*, Ex. B17; *see also, e.g.*, NetScreen IDP and NetScreen Appliances. Finally, Gupta describes a "network security sensor architectures used to implement intrusion detection and protection." *See, e.g.*, Gupta at 1:11-14.

Switching System

The Asserted Claims of the '436 and '612 patents further require that the "security processor" include a "switching system" that receives and sends packets. '436 patent, cl. 1, 13; '612 patent, cl. 1, 13. Again, the '436 and '612 patents acknowledge that switching systems "suitable for use with the present invention" were known in the prior art, including "conventional switches." *Id*. at 7:37-47. For example, Ke 716 describes that its security device includes a "switching board 205 [that] receives and processes incoming packets." *See, e.g.*, Ke 716 at 4:27-6:24, Figs. 2-3. Pham also describes a secure VPN gateway that utilizes a "IBM Packet Routing Switches." *See, e.g.*, Pham at [0045]. Gupta describes that its security processor is "connected to

… a switching fabric." *See, e.g.*, Gupta at 4:5-14, Fig. 4B. Ackerman describes a switch including a network processing module that has a fabric switch system. *See, e.g.*, Ackerman at [0057]. Kim likewise describes that its security gateway includes network interface cards that store incoming and outgoing packets. Kim at [0041]-[0043], [0052]-[0054].

Packet Engine

The Asserted Claims of the '436 and '612 patents further require that the "security processor" include a "packet engine," that is "one of a plurality of packet engines," and that handles "classification processing." '436 patent, cl. 1, 13; '612 patent, cl. 1, 13. The '436 and '612 patents again describe that packet engines "suitable for use with the present invention" were well known. *Id*. at 9:62-10:3. For example, Ackerman describes that its network processor module "receives and classifies flows." *See, e.g.*, Ackerman at [0012]. Lai also discloses that its processor includes a parser and classification unit. *See, e.g.*, Lai at [0033]. Wu discloses that packet protocols are decoded from received packets and then "classified by the first and second stage classifiers." *See, e.g.*, Wu at 7:51-67; *see also, e.g.*, Gupta at 4:30-36, 5:16-21. Ke 716 likewise describes that the management board functions include "packet classification" through "extraction of layer information and 'typing' of a packet." *See, e.g.*, Ke 716 at 6:25-7:20. Wang describes that "[i]ncoming packets on the network interface are parsed and classified as they are stored in a buffer memory." *See, e.g.*, Wang at Abstract, 2:54-3:32, 8:5-32; Kim at [0031]-[0034]. The '436 patent additionally requires providing a packet with a "tag." Such a functionality was also well known in the industry. *See, e.g.*, Buer at Abstract, [0054]; Krishna at 9:33-49; Noehring at 12:40-13:6, 14:35-39; Ke at [0008], [0034]-[0035], [0045]; Pham at [0016], [0051], [0072], [0076].

Cryptographic Core

The Asserted Claims of the ’436 and ’612 patents further require that the “security processor” include a “cryptographic core” for encrypting and decrypting packets. ’436 patent, cl. 1, 13; ’612 patent, cl. 1, 13. The ’436 and ’612 patents describe that cryptographic cores “suitable for use with the present invention” were well known. *Id*. at 11:29-47. This is demonstrated in the prior art cited herein. For example, Ackerman discloses that its security system includes an encryption session module that decrypts traffic. *See, e.g.*, Gupta at 16:33-17:35. Kim describes that data encryption and decryption are performed in its security gateway by a VPN processor. Kim at [0030], [0040], [0046]-[0049]. Ke 716 discloses that its processing boards handle tasks such as traffic encryption and decryption. Ke 716 at 9:25-30, 10:33-46, 11:34-43. Pham describes that its security processor “implements a highly integrated symmetric cryptography engine providing hardware support for IPsec encryption and decryption operations.” Pham at [0052]. Intel IXP processor includes multiple “crypto units” or “crypto blocks” for “packet encryption/decryption.” *See, e.g.*, Ex. B17; *see also* Verhoorn at Abstract; Ramelson at 6:41-8:36.

Signature Database

The Asserted Claims of the ’436 and ’612 patents further require that the “security processor” include a “signature database” and an “intrusion detection system … responsive to at least one packet matching a signature stored in the signature database.” ’436 patent, cl. 1, 13; ’612 patent, cl. 1, 13. Intrusion detection systems that included signature databases for matching packets were common place in the art. For example, Wu discloses a “signature based intrusion detection system” that stores signature profiles in a “signature database.” Wu at 1:6-8, 2:39-3:9, 3:52-4:3, 5:16-25, 6:4-12, 7:51-67. Gupta describes a classification and pattern matching module stored in memory that compares incoming traffic to a set of intrusion signatures. *See, e.g.,* Gupta at 4:59-63, 11:26-12:30, 16:22-32. Kim also describes an intrusion detection system in the security

gateway that is used to block network traffic. Kim at [0011]-[0012], [0015]-[0016], [0035]-[0038], [0040], [0055]. Gupta describes a pattern matching module has a set of intrusion signatures that are used to detect an attack. Gupta at 4:59-63, 11:26-12:30, 16:22-32; *see also* Vaidya at Abstract, 2:31-53, 2:61-3:23, 3:28-35, 3:66-4:7, 6:1-26. Teal describes an "intrusion detection system" that uses dynamically loaded signatures to detect malicious network activity. Teal at Abstract, 1:8-10, 4:28-47. Cantrell describes "detection signatures" used for the "identification, detection, and suppression of … network threats." Cantrell at 7:35-9:35.

Other documents that disclose the state of the art, in addition to what is cited on the face of the '436 and '612 patents, are listed below:

- U.S. Patent App. Pub. No. 2003/0074473 ("Pham")
- U.S. Patent No. 6,725,371 ("Verhoorn")
- U.S. Patent No. 7,373,500 ("Ramelson")
- U.S. 2004/0143734 ("Buer 734")
- U.S. 2002/0069356 ("Kim")
- U.S. Patent No. 7,624,444 ("Gupta")
- U.S. Patent No. 6,279,113 ("Vaidya")
- U.S. Patent No. 7,095,716 ("Ke 716")
- U.S. Patent No. 7,454,499 ("Cantrell")
- U.S. Patent No. 7,661,130 ("Hussain")
- U.S. Patent App. Pub. No. 2003/0041266 ("Ke")
- U.S. Patent App. Pub. No. 2002/0165947 ("Akerman")
- U.S. Patent No. 6,477,765 ("Herrera")
- U.S. Patent No. 7,424,744 ("Wu")
- U.S. Patent App. Pub. No. 2004/0039936 ("Lai")

- U.S. Patent App. Pub. No. 2004/0139313 ("Buer 313")
- U.S. Patent App. Pub. No. 2004/0205332 ("Bouchard")
- U.S. Patent No. 7,320,142 ("Kasper")
- U.S. Patent No. 7,996,670 ("Krishna")
- U.S. Patent No. 7,181,017 ("Nagel")
- U.S. Patent App. Pub. No. 2002/0073316 ("Collins")
- The World Intellectual Property Organization Publication No 2002/048857 ("Elbe")
- U.S. Patent App. Pub. No. 2003/0145228 ("Suuronen")
- U.S. Patent No. 7,194,766 ("Noehring")
- U.S. Patent App. Pub. No. 2002/0188871 ("Noehring '871")
- U.S. Patent No. 6,393,568 ("Ranger")
- U.S. Patent No. 7,724,740 ("Wang")
- U.S. Patent No. 6,477,651 ("Teal")
- U.S. Patent No. 6,674,743 ("Amara")
- U.S. Patent App. Pub. No. 2004/0205332 ("Bouchard")
- U.S. Patent App. Pub. No. 2005/0066166 ("Chin")
- "A Secure Adaptive Network Processor," Dissertation of Scott Harper (2003).

3. U.S. Patent No. 7,916,630

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.

<u>Monitoring Components in a Ring Network</u>

The Asserted Claims are directed to a "monitoring a system condition of a network," especially with components "organized in a ring network." '630 patent, cls.1, 14, 15. However, the '630 patent explains that monitoring of a system condition in distributed systems for each

component in the system was known in the prior art. '630 patent at 1:14–2:29. According to the patent, monitoring for system conditions for each component could be achieved through a Ping-Pong mechanism. *Id.*, 1:19-59. Monitoring of a system condition is also disclosed, for example, in Silva, Kanamaru, Chung. *See, e.g.*, Silva at 172; Kanamaru at 1:5–10; Chung at 1:20–22. Additionally, ring networks are also disclosed, for example, in Silva, SRP, Mekkittikul, Kalman. *See, e.g.*, Silva at 172; SRP at 1; Mekkittikul at Abstract, Figs. 7–8; Kalman at 1:17–2:7.

Monitoring only a single neighbor

The Asserted Claims are directed to "monitoring only a single respective neighboring component." '630 patent, cls.1, 14, 15. However, monitoring of a single neighbor component was well known in the art. Monitoring of a single neighbor is disclosed, for example, in Silva and Kubo. Silva discloses monitoring its "next neighbor." Silva at 172–3, Fig. 1. Kubo discloses "supervising the operating state of its next processor." Kubo at 2:20–34.

