

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

UNITED SERVICES AUTOMOBILE ASSOCIATION,
Petitioner,

v.

PNC BANK, N.A.,
Patent Owner.

IPR2021-01163
Patent 8,868,786 B1

Before MICHAEL R. ZECHER, JULIET MITCHELL DIRBA, and
RUSSELL E. CASS, *Administrative Patent Judges*.

ZECHER, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

Petitioner, United Services Automobile Association (“USAA”), filed a Petition requesting an *inter partes* review (“IPR”) of claims 1–17 of U.S. Patent No. 8,868,786 B1 (Ex. 1001, “the ’786 patent”). Paper 1 (“Pet.”). Patent Owner, PNC Bank, N.A. (“PNC”), filed a Preliminary Response. Paper 6 (“Prelim. Resp.”).

Based on the authority delegated to us by the Director under 37 C.F.R. § 42.4(a), we may not institute an IPR unless the information presented in the Petition and any response thereto shows that “there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a) (2018). Taking into account PNC’s Preliminary Response, we conclude that the information presented in the Petition establishes that there is a reasonable likelihood that USAA would prevail in challenging at least one of claims 1–17 of the ’786 patent as unpatentable. Pursuant to § 314, we hereby institute an IPR as to these claims of the ’786 patent.

A. Related Matter

The parties indicate that the ’786 patent is the subject of the district court case captioned *United Services Automobile Association v. PNC Bank, N.A.*, No. 2:20-cv-00319-JRG (E.D. Tex.). Pet. 72; Paper 4 (PNC’s Mandatory Notices), 1. In addition to this Petition, USAA filed a petition requesting an IPR of claims 1–5 and 7–10 of U.S. Patent No. 7,949,788 B2 (“the ’788 patent”). *United Services Automobile Ass’n v. PNC Bank, N.A.*, IPR2021-01248, Paper 1 (PTAB July 9, 2021) (Petition). The petition challenging claims 1–5 and 7–10 of the ’788 patent currently is pending before the Board.

B. Real Party In Interest

USAA identifies itself as the only real party in interest. Pet. 72.

PNC identifies itself as the only real party in interest. Paper 4, 1.

C. The '786 Patent

The '786 patent, titled “Apparatus, Systems and Methods for Transformation Services,” issued from U.S. Patent Application No. 13/088,877 (“the '877 application”), filed on April 18, 2011. Ex. 1001, codes (54), (21), (22). The '877 application is a divisional of U.S. Patent Application No. 11/804,664, filed on May 18, 2007—now the '788 patent. *Id.* at code (62), 1:8–12.

The '786 patent generally relates to “[d]ata communications between computer applications or networks” and, in particular, to “secure routing and data transformation over one or more communication networks.” Ex. 1001, 1:16–18. According to the '786 patent, while “[c]orporate reliance on technology has increasingly become more . . . pervasive,” “the proliferation of different computer systems and applications that use different communications protocols, security mechanisms, languages, data structures and platforms has also made the information technology infrastructure of the typical business enterprise more complex.” *Id.* at 1:22–30. The '786 patent identifies a situation where “a source computer application or network within a corporate enterprise,” such as a bank, “may need to share confidential customer information with external networks of partners or other organizations.” *Id.* at 1:48–51. In this particular situation, the '786 patent states that “a need exists for an intermediary transformation service to assign appropriate security controls to messages from source computer

applications or networks prior to their transmission over a communications network.” *Id.* at 1:54–58.

The ’786 patent addresses this problem by providing “a web services hub [that] receives a request from a data source system, transforms the request, and transmits the transformed request to an external system.” Ex. 1001, 1:62–64. The ’786 patent discloses using “[a] secure service router coupled to the web services hub [to] authenticate[] the data source system and locate[] a transformation service to transform the request.” *Id.* at 1:64–67.

Figure 1 of the ’786 patent, reproduced below, illustrates “a high-level schematic diagram of one embodiment of a business enterprise network that includes a web services hub.” Ex. 1001, 2:3–7.