Informing all other components

The Asserted Claims are directed to "informing all other components of the system" about the condition of the node that failed. '630 patent, cls. 1, 7, 14, 15. However, informing all other components in a network about a node failure was well known in the art. Informing all other components of a node failure is disclosed, for example, in Silva and Mekkittikul. For example, Silva discloses informing all other nodes about the "Node Down" condition by broadcasting a "NODE_DOWN(2,1)" message. Silva at 173. Mekkittikul discloses that a node failure is "broadcast to all nodes, identifying the failed connection." Mekkittikul at 5:1–17.

"Alive" and "Acknowledgement" Messages

The Asserted Claims are directed to a sending an "Alive" message to the neighbor component periodically to inform the neighbor that the node is operational. '630 patent, cls. 3–6.

The Asserted Claims are also directed to sending an "Acknowledgement" to confirm receipt of information transmitted by the informing all process. '630 patent, cl. 8. However, the use of "Alive" and "Acknowledgement" messages for this very purpose was well known in the art. For example, this was disclosed in Silva, Pomaranski, and Assi. Silva teaches the use of an I_AM_ALIVE message and an ND-Ack message. Silva at 172–73. Pomaranski teaches the use of a heartbeat signal. Pomaranski at [0008]–[0010]. Assi discloses the use of an acknowledgement (ACK) message. Assi at 59–60.

Other documents that disclose the state of the art, in addition to what is cited on the face of the '630 patent, are listed below:

- U.S. Patent No. 6,574,197 ("Kanamaru")
- U.S. Patent Application Pub. No. 2002/0169861 ("Chang")
- U.S. Patent Application Pub. No. 2003/0169861 ("Misumi")
- U.S. Patent Application Pub. No. 2003/0204786 ("Dinker")
- U.S. Patent Application Pub. No. 2008/0037562 ("Saleh")

4. U.S. Patent No. 7,921,323

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.

<u>FPGAs and ASICs</u>

For example, the '323 patent explains that FPGAs and multiple ASIC devices were well known in the prior art. '323 patent, 1:13-17. According to the patent, multiple FPGA devices could be interconnected as an array on a single circuit card or across multiple cars using multiple parallel wiring configurations. *Id*. at 1:19-59. This is also disclosed, for example, in Smith,

Ramesh, Master, Palacharla, Hartsell, and Young. *See, e.g.*, Smith at [0046]; Ramesh at [0040]; Master at [0011], [0024]; Young at [0005], [0007]; Palacharla at [0007]; Hartsell at [0008].

Optical Links

Furthermore, as disclosed in the prior art cited herein, network switches with optical links were common place in the art. These optical link network switches were commonly connected to each other using optical links from a line card one switch to a line card on another switch. *E.g.*, Sauer, Islam, HP Samudrala, HP ProCurve, Raj, Dickinson.

Other documents that disclose the state of the art, in addition to what is cited on the face of the '323 patent, are listed below:

- U.S. Patent Pub. No. 2003/0131228 ("Twomey")
- U.S. Patent No. 6,101,181 ("Passint")
- U.S. Patent No. 4,498,134 ("Hansen")
- U.S. Patent No. 5,784,636 ("Rupp")
- U.S. Patent No. 5,859,550 ("Brandt")
- U.S. Patent No. 7,609,689 ("Desanti")
- U.S. Patent No. 5,864,738 ("Kessler")
- U.S. Patent No. 9,021,130 ("Sahay")
- EP 1865674 ("Katzenholz")
- GB 2413872 ("Hicok")
- CA 2410770 ("Perampalamoorthy")
- EP 1638042 ("Solomon")
- U.S. Patent Pub. No. 2004/0208163 ("Patel")
- U.S. Patent Pub. No. 2004/0202205 ("Sheth")

- U.S. Patent Pub. No. 2005/0078683 (“Page”)
- U.S. Patent Pub. No. 2003/0054774 (“Plunkett”)
- U.S. Patent Pub. No. 2003/0231630 (“Messenger”)
- Chang, BLAST Implementation on BEE2
- Arvind, RAMP: Research Accelerator for Multiple Processors
- Chang, BEE2: A High-end Configurable Computing System
- Shultz, RAMP Blue: Design and Implementation of a Message Passing Multi-processor System on the BEE2
- Khalid, Use of switched fabrics in implementation of software defined radio smart antenna and interference cancellation signal processing
- Hosking, Switched serial fabric strategies for VMEbus
- Artisan Scientific, “00-MHz PowerPC 7410 Daughtercards
- Ejnioui, Mapping Multi-Million Gate SoCs on FPGAs: Industrial Methodology and Experience
- Devlin, Nallatech’s DIME-II Modular Architecture Goes Pro
- Bursky, High-Density FPGAs Take on System ASIC Features and Performance Levels
- Nikolic, High-speed electrical interfaces
- Anderson et al., The Benchmarker’s Guide to Single-processor Optimization for CRAY T3E Systems
- Cray T3E User’s Guide
- Dhir, Designing high-speed serial links
- Duelk et al., Next generation packet routers
- Hogg, Ethernet on a ring

- Foundry FastIron X-Series Configuration Guide
- Gripp et al, Optical switch fibers for ultra-high capacity IP routers
- Xilinx, High-speed Serial I/O made simple
- Kupernova, Mapping multi-million gate SoCs on FPGAs
- Murotake, Use of Switched fabrics in implementation of software defined radio smart antenna and interface cancellation signal processing
- Nallatech, New Virtex card provides FPGA-based real-time processing
- Pentek, Switched serial fabric strategies for VMEbus
- Pentek, VSX: Switched serial gigabit fabric for VMEbus
- Quartana et al., GALS systems prototyping using multiclock FPGAs and asynchronous network-on-chips

B. Identification of Prior Art

Defendants identify the following prior art now known to Defendants that anticipate or render 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. Defendants' reliance on each prior art reference identified throughout these 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 A1–A8, B1–B17, C1–C10, and D1–D24, and

Appendices A–D hereto identifies any prior art reference as disclosing or teaching such similarly construed claim limitation, such identified prior art reference and Defendants' contentions with respect to same are incorporated by reference. Priority dates identified for the prior art references are based on information currently available to Defendants, and Defendants will amend this disclosure to the extent additional information becomes available.

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

The prior art identified below is exemplary; the claimed features are similarly described or disclosed in additional prior art. Thus, Defendants reserve 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 A1–A8, B1–B17, C1–C10, and D1–D24, each discloses, either expressly or inherently, every element of the Asserted Claims, thereby anticipating those claims. To the extent Lionra 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 Lionra contends is not met by a particular primary reference, Defendants contend 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 Defendants contend 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 Lionra has asserted 122 claims across five patents. Defendants' 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.

Defendants do not yet have the benefit of Lionra's positions on the prior art, including what (if any) elements it contends are missing in each prior art reference, whether Lionra agrees that a reference is in fact prior art, and whether Lionra agrees that a person of ordinary skill in the art would be motivated to combine specific references. Defendants reserve 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. 7,302,708

a. Prior Art Patents / Patent Publications

- U.S. Pat. Application Pub. No. 2005/0086500 A1 ("Albornoz")
- WO1997031317A1 ("Funabashi")
- U.S. Patent Application Pub. No. 2004/0103296 A1 ("Harp")
- U.S. Patent No. 7,096,219 ("Karch")
- U.S. Patent Application Pub. No. 2004/0143749 A1 ("Tajalli")
- U.S. Patent Application Pub. No. 2004/0025015 A1 ("Satterlee")

- U.S. Patent Application Pub. No. 2003/0023774 A1 ("Gladstone")
- U.S. Patent Application Pub. No. 2005/0038881 A1 ("Ben-Itzhak")

b. Prior Invention Under § 102(g)

For any of the prior art that Defendants have identified, Defendants may argue that the authors or inventors of that prior art invented the subject matter claimed in the '708 Patent prior to the filing date of the '708 Patent. Discovery has not started and Defendants will supplement as discovery begins.

c. Obviousness and Secondary References

Defendants identify 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. 7,107,610 ("Lortz")
- U.S. Patent Application Pub. No. 2005/0071643A1 ("Moghe")
- WO01/25882A1 ("Simpson")
- U.S. Patent No. 5,375,244 ("McNair")
- U.S. Patent Application Pub. No. 2004/0025015 A1("Satterlee")
- Jones et al, "Computer System Intrusion Detection: A Survey" ("Jones")
- U.S. Patent No. 7,546,633 ("Garg")
- U.S. Patent Application Pub. No. 2005/0076030A1 ("Hada")
- U.S. Patent Application Pub. No. 2004/0122792A1 ("Salazar")
- U.S. Patent No. 6,229,894 to Van Oorschot et al. ("Van Oorschot")

- Hofmeyr, Forrest & Somayaji, “Intrusion Detection using Sequences of System Calls” (“Hofmeyr”)
- Lane & Brodley, “Sequence Matching and Learning in Anomaly Detection for Computer Security” (“Lane”)

2. U.S. Patent Nos. 7,685,436 & 8,566,612

a. Prior Art Patents / Patent Publications

- U.S. Patent Application Pub. No. 2003/0074473 (“Pham”)
- U.S. Patent Application Pub. No. 2003/0041266 (“Ke”)
- U.S. Patent Application Pub. No. 2002/0165947 (“Akerman”)
- U.S. Patent No. 7,624,444 (“Gupta”)
- U.S. Patent No. 6,279,113 (“Vaidya”)
- U.S. Patent No. 7,373,500 (“Ramelson”)
- U.S. Patent Application Pub. No. 2004/0039936 (“Lai”)
- U.S. Patent No. 6,725,371 (“Verhoorn”)
- U.S. Patent No. 7,424,744. (“Wu”)
- U.S. Patent Application Pub. No. 2002/0069356 (“Kim”)
- U.S. Patent No. 6,477,651 (“Teal”)
- U.S. Patent No. 7,095,716 ("Ke 716")

b. Prior Art Systems

Defendants identify the following systems—including constituent software, hardware, methods, and processes—as prior art that anticipate or render obvious the Asserted Claims of these patents. 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 Asserted Patents. Discovery is ongoing and Defendants will supplement as discovery continues.

- Cisco Catalyst 6000 Series
- Cisco PIX
- NetScreen Appliances, including without limitation NS-100, 500, 1000, and 5000 Series running Screen OS
- NetScreen IDP
- Intel IXP Processor

c. Prior Invention Under § 102(g)

For any of the prior art that Defendants have identified, Defendants may argue that the authors or inventors of that prior art invented the subject matter claimed in the '436 and '612 patents prior to the filing date of the '436 and '612 patents. Discovery is ongoing and Defendants will supplement as discovery continues.

d. Obviousness and Secondary References

Defendants identify 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. 2004/0143734 ("Baur")
- U.S. Patent No. 7,454,499 ("Cantrell")
- U.S. Patent No. 7,66,1130 ("Hussain")
- U.S. Patent No. 6,477,765 ("Herrera")

- U.S. Patent No. 7,424,744. ("Wu")
- U.S. Patent Application Pub. No. 2004/0139313 ("Baur")
- U.S. Patent Application Pub. No. 2004/0205332 ("Bouchard")
- U.S. Patent No. 7,320,142 ("Kasper")
- U.S. Patent No. 7,996,670 ("Krishna")
- U.S. Patent No. 7,181,017 ("Nagel")
- U.S. Patent Application Pub. No. 2002/0073316 ("Collins")
- The World Intellectual Property Organization Publication No 2002/048857 ("Elbe")
- U.S. Patent Application Pub. No. 2003/0145228 ("Suuronen")
- U.S. Patent No. 7,194,766 ("Noehring")
- U.S. Patent No. 6,393,568 ("Ranger")
- U.S. Patent No. 7,724,740 ("Wang")

3. U.S. Patent No. 7,916,630

a. Prior Art Patents / Patent Publications

- DIP: Distributed Diagnosis Protocol by Silva et al. ("Silva")
- U.S. Patent No. 6,574,197 ("Kanamaru")
- U.S. Patent No. 5,463,763 ("Kubo")
- WO/02073902A1 ("Mekkittikul")
- Performance and Dependability of Structured Peer-to-peer overlays ("Castro")
- An Approach to Transparent Fault Tolerance for Client-Server Models ("Becker")
- U.S. Patent No. 6,266,781 ("Chung")
- U.S. Patent No. 6,438,705 ("Chao")
- U.S. Patent No. 7,283,485 (incorporating by reference U.S. Patent Pub. No. 2004/0100971 and WO2001/086874)

- RFC 2892 - The Cisco SRP MAC Layer Protocol ("SRP")

b. Prior Art Systems

Defendants identify 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. Defendants reserve 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 Defendants will supplement as discovery continues.

- Cisco SRP MAC Layer Protocol ("SRP")

c. Prior Invention Under § 102(g)

For any of the prior art that Defendants have identified, Defendants may argue that the authors or inventors of that prior art invented the subject matter claimed in the '630 patent prior to the filing date of the '630 patent. Discovery is ongoing and Defendants will supplement as discovery continues.

d. Obviousness and Secondary References

Defendants identify 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 Application Pub. No. 2005/0188283. ("Pomaranski")
- WO2001/067685 ("Kalman")
- Improving Signaling Recovery in Shared Mesh Optical Networks by Assi et al. ("Assi")

4. U.S. Patent No. 7,921,323

a. Prior Art Patents / Patent Publications

- WO 2006/010353 ("Sauer")
- U.S. Patent No. 7,260,655 ("Islam")
- U.S. Patent Application Pub. No. 2005/0013311 ("Samudrala")
- U.S. Patent Application Pub. No. 2005/0089049 ("Chang")
- U.S. Patent Application Pub. No. 2003/0091035 ("Roy")
- U.S. Patent Application Pub. No. 1005/0097305 ("Doering")
- U.S. Patent Application Pub. No. 2004/0254779 ("Yang")
- U.S. Patent No. 5,276,684 ("Pearson")
- U.S. Patent No. 4,498,134 ("Hansen")
- U.S. Patent No. 5,850,537 ("Selvidge")
- U.S. Patent No. 6,438,737 ("Morelli")
- U.S. Patent No. 6,604,230 ("Khalid")
- U.S. Patent No. 6,794,896 ("Brebner")
- U.S. Patent Application Pub. No. 2002/0059274 ("Hartsell")
- U.S. Patent Application Pub. No. 2004/0103265A1 ("Smith")
- U.S. Patent Application Pub. No. 2006/0095716A1 ("Ramesh")

- U.S. Patent Application Pub. No. 2002/0138716A1 ("Master")
- U.S. Patent Application Pub. No. 2005/0235070A1 ("Young")
- U.S. Patent No. 5,784,636 ("Rupp")
- U.S. Patent Application Pub. No. 2003/0054774 A1 ("Plunkett")

b. Prior Art Publications

- HP ProCurve 5300 manual

c. Prior Art Systems

Defendants identify 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 Defendants will supplement as discovery continues.

- HP ProCurve 5300 system
- NetScreen Appliances, including without limitation NS-100, 500, 1000, and 5000 Series running Screen OS
- NetScreen IDP running ScreenOS
- Nortel Networks' Alteon Switched Firewall System

d. Prior Invention Under § 102(g)

For any of the prior art that Defendants have identified, Defendants may argue that the authors or inventors of that prior art invented the subject matter claimed in the '323 patent prior to

the filing date of the ’323 patent. Discovery is ongoing and Defendants will supplement as discovery continues.

e. Obviousness and Secondary References

- U.S. Patent No. 7,609,689 (“Desanti”)
- EP 1865674 (“Kastenholz”)
- “High-Density FPGAs Take On System ASIC Features And Performance Levels,” Bursky (“Bursky”)
- Neilson, “Photonics for Switching and Routing” (“Neilson”)
- U.S. Patent No. 6,438,737 ("Morelli")
- U.S. Patent No. 7,251,364 ("Dickinson")
- U.S. Patent Publication No. 2008/0089640 ("Beausoleil")
- U.S. Patent Publication No. 2009/0252498 ("Agranat")
- U.S. Patent No. 6,496,291 ("Raj")

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 A1–A8, B1–B17, C1–C10, and D1–D24, and Appendices A–D. 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, Defendants identify specific portions of prior art references that disclose or render obvious the elements of the Asserted Claims. Although Defendants have identified at least one citation per element, each and every disclosure of the same element in a given reference is not necessarily identified. That Defendants did not identify each similar disclosure should not be construed as a concession by Defendants 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 Defendants identify 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. Defendants 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

Defendants believe 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").

Defendants have 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 A1–A8, B1–B17, C1–C10, and D1–D24, and Appendices A–D 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 Lionra 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 A1–A8, B1–B17, C1–C10, and D1–D24, and Appendices A–D, 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 Lionra alleges that any particular claim limitation is not 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 Defendants are currently unaware of the extent, if any, to which Lionra will contend that limitations of the Asserted Claims are not disclosed in the art identified herein as anticipatory, Defendants reserve the right to identify other references and combinations that may render an allegedly missing limitation obvious. In addition, if and to the extent that Lionra challenges the relevance of any of these references with respect to particular limitations of the Asserted Claims of the Asserted Patents, Defendants reserve its right to identify further motivation to combine particular references with additional particularity.

1. U.S. Patent No. 7,302,708 – Exemplary Motivations to Combine

Defendants have 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.

It would been obvious to combine each of the references discussed below because they are analogous art generally directed to computer and data security by ensuring permissible access rights and behavior. The cited art demonstrates that at the time of the claimed invention, protecting computer systems and data from access by malicious users and software was of critical importance. Accordingly, computer and data security was increasingly becoming a critical issue in enterprise networks as well as individual user systems. Security measures were required, for example, to prevent hackers from gaining unauthorized access to information and system resources. This was particularly the case where a user accessed a system using legitimate credentials, but then acted with malicious intent. Such attacks were harder to detect using traditional antivirus and antimalware capabilities.

One of the additional security measures known at the time of the claimed invention was the use of behavioral-based detection systems. These systems monitored user and application behavior to determine whether the behavior itself showed a malicious intent, even where the user and/or application was not by definition otherwise malicious. This enabled more sophisticated detection of malicious activity on a computer network or system.

- For the Asserted Claims of the ’708 patent, to the extent the references charted in any of Exhibits A1 to A8 do not disclose “receiving . . . a request from an entity with a predetermined access level for access to a first base node” and “comparing a minimum access level established for said first base node to said predetermined access level,” 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, for example: Harp,

Funabashi, Satterlee, Albornoz, Ben-Itzhak, Gladstone, Lortz, Garg, Hada, Salazar, Van Oorschot, Hofmeyr, and Lane. A person of skill in the art would be motivated to combine these references because they each disclose computer security systems in the same general field. It is the nature of those of skill in the art of computer security systems to monitor developments in competing products and combine relevant features and functionalities. A person of skill would have been motivated to look at how other products and systems monitored for malicious activity and mimic those same techniques. For example, it would have been obvious to a person of skill to look at how other solutions in the computer security space monitored activity for malicious activity. 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 '708 patent, to the extent the references charted in any of Exhibits A1 to A8 do not disclose "determining if said access request completes a prohibited temporal access pattern for said entity," 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, for example, Harp, Trajalli, Funabashi, Karch, Albornoz, Ben-Itzhak, Gladstone, Jones, Hada, Salazar, Van Oorschot, Hofmeyr, and Lane. A person of skill in the art would be motivated to combine these references because they each disclose computer security systems in the same general field. It is the nature of those of skill in the art of computer security systems to monitor developments in competing products and combine relevant features and functionalities. A person of skill would have been motivated to look at how other products and systems monitored for malicious activity and mimic those same techniques. For example, it would have been obvious to a person of skill to look at how other solutions in the computer security space monitored activity for malicious activity. 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 '708 patent, to the extent the references charted in any of Exhibits A1 to A8 do not disclose "grant[ing/s] said access request only if it does not complete a prohibited temporal access pattern for said entity" or "den[ies/ying] said request if said access request completes a prohibited temporal access pattern for said entity," 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, for example Harp, Trajalli, Funabashi, Karch, Albornoz, Ben-Itzhak, Gladstone, Jones, Garg, Hada, Salazar, Van Oorschot, Hofmeyr, and Lane. A person of skill in the art would be motivated to combine these references because they each disclose computer security systems in the same general field. It is the nature of those of skill in the art of computer security systems to monitor developments in competing products and combine relevant features and functionalities. A

person of skill would have been motivated to look at how other products and systems monitored for malicious activity and mimic those same techniques. For example, it would have been obvious to a person of skill to look at how other solutions in the computer security space respond to evaluating malicious activity. 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 '708 patent, to the extent the references charted in any of Exhibits A1 to A8 do not disclose "denying said request" or "granting said access request" based on a "predetermined access level" or "temporal access pattern," 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, for example, Harp, Trajalli, Funabashi, Satterlee, Albornoz, Ben-Itzhak, Gladstone, Lortz, Jones, Garg, Hada, Salazar, Van Oorschot, Hofmeyr, and Lane. A person of skill in the art would be motivated to combine these references because they each disclose computer security systems in the same general field. It is the nature of those of skill in the art of computer security systems to monitor developments in competing products and combine relevant features and functionalities. A person of skill would have been motivated to look at how other products and systems monitored for malicious activity and mimic those same techniques. For example, it would have been obvious to a person of skill to look at how other solutions in the computer security space responded to malicious activity. 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 '708 patent, to the extent the references charted in any of Exhibits A1 to A8 do not disclose "a plurality of higher-level nodes arranged together with [] base nodes in the form of a tree hierarchy" or "a tree hierarchy," 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, for example, Trajalli, Harp, Jones, Lortz, Ben-Itzhak, Salazar, Garg, Hada. A person of skill in the art would be motivated to combine these references because they each disclose computer security systems in the same general field. It is the nature of those of skill in the art of computer security systems to monitor developments in competing products and combine relevant features and functionalities. A person of skill would have been motivated to look at how other products and systems monitored for malicious activity and mimic those same techniques. For example, it would have been obvious to a person of skill to look at how other solutions in the computer security space determined a behavior constituted malicious activity. 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 '708 patent, to the extent the references charted in any of Exhibits A1 to A8 do not disclose "a temporal access table," 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, for example, Albornoz, Satterlee, Karch, Harp, Jones, Ben-Itzhak, Gladstone, Garg, Hada, Lane. A person of skill in the art would be motivated to combine these references because they each disclose computer security systems in the same general field. It is the nature of those of skill in the art of computer security systems to monitor developments in competing products and combine relevant features and functionalities. A person of skill would have been motivated to look at how other products and systems stored information for making determinations of malicious activity and mimic those same techniques. For example, it would have been obvious to a person of skill to look at how other solutions in the computer security space stored information for determining that a behavior constituted malicious activity. 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 Nos. 7,685,436 & 8,566,612 – Exemplary Motivations to Combine

Defendants have 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.

- It would have been obvious to combine each of the references discussed below because they are analogous art generally directed to network protection operating at the packet level to ensure transported data to the network is secure. The cited art explains that at the time of the claimed invention, corporations were increasingly using the Internet for corporate data and communications with external networks. Further, personal use of the internet was exponentially increasing. Accordingly, network security was increasingly becoming a

critical issue in enterprise and service-provider networks as usage of public networks for data transport increased. Security measures were required, for example, to prevent hackers from gaining unauthorized access to information resources or shutting down an e-commerce web site via a distributed denial of service attack. Service providers traditionally deployed firewalls to prevent unauthorized users from entering their networks, but also added additional security technologies to protect their system's vulnerability that firewalls alone could not address.

- One of these additional security measures known at the time of the claimed invention is an intrusion detection system. As network attacks increased in number and severity, intrusion detection systems became a necessary addition to the security infrastructure of most organizations. Intrusion detection allowed organizations to protect their systems from threats that come with increasing network connectivity and reliance on information systems. Intrusion detection systems include software or hardware systems that automate the process of monitoring events occurring in a computer system or network, and analyzing them for signs of security problems. The art explains that because intruders attempt to compromise the confidentiality, integrity, availability, or to bypass the security mechanisms of a computer or network, intrusion detection technology became a necessary addition to every large organization's computer network security infrastructure.

- To achieve these goals, while maintaining the speed and transactional reliability of network data transmission, the art discloses the use of matching a signature to a signature database before the packet is allowed to be accepted into the network or sent out from the network. To do so, the art discloses specialized hardware to inspect unencrypted traffic interposed between the switching system and the rest of the system.

- For the Asserted Claims of the '436 and '612 patents, to the extent the references charted in any of Exhibits B1 to B17 do not disclose "a switching system to send the outgoing packets and receive the incoming packets," or "a switching system to send outgoing packets and to receive incoming packets," 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 Ackerman, Ke, Lai, Buer, Pham, Gupta, Kim, Ke 716, Krishna, Wang, and NetScreen IDP. A person of skill in the art would be motivated to combine these references because they each disclose computing systems in the same general field. It is the nature of the computing systems to monitor developments in competing products and combine relevant features and functionalities. A person of skill would have been motivated to look at how other products and systems connected to other systems and mimic those same techniques. For example, it would have been obvious to a person of skill to look at the arrangement of various components in well-known network security processors. 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 ’436 and ’612 patents, to the extent the references charted in any of Exhibits B1 to B17 do not disclose “a packet engine coupled to the switching system, to handle classification processing for the incoming packets received by the packet engine from the switching system and the outgoing packets sent by the packet engine to the switching system” or “a packet engine, coupled to the switching system, to handle classification processing for the incoming packets received by the packet engine from the switching system and the outgoing packets sent by the packet engine to the switching 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 B, including at least Ackerman, Lai, Ke, Wu, Ke 716, Wang, Krishna, Noehring, NetScreen IDP, and Intel IXP. A person of skill in the art would be motivated to combine these references because they each disclose computing systems in the same general field. It is the nature of the computing systems to monitor developments in competing products and combine relevant features and functionalities. A person of skill would have been motivated to look at how other products and systems connected to other systems and mimic those same techniques. For example, it would have been obvious to a person of skill to look at the arrangement of various components in well-known network security processors. 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 ’436 and ’612 patents, to the extent the references charted in any of Exhibits B1 to B17 do not disclose “wherein the packet engine is one of a plurality of packet engines and substantially all of the incoming packets and outgoing packets to the security processor transit one of the plurality of packet engines,” or “wherein the packet engine is one of a plurality of packet engines and substantially all of the incoming packets and outgoing packets to the security processor transit one of the plurality of packet engines,” 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 Ackerman, Lai, Ke, Wu, Ke 716, Wang, Krishna, Noehring, NetScreen IDP, and Intel IXP. A person of skill in the art would be motivated to combine these references because they each disclose computing systems in the same general field. It is the nature of the computing systems to monitor developments in competing products and combine relevant features and functionalities. A person of skill would have been motivated to look at how other products and systems connected to other systems and mimic those same techniques. For example, it would have been obvious to a person of skill to look at the arrangement of various components in well-known network security processors. 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 ’436 and ’612 patents, to the extent the references charted in any of Exhibits B1 to B17 do not disclose “wherein the incoming packets and outgoing packets are provided with a tag upon ingress to one of the plurality of packet engines and the tag determines an egress path within the security processor upon exit from a corresponding cryptographic core,” or “wherein the incoming and outgoing packets are provided with a tag upon ingress to one of the plurality of packet engines and the tag determines an egress path within the security processor upon exit from a corresponding cryptographic core,” 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 Ke, Buer, Lai, Krishna, Pham, Kasper, and Noehring. A person of skill in the art would be motivated to combine these references because they each disclose computing systems in the same general field. It is the nature of the computing systems to monitor developments in competing products and combine relevant features and functionalities. A person of skill would have been motivated to look at how other products and systems connected to other systems and mimic those same techniques. For example, it would have been obvious to a person of skill to look at the arrangement of various components in well-known network security processors. 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 ’436 and ’612 patents, to the extent the references charted in any of Exhibits B1 to B17 do not disclose “a cryptographic core, coupled to the packet engine and receiving the incoming packets from the switching system via the packet engine and communicating the outgoing packets to the switching system via the packet engine, to provide encryption and decryption processing for packets received from and sent to the packet engine, wherein the packet engine is interposed between the switching system and the cryptographic core,” 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 Ackerman, Brouchard, Buer, Gupta, Ke 716, Pham, Verhoorn, Ramelson, Lai, Krishna, Noehring, Ranger, and Intel IXP. A person of skill in the art would be motivated to combine these references because they each disclose computing systems in the same general field. It is the nature of the computing systems to monitor developments in competing products and combine relevant features and functionalities. A person of skill would have been motivated to look at how other products and systems connected to other systems and mimic those same techniques. For example, it would have been obvious to a person of skill to look at the arrangement of various components in well-known network security processors. 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 ’436 and ’612 patents, to the extent the references charted in any of Exhibits B1 to B17 do not disclose “a signature database” and “an intrusion detection system coupled between the cryptographic core and the packet engine and responsive to at least one packet matching a signature stored in the signature database,” 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 Wu, Gupta, Vaidya, Teal, Cantrell, Kasper, Buer, Wang, and NetScreen IDP. A person of skill in the art would be motivated to combine these references because they each disclose computing systems in the same general field. It is the nature of the computing systems to monitor developments in competing products and combine relevant features and functionalities. A person of skill would have been motivated to look at how other products and systems connected to other systems and mimic those same techniques. For example, it would have been obvious to a person of skill to look at the arrangement of various components in well-known network security processors. 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 ’436 and ’612 patents, to the extent the references charted in any of Exhibits B1 to B17 do not disclose “wherein the packet engine is further operable to handle security context management processing for the incoming and outgoing packets,” 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 Pham, Ke 716, Kim, Lai, Verhoorn, Ke, Kasper, Wu, Gupta, Teal, Krishna, Noehring, NetScreen IDP, and Intel IXP. A person of skill in the art would be motivated to combine these references because they each disclose computing systems in the same general field. It is the nature of the computing systems to monitor developments in competing products and combine relevant features and functionalities. A person of skill would have been motivated to look at how other products and systems connected to other systems and mimic those same techniques. For example, it would have been obvious to a person of skill to look at the arrangement of various components in well-known network security processors. 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 ’436 and ’612 patents, to the extent the references charted in any of B1 to B17 do not disclose “wherein the packet engine is further operable to remove an IP header from the incoming packets,” 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 Pham, Gupta, Ramelson, Ke 716, Vaidya, Kim, Lai, Buer, Ke, Gupta, and Noehring. A person of skill in the art would be motivated to combine these

references because they each disclose computing systems in the same general field. It is the nature of the computing systems to monitor developments in competing products and combine relevant features and functionalities. A person of skill would have been motivated to look at how other products and systems connected to other systems and mimic those same techniques. For example, it would have been obvious to a person of skill to look at the arrangement of various components in well-known network security processors. 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 '436 and '612 patents, to the extent the references charted in any of Exhibits B1 to B17 do not disclose "wherein the at least one packet matching the signature stored in the signature database comprises a plain text packet," 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 Gupta, Ke 716, Vaidya, Verhoorn, Wu, Gupta, Buer, NetScreen IDP, and Intel IXP. A person of skill in the art would be motivated to combine these references because they each disclose computing systems in the same general field. It is the nature of the computing systems to monitor developments in competing products and combine relevant features and functionalities. A person of skill would have been motivated to look at how other products and systems connected to other systems and mimic those same techniques. For example, it would have been obvious to a person of skill to look at the arrangement of various components in well-known network security processors. 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 '436 and '612 patents, to the extent the references charted in any of Exhibits B1 to B17 do not disclose "a local data bus coupled to the switching system," and "a memory coupled to the local data bus," 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 Ackerman, Wu, Gupta, Ramelson, Ke 716, Verhoorn, Kim, Lai, Buer, Ke, Brouchard, Gupta, Krishna, Noehring, Wang, and Intel IXP. A person of skill in the art would be motivated to combine these references because they each disclose computing systems in the same general field. It is the nature of the computing systems to monitor developments in competing products and combine relevant features and functionalities. A person of skill would have been motivated to look at how other products and systems connected to other systems and mimic those same techniques. For example, it would have been obvious to a person of skill to look at the arrangement of various components in well-known network security processors. 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 '436 and '612 patents, to the extent the references charted in any of Exhibits B1 to B17 do not disclose "wherein the memory and the security processor are within the same cryptographic boundary," 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 Gupta, Pham, Kim, Lai, Ke, Bouchard, Buer, Krishna, Noehring, NetScreen IDP, and Intel IXP. A person of skill in the art would be motivated to combine these references because they each disclose computing systems in the same general field. It is the nature of the computing systems to monitor developments in competing products and combine relevant features and functionalities. A person of skill would have been motivated to look at how other products and systems connected to other systems and mimic those same techniques. For example, it would have been obvious to a person of skill to look at the arrangement of various components in well-known network security processors. 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. 7,916,630 – Exemplary Motivations to Combine

Defendants have 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.

- It would have been obvious to combine each of the references discussed below because they are analogous art generally directed to monitoring a network, system, or application in a distributed network architecture. The references explain that at the time of the '630 patent, many distributed systems and networks needed to be highly available, and failures

needed to be detected and remedied in an efficient manner. However, many existing systems had significant maintenance overhead, and resulted in a high volume of maintenance/monitoring messages, lengthy monitoring intervals, and/or high latency. Accordingly, at that time, new techniques to reduce the number of messages sent throughout the network to determine network node conditions were being developed. To achieve these goals, the references disclose the use and combination of various methods of monitoring a distributed system.

- For the Asserted Claims of the '630 patent, to the extent the references charted in any of Exhibits C1 to C10 do not disclose "each component in the system monitoring only a single respective neighboring component," 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 Becker, Castro, Chao, Chung, Kubo, Kanamaru, Kalman. A person of skill in the art would be motivated to combine these references because they each disclose computing systems in the same general field. It is the nature of the computing systems to monitor developments in competing products and combine relevant features and functionalities. A person of skill would have been motivated to look at how other products and systems monitored components in the network and mimic those same techniques. For example, it would have been obvious to a person of skill to look at the high message volume generated during monitoring of a system condition in a distributed system and reduce the volume of messages by monitoring only a single neighbor. 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 '630 patent, to the extent the references charted in any of Exhibits C1 to C10 do not disclose "each component in the system informing all other components of the system about the current condition of the respective neighboring component when the current condition corresponds to at least one predefined condition," 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 Castro, Kubo, Mekkittikul, Silva. A person of skill in the art would be motivated to combine these references because they each disclose computing systems in the same general field. It is the nature of the computing systems to monitor developments in competing products and combine relevant features and functionalities. A person of skill would have been motivated to look at how other products and systems monitored components in the network and mimic those same techniques. For example, it would have been obvious to a person of skill to look at the high message volume generated during monitoring of a system condition in a distributed system and reduce the volume of messages by informing all when the predefined condition is met. 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 ’630 patent, to the extent the references charted in any of Exhibits C1 to C10 do not disclose “at least one predefined condition is at least one of a functional incapacity corresponding to an offline condition,” 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 Kuno, Kanamaru, Silva, Wray. A person of skill in the art would be motivated to combine these references because they each disclose computing systems in the same general field. It is the nature of the computing systems to monitor developments in competing products and combine relevant features and functionalities. A person of skill would have been motivated to look at how other products and systems monitored components in the network and mimic those same techniques. For example, it would have been obvious to a person of skill that one predefined condition is functional incapacity corresponding to an offline condition because the goal is to monitor the network for the condition of its components. 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 ’630 patent, to the extent the references charted in any of Exhibits C1 to C10 do not disclose “monitoring the respective neighboring component” using “an ‘Alive’ message,” where the “‘Alive’ message is sent periodically,” and determining “functional incapacity . . . if the respective neighbor does not send any ‘Alive’ information for 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 C, including at least Becker, Castro, Chao, Chung, Kubo, Kanamaru, Mekkittikul, Silva, Wray, Pomaranski. A person of skill in the art would be motivated to combine these references because they each disclose computing systems in the same general field. It is the nature of the computing systems to monitor developments in competing products and combine relevant features and functionalities. A person of skill would have been motivated to look at how other products and systems monitored components in the network and mimic those same techniques. For example, it would have been obvious to a person of skill to use an “Alive” message to monitor the status of the respective neighboring component and realizing that if no “Alive” message is sent for a certain period of time, that the neighboring component is down. 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 ’630 patent, to the extent the references charted in any of Exhibits C1 to C10 do not disclose “informing all the other components about the predefined condition of the respective neighboring component” and “preforming an acknowledgement process . . . it if has received information about the predefined

condition," 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 Becker, Castro, Kubo, Silva, Assi. A person of skill in the art would be motivated to combine these references because they each disclose computing systems in the same general field. It is the nature of the computing systems to monitor developments in competing products and combine relevant features and functionalities. A person of skill would have been motivated to look at how other products and systems monitored components in the network and mimic those same techniques. For example, it would have been obvious to a person of skill to inform all other components about the predefined condition, such as functional incapacity, and for the nodes to acknowledge receipt of this information in the form of an "Acknowledgement" message. 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. 7,921,323 – Exemplary Motivation to Combine

Defendants have 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.

It would have been obvious to combine each of the references discussed below because they are analogous art generally directed to communications infrastructures. The cited art explains that at the time of the claimed invention corporations were increasingly communications infrastructures, including for ASIC networks. Further, with use of the internet ever expanding at the time, the supporting infrastructure continued development and more equipment was needed to support the demand. Accordingly, companies were coming up with new ways to structure the

devices that supported the internet, including by using line cards, backplanes, and other similar components.

To achieve these goals, while maintaining the speed and transactional reliability of network data transmission, the art discloses the use and combination of these multiple different structures, including using different high-speed links in different ways.

- For the Asserted Claims of the '323 patent, to the extent the references charted in any of Exhibits D1 to D24 do not disclose "each one of said two or more signal processing circuits including multiple ASIC devices that each itself includes a packet router" or "two or more separate signal processing circuits, each one of said two or more signal processing circuits including multiple ASIC devices that each itself includes a packet router," 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 Sauer, Samudrala, Chang, Roy, Yang, Pearson, HP ProCurve Manual, HP ProCurve System, Desanti, Kastenholz, Smith, Young, Ramesh, Bursky, Hansen, Morelli, Hartsell, Palacharla. A person of skill in the art would be motivated to combine these references because they each disclose computing systems in the same general field. It is the nature of those of skill in the art of these types of computing systems to monitor developments in competing products and combine relevant features and functionalities. A person of skill would have been motivated to look at how other products and systems connected to other systems and mimic those same techniques. For example, it would have been obvious to a person of skill to look at how line cards and other FPGA or ASIC devices were connected. 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 '323 patent, to the extent the references charted in any of Exhibits D1 to D24 do not disclose "said packet router of each one of said ASIC devices of each given one of said respective two or more signal processing circuits being coupled through respective first and second common interfaces and an intervening high speed serial optical link to a respective packet router of each of the ASIC devices of each other of said two or more signal processing circuits" or "said packet router of each one of said ASIC devices of each given one of said respective two or more signal processing circuits being coupled through respective first and second common interfaces and an intervening high speed serial optical link to a respective packet router of each of the other ASIC devices of each other of said two or more signal processing circuits," 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 Sauer, Islam, Samudrala, Chang, Roy, Yang, Pearson, HP ProCurve Manual, HP ProCurve System, Smith, Young, Ramesh, Master,

Bursky, Hansen, Morelli, Hartsell, Palacharla. A person of skill in the art would be motivated to combine these references because they each disclose computing systems in the same general field. It is the nature of those of skill in the art of these types of computing systems to monitor developments in competing products and combine relevant features and functionalities. A person of skill would have been motivated to look at how other products and systems connected to other systems and mimic those same techniques. For example, it would have been obvious to a person of skill to look at how line cards and other FPGA or ASIC devices were connected. 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 '323 patent, to the extent the references charted in any of Exhibits D1 to D24 do not disclose "with no other processing device intervening between the high speed optical link and said ASIC devices of each of said two or more signal processing circuits," 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 Islam, Chang, Roy, Yang, HP ProCurve Manual, HP ProCurve System, Smith, Young, Ramesh, Master, Bursky, Dickinson, Beausoleil, Agranat. A person of skill in the art would be motivated to combine these references because they each disclose computing systems in the same general field. It is the nature of the computing systems to monitor developments in competing products and combine relevant features and functionalities. A person of skill would have been motivated to look at how other products and systems connected to other systems and mimic those same techniques. For example, it would have been obvious to a person of skill to look at how line cards and other FPGA or ASIC devices were connected. 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 '323 patent, to the extent the references charted in any of Exhibits D1 to D24 do not disclose "said interconnection further comprises a high bandwidth interconnection medium," 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 slam, Chang, Roy, Yang, HP ProCurve Manual, HP ProCurve System, Smith, Young, Ramesh, Bursky, Dickinson, Beausoleil, Agranat. A person of skill in the art would be motivated to combine these references because they each disclose computing systems in the same general field. It is the nature of those of skill in the art of these types of computing systems to monitor developments in competing products and combine relevant features and functionalities. A person of skill would have been motivated to look at how other products and systems connected to other systems and mimic those same techniques. For example, it would have been obvious to a person of skill to look at how

line cards and other FPGA or ASIC devices were connected. 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 '323 patent, to the extent the references charted in any of Exhibits D1 to D24 do not disclose "selectively transferring at least one data packet from each said packet router of each one of said ASIC devices of each given one of said respective two or more signal processing circuits to each respective packet router of said at ASIC devices of each of the other of said two or more signal processing circuits through said first and second common interfaces and said intervening high speed serial optical link without routing said data through any other intervening processing device between each respective ASIC device and the high speed serial optical link," 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 Islam, Chang, Roy, Yang, HP ProCurve Manual, HP ProCurve System, Smith, Young, Mast, Ramesh, Beausoleil. A person of skill in the art would be motivated to combine these references because they each disclose computing systems in the same general field. It is the nature of those of skill in the art of these types of computing systems to monitor developments in competing products and combine relevant features and functionalities. A person of skill would have been motivated to look at how other products and systems connected to other systems and mimic those same techniques. For example, it would have been obvious to a person of skill to look at how line cards and other FPGA or ASIC devices were connected. 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

Defendants allege 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). Defendants reserve all rights to amend their 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 Lionra's infringement positions, and/or to account for any changes in the law concerning invalidity under 35 U.S.C. § 112. Defendants also reserve the right to provide additional explanation and/or argument for their

Invalidity Contentions under Section 112, including, for example, based on expert testimony. Defendants' 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 Sci. 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").

Defendants contend 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, and/or enabling disclosure. For each listed term or phrase, Defendants believe the term or phrase is invalid under Section 112, ¶ 1, as is any limitation including such terms or phrases, for the same reason(s).

Defendants further contend that Lionra's apparent claim constructions render the asserted claims extremely broad in scope and well beyond the purported inventions described in the Patents-in-Suit. Based on a review of Lionra's Infringement Contentions, Lionra is attempting to construe the Patent-in-Suit in an idiosyncratic manner that is entirely inconsistent with the written specifications and prosecution histories of the Patents-in-Suit as well as with the understanding of one of ordinary skill in the art at the time the applications that issued as the Patents-in-Suit were filed. These allegations are inconsistent with the plain language of the claims, the supporting description, and the prosecution history.

The Asserted Claims are invalid because the specification of the Patents-in-Suit do not include sufficient written description of the purported inventions allegedly claimed in the Patents-in-Suit, and the manner and process of making and using it, in such full, clear, concise and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use any of the allegedly claimed inventions, 35 U.S.C. § 112, ¶ 1.

Moreover, the patent applications that issued as the Patents-in-Suit did not contain a written description of the purported invention sufficiently clear and complete to enable one of ordinary

skill in the art to which the purported invention pertains to make and use the invention as claimed without undue experimentation. *Id.* To the extent any of the Asserted Claims are found to cover one or more of the accused products identified in Lionra's Infringement Contentions, such Asserted Claims are also invalid under 35 U.S.C. § 112, ¶ 1 because their full scope is not enabled by the specifications of the relevant Patents-in-Suit.

1. U.S. Patent No. 7,302,708

Defendants contend that the full scope of each Asserted Claim of the '708 patent was not described with particularity in the specification to which priority is sought, so as not to set forth enough detail to allow a person of ordinary skill in the art to understand what is claimed and to recognize that the inventor invented what is claimed. Accordingly, each Asserted Claim of the '708 patent is invalid for lack of adequate written description and/or enablement under 35 U.S.C. § 112, ¶ 1, based at least on the following claim terms/phrases:

- "determining if said access request completes a prohibited temporal access pattern for said entity" (claims 1, 2, 9, 10, 11)
- "[granting / grants] said access request only if it does not complete a prohibited temporal access pattern for said entity, and said minimum access level for said first base node does not exceed said predetermined access level" (claims 1, 2, 9, 10, 11)
- "denying said request if said access request completes a prohibited temporal access pattern" (claims 1, 2, 9)
- "a plurality of logical base nodes representing at least one of an information type and a computer system function" (claims 9, 10, 11)
- "a plurality of higher-level nodes arranged together with said base nodes in the form of a tree hierarchy" (claims 9, 10, 11)

Moreover, to the extent Defendants understand Lionra's deficient infringement contentions, Lionra's apparent interpretation of the Asserted Claims of the '708 patent is that they are broad enough to encompass, e.g., receiving URL links to a page on a website or a request from a "known good" requester (e.g., known good bot) as a "request from an entity with a predetermined

access level," allow lists and block lists as "minimum access level," and determining if the timing of link requests is consistent with bot activity or thresholds for requests per second as "complet[ing] a prohibited temporal access pattern." Further, to the extent Defendants understand Lionra's deficient infringement contentions, Lionra's apparent interpretation of the Asserted Claims of the '708 patent is that they are broad enough to encompass, e.g., accessing a web application as accessing a system "having a plurality of logical base nodes representing at least one of an information type and a computer system function, and a plurality of higher-level nodes arranged together with said base nodes in the form of a tree hierarchy." Further, to the extent Defendants understand Lionra's deficient infringement contentions, Lionra's apparent interpretation of the Asserted Claims of the '708 patent is that they are broad enough to encompass, e.g., permitting setting policy limits as "a temporal access table." Finally, to the extent Defendants understand Lionra's deficient infringement contentions, Lionra's apparent interpretation of the Asserted Claims of the '708 patent is that they are broad enough to encompass, e.g., a website that branches or links to other pages as the claimed "tree hierarchy." Under these overly broad interpretations of the Asserted Claims, each of the Asserted Claims of the '708 patent is invalid for lack of written description and/or is not enabled.

2. U.S. Patent Nos. 7,685,436 & 8,566,612

Defendants contend that the full scope of each Asserted Claim of the '436 and '612 patents was not described with particularity in the specification to which priority is sought, so as not to set forth enough detail to allow a person of ordinary skill in the art to understand what is claimed and to recognize that the inventor invented what is claimed. Accordingly, each Asserted Claim of the '612 patent is invalid for lack of adequate written description and/or enablement under 35 U.S.C. § 112, ¶ 1, based at least on the following claim terms/phrases:

- "security processor"

- "coupled to"
- "packet engine"
- "interposed between"
- "wherein the incoming packets and outgoing packets are provided with a tag"
- "provided with a tag"
- "cryptographic core"
- "an intrusion detection system coupled between the cryptographic core and the packet engine"
- "responsive to at least one packet matching a signature stored in the signature database"
- "plain text packet"
- "security context management processing"
- "remove an IP header"

Moreover, to the extent Defendants understand Lionra's deficient infringement contentions, Lionra's apparent interpretation of the Asserted Claims of the '436 and '612 patents is that they are broad enough to encompass, e.g., a single processor that performs both encryption/decryption and packet engine functionality, or a single processor that performs switching and encryption/decrypting as satisfying the claims' requirement of a "cryptographic core, coupled to the packet engine . . . wherein the packet engine is interposed between the switching system and the cryptographic core." Further, to the extent Defendants understand Lionra's deficient infringement contentions, Lionra's apparent interpretation of the Asserted Claims of the '436 and '612 patents is that they are broad enough to encompass, e.g. a component or module that performs encryption/decryption and receives packets before a packet engine receives the packets as satisfying the claims' requirement of "a cryptographic core, coupled to the packet engine and receiving incoming packets from the switching system via the packet engine."

Further, to the extent Defendants understand Lionra's deficient infringement contentions, Lionra's apparent interpretation of the Asserted Claims of the '436 and '612 patents is that they are broad enough to encompass, e.g. intrusion prevention capability engine performed by the same processor that performs encryption/decryption as satisfying the claims' requirement of "an intrusion detection system coupled between the cryptographic core and the packet engine" Further, to the extent Defendants understands Lionra's deficient infringement contentions, Lionra's apparent interpretation of the Asserted Claims of the '436 and '612 patents is that they are broad enough to encompass, e.g., changing an address in a packet as being "operable to remove an IP header from the incoming packets." Further, to the extent Defendants understands Lionra's deficient infringement contentions, Lionra's apparent interpretation of the Asserted Claims of the '436 and '612 patents is that they are broad enough to encompass, e.g., assigning priority to a packet as satisfying the claim requirement of "incoming and outgoing packets are provided with a tag upon ingress to one of the plurality of packet engines and the tag determines an egress path within the security processor upon exit from a corresponding cryptographic core."

Under these overly broad interpretations of the Asserted Claims, each of the Asserted Claims of the '436 and '612 patents is invalid for lack of written description and/or is not enabled.

3. U.S. Patent No. 7,916,630

Defendants contend that the full scope of each Asserted Claim of the '630 patent was not described with particularity in the specification to which priority is sought, so as not to set forth enough detail to allow a person of ordinary skill in the art to understand what is claimed and to recognize that the inventor invented what is claimed. Accordingly, each Asserted Claim of the '630 patent is invalid for lack of adequate written description and/or enablement under 35 U.S.C. § 112, ¶ 1, based at least on the following claim terms/phrases:

- "component"

- “each component in the system monitoring only a single respective neighboring component among said distributed components”
- “predecessor or successor”
- “current condition”
- “respective neighboring component”
- “the current condition corresponds to at least one predefined condition”
- “informing all”
- “leasing method”
- “functional incapacity corresponding to an offline condition and a functional capacity corresponding to an online condition”
- “an ‘Alive’ message “
- “the ‘Alive’ information”
- “carried out using an ‘Inform All’ method”
- “performing an acknowledgment process by each of the other components, in which each of the other components, if it has received information about the predefined condition of the respective neighboring component, confirms receipt of the information, by sending an “Acknowledgment” message”
- “each component in a logical ring structure monitoring only a single neighboring component among distributed components”
- “each component informing”
- “network with distributed components”
- “each component monitoring only a single respective neighboring component among components”
- “the current condition of the respective neighboring component corresponds to a predefined condition”

Moreover, to the extent Defendants understand Lionra’s deficient infringement contentions, Lionra’s apparent interpretation of the Asserted Claims of the ’630 patent is that they

are broad enough to encompass, e.g., a portion of a network node satisfies the claimed "component."

4. U.S. Patent No. 7,921,323

Defendants contend that the full scope of each Asserted Claim of the '323 patent was not described with particularity in the specification to which priority is sought, so as not to set forth enough detail to allow a person of ordinary skill in the art to understand what is claimed and to recognize that the inventor invented what is claimed. Accordingly, each Asserted Claim of the '323 patent is invalid for lack of adequate written description and/or enablement under 35 U.S.C. § 112, ¶ 1, based at least on the following claim terms/phrases:

- "communications infrastructure"
- "two or more separate signal processing circuits"
- "signal processing circuits"
- "multiple ASIC devices"
- "packet router"
- "common interfaces"
- "coupled through respective first and second common interfaces"
- "intervening high speed serial optical link"
- "no other processing devices intervening between the high speed optical link and said ASIC devices"
- "high bandwidth interconnection medium"
- "selectively transferring at least one data packet from each said packet router"
- "said intervening high speed serial optical link without routing said data through any other intervening processing device between each respective ASIC device and the high speed serial optical link"

To the extent Defendants understand Lionra's deficient infringement contentions, Lionra's apparent interpretation of the Asserted Claims of the '323 patent is that they are broad enough to encompass, e.g., an integrated switch fabric to satisfy the claimed requirement of the "packet router of each one of said ASIC devices of each given one of said respective two or more signal processing circuits being coupled through respective first and second common interfaces."

Moreover, to the extent Fortinet understands Lionra's deficient infringement contentions, Lionra's apparent interpretation of the Asserted Claims of the '323 patent is that they are broad enough to encompass using an optical connection between two separate interface modules, with separate optical transceivers terminating the optical connection, as satisfying, e.g., the claimed requirement of "an intervening high speed serial optical link to a respective packet router of each of the ASIC devices of each other of said two or more signal processing circuits with no other processing device intervening between the high speed optical link and said ASIC devices of each of said two or more signal processing circuits." Likewise, to the extent Defendants understand Lionra's deficient infringement contentions, Lionra's apparent interpretation of the Asserted Claims of the '323 patent is that they are broad enough to encompass a firewall that connects to another firewall via separate interface modules, with the interface modules using an optical connection that requires separate optical transceivers terminating the optical connection, as satisfying, e.g., the claimed requirement of "an intervening high speed serial optical link to a respective packet router of each of the ASIC devices of each other of said two or more signal processing circuits with no other processing device intervening between the high speed optical link and said ASIC devices of each of said two or more signal processing circuits."

Under this overly broad interpretation of the Asserted Claims, each of the Asserted Claims of the '323 patent is invalid for lack of written description and/or is not enabled.

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).

Defendants contend 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, Defendants believe 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. 7,302,708

- "[a first base node / a plurality of logical base nodes] representing at last one of an information type and a computer system function"

- "determining if said access request completes a prohibited temporal access pattern for said entity"
- "comparing a minimum access level established for said first base node to said predetermined access level"
- "exceeds said predetermined access level"
- "a plurality of higher-level nodes arranged together with said base nodes in the form of a tree hierarchy"
- "processing means programmed for comparing said access request to said temporal access table to determine if said access request contemplates a prohibited temporal access pattern for said entity, and for comparing a minimum access level established for said base node to said predetermined access level . . . wherein said processing means denies said request if said access request completes a prohibited temporal access pattern and grants said access request only if it does not complete a prohibited temporal access pattern for said entity, and said minimum access level for said base node does not exceed said predetermined access level"

2. U.S. Patent Nos. 7,685,436 & 8,566,612

- "security processor"
- "coupled to"
- "packet engine"
- "wherein the incoming packets and outgoing packets are provided with a tag"
- "provided with a tag"
- "cryptographic core"
- "an intrusion detection system coupled between the cryptographic core and the packet engine"
- "responsive to at least one packet matching a signature stored in the signature database"
- "plain text packet"
- "security context management processing"
- "remove an IP header"

3. U.S. Patent No. 7,916,630

- “component”
- “respective neighboring component”
- “current condition”
- “predefined condition”
- “functional incapacity”
- “functional capacity”
- “each component in the system monitoring only a single respective neighboring component among said distributed components”
- “predecessor or successor”
- “current condition”
- “respective neighboring component”
- “the current condition corresponds to at least one predefined condition”
- “informing all”
- “leasing method”
- “functional incapacity corresponding to an offline condition and a functional capacity corresponding to an online condition”
- “an ‘Alive’ message”
- “the ‘Alive’ information”
- “carried out using an ‘Inform All’ method"
- “performing an acknowledgment process by each of the other components, in which each of the other components, if it has received information about the predefined condition of the respective neighboring component, confirms receipt of the information, by sending an “Acknowledgment” message”
- “each component in a logical ring structure monitoring only a single neighboring component among distributed components”
- “network with distributed components”

- “each component informing”
- “each component monitoring only a single respective neighboring component among components”
- “the current condition of the respective neighboring component corresponds to a predefined condition”

4. U.S. Patent No. 7,921,323

- “communications infrastructure”
- “two or more separate signal processing circuits”
- “signal processing circuits”
- “multiple ASIC devices”
- "multiple ASIC devices that each itself includes a packet router"
- “packet router”
- “common interfaces”
- “coupled through respective first and second common interfaces”
- “intervening high speed serial optical link”
- “no other processing devices intervening between the high speed optical link and said ASIC devices”
- “high bandwidth interconnection medium”
- “selectively transferring at least one data packet from each said packet router”
- “said intervening high speed serial optical link without routing said data through any other intervening processing device between each respective ASIC device and the high speed serial optical link”

IV. ACCOMPANYING DOCUMENT PRODUCTION

Pursuant to Local Patent Rules 3-3 and 3-4, Defendants have produced all prior art referenced in their Invalidity Contentions as well as source code, specifications, schematics, flow charts, artwork, formulas, or other documentation sufficient to show the operation of any aspects or elements of an Accused Instrumentality identified by the Lionra in its Infringement

Contentions.[6] Defendants will promptly produce any documents uncovered during discovery, including through third-party subpoenas.

[6] Defendant HPE has stipulated to a one-week extension with the Plaintiff and will produce the technical documentation pursuant to L.R. 3-4 on Friday, February 17, 2023.

Dated: February 10, 2023 By */s/ Brian A. Rosenthal*

Brian A. Rosenthal (lead attorney)
brosenthal@gibsondunn.com
Katherine Dominguez
kdominguez@gibsondunn.com
GIBSON, DUNN & CRUTCHER LLP
200 Park Avenue
New York, NY 10166-0193
Telephone: 212.351.6300
Facsimile: 212.351.4035

Stuart M. Rosenberg
srosenberg@gibsondunn.com
GIBSON, DUNN & CRUTCHER LLP
1881 Page Mill Road
Palo Alto, CA 94304-1211
Telephone: 650.849.5300
Facsimile: 650.849.5333

Albert Suarez IV
asuarez@gibsondunn.com
Texas State Bar No. 24113094
GIBSON, DUNN & CRUTCHER LLP
2001 Ross Avenue, Suite 2100
Dallas, TX 75201-6912
Telephone: 214.698.3360
Facsimile: 214.571.2907

Melissa R. Smith
melissa@gillamsmithlaw.com
Texas State Bar No. 26301351
GILLAM & SMITH, LLP
303 South Washington Avenue
Marshall, Texas 75670
Telephone: 903.934.8450
Facsimile: 903.934.9257

Attorneys for Defendant Cisco Systems, Inc.

/s/ Mark N. Reiter
Veronica Smith Moyé (24000092)
VMoye@gibsondunn.com

Mark N. Reiter (16759900)
mreiter@gibsondunn.com
Ashbey N. Morgan (24106339)
anmorgan@gibsondunn.com
GIBSON, DUNN & CRUTCHER LLP
2001 Ross Avenue, Suite 2100
Dallas, TX 75201-6912
Telephone: (214) 698-3100
Facsimile: (214) 571-2900

Ryan Iwahashi
riwahashi@gibsondunn.com
GIBSON, DUNN & CRUTCHER LLP
1881 Page Mill Road
Palo Alto, CA 94304-1211
Telephone: (650) 849-5367

HALTOM & DOAN

Jennifer Haltom Doan
jdoan@haltomdoan.com
Kyle Randall Akin
kakin@haltomdoan.com
6500 Summerhill Road
Crown Executive Center Suite 100
Texarkana, Tx 75503
Telephone: (903) 255-1000
Facsimile: (903) 255-0800

Attorneys for Defendants Hewlett Packard Enterprise Company and Aruba Networks, LLC

/s/ Mark C. Lang
Eric A. Buresh (KS Bar 19895)
Michelle L. Marriott (KS Bar 21784)
Mark C. Lang (KS Bar 26185)
Lydia C. Raw (admitted *pro hac vice*)
ERISE IP, P.A.
7015 College Blvd., Ste. 700
Overland Park, KS 66211
Tel: (913) 777-5600
Fax: (913) 777-5601
Eric.Buresh@eriseip.com
Michelle.Marriott@eriseip.com
Mark.Lang@eriseip.com

Lydia.Raw@eriseip.com

Melissa Smith
Texas State Bar No. 24001351
melissa@gillamsmithlaw.com
GILLAM & SMITH, L.L.P.
303 South Washington Avenue
Marshall, Texas 75670
Telephone: 903-934-8450
Facsimile: 903-934-9257

Attorneys for Defendant Palo Alto Networks, Inc.

/s/ Alice E. Snedeker
Melissa R. Smith (TBN 24001351)
melissa@gillamsmithlaw.com
GILLAM & SMITH, LLP
303 South Washington Avenue
Marshall, TX 75670
Telephone: (903) 934-8450
Facsimile: (903) 934-9257

Matthew C. Gaudet
mcgaudet@duanemorris.com
David C. Dotson
dcdotson@duanemorris.com
Alice E. Snedeker
aesnedeker@duanemorris.com
Daniel Mitchell
dmitchell@duanemorris.com
DUANE MORRIS LLP
1075 Peachtree Street, N.E., Suite 1700
Atlanta, Georgia 30309-3929
Telephone: 404.253.6900
Facsimile: 404.253.6901

Alexandra Lane
axlane@duanemorris.com
DUANE MORRIS LLP
1540 Broadway
New York, NY 10036
Telephone: 212.471.4772
Facsimile: 212.937.3568

Attorneys for Defendant Fortinet, Inc.

CERTIFICATE OF SERVICE

I hereby certify that on February 10, 2023, the foregoing was served upon all counsel of record who have consented to electronic service.

/s/ Brian A. Rosenthal
Brian A. Rosenthal