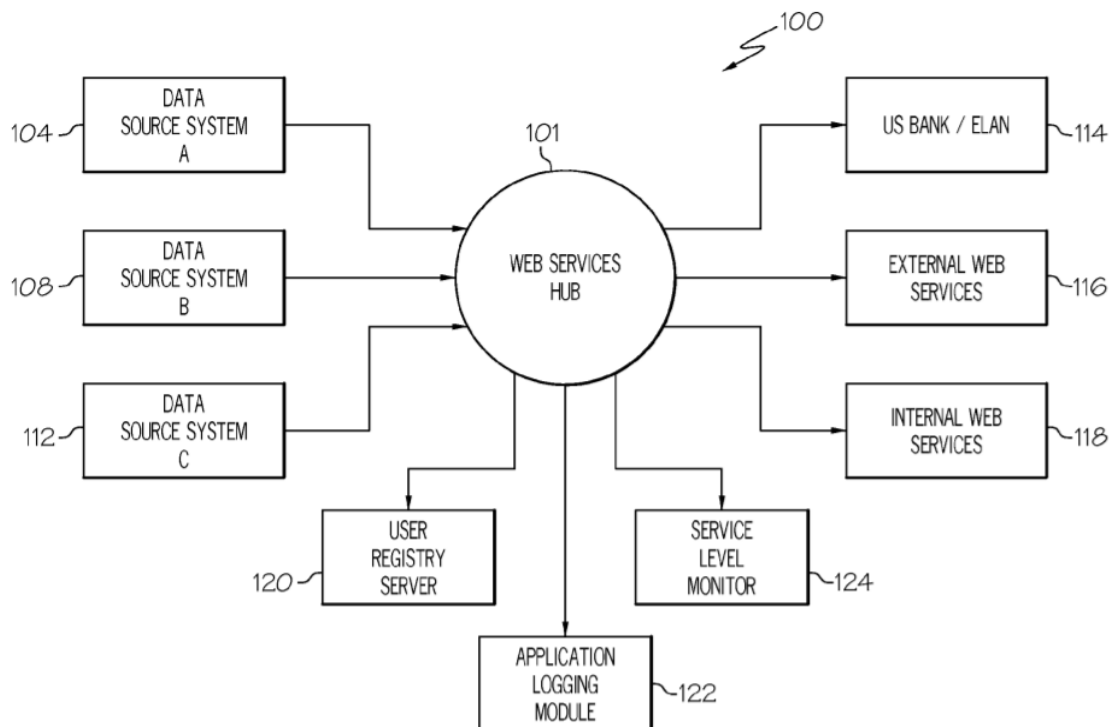


FIG. 1

Figure 1, reproduced above, illustrates business enterprise network 100 that includes web services hub 101, a plurality of business processes employing one or more data source systems 104, 108, 112, one or more target internal or external web services 114, 116, 118, user registry server 120, application logging module 122, and service level monitor 124. *Id.* at 2:63–3:1, 3:12–17. Notably, “web service hub 101 . . . enable[s] dynamic routing and transformation services for web based applications” using “synchronous or asynchronous processing models.” *Id.* at 3:19–22.

As one example of the transformation services provided by web service hub 101, the ’786 patent discloses converting data from data source system A 104 to a format recognizable by an external system (e.g., external web service 116, such as another bank). Ex. 1001, 8:26–29. After transforming and transmitting the request to the external system, web service hub 101 receives a response from the external system, transforms the response to a format recognizable by data source system A, and then transmits the newly formatted response to data source system A. *See id.* at 10:41–53.

D. Challenged Claims

Of the challenged claims, claims 1, 7, and 12 are independent claims. Independent claims 1 and 7 are directed to “[a] system,” whereas independent claim 12 is directed to “[a] method.” Ex. 1001, 15:9, 16:8, 16:65. Claims 2–6 directly or indirectly depend from independent claim 1, claims 8–11 directly or indirectly depend from independent claim 7, and claims 13–17 directly or indirectly depend from independent claim 12. *Id.* at 15:42–16:7, 16:38–64, 17:35–18:35. Independent claim 1 is illustrative of the challenged claims and is reproduced below:

1. A system, comprising:

a web services hub comprised of hardware, the hardware comprising at least one non-transitory memory connected to at least one processor, the web services hub configured to receive a request from a data source system that is external to the web services hub; transform the request into a transformed request, and transmit the transformed request to an external system, the request to be transformed by the web services hub into the transformed request by a process comprising:

the web services hub evaluating the data source system identified in the request as being a source of the request,

the web services hub identifying a business service handler configured to transform the request,

the web services hub transforming the request via the business service handler such that the transformed request is in a format that is understandable and processable by the external system; and

the web services hub to receive a response to the transformed request from the external system after the external system has completed processing of the transformed request and transmitted a response to the transformed request, the web services hub to parse the response to the transformed request for the data source system and transform the response to the transformed request into a transformed response to send to the data source system such that the transformed response is understandable and processable by the data source system;

a secure service router coupled to the web services hub, the secure service router to authenticate the data source system prior to the transformed request being sent to the external system.

Id. at 15:9–41.

E. Asserted Prior Art References

USAA relies on the prior art references set forth in the table below.

Name¹	Reference	Dates	Exhibit No.
Corneil	US 2003/0065623 A1	published Apr. 3, 2003; filed Oct. 1, 2001	1004
Abjanic	US 2003/0069975 A1	published Apr. 10, 2003; filed Dec. 22, 2000	1005

F. Asserted Grounds of Unpatentability

USAA challenges claims 1–17 of the '786 patent based on the asserted grounds of unpatentability set forth in the table below. Pet. 3, 9–69.

Claims Challenged	35 U.S.C. §	Reference(s)
1–17	103(a) ²	Corneil
1–17	103(a)	Corneil, Abjanic

II. ANALYSIS

A. Claim Construction

In an IPR based on a petition filed on or after November 13, 2018, such as here, claim terms are construed using the same claim construction standard as in a civil action under 35 U.S.C. § 282(b). *See* 37 C.F.R. § 42.100(b) (2019). That is, claim terms generally are construed in accordance with their ordinary and customary meaning, as would have been

¹ For clarity and ease of reference, we only list the first named inventor.

² The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112–29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. § 103, effective March 16, 2013. Because the '786 patent issued from the '877 application, which was filed before this date, the pre-AIA version of § 103 applies. Ex. 1001, codes (21), (22).

understood by a person of ordinary skill in the art, and the prosecution history pertaining to the patent at issue. *Id.* The ordinary and customary meaning of a claim term “is its meaning to the ordinary artisan after reading the entire patent,” and “as of the effective filing date of the patent application.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313, 1321 (Fed. Circ. 2005) (en banc).

In its Petition, USAA contends that “[n]o [claim] terms need construction to resolve the issues presented in [the] Petition and the terms should be accorded their plain and ordinary meaning as would be understood by a [person of ordinary skill in the art] in light of the intrinsic evidence,” including the ’786 patent and its prosecution history. Pet. 9. In its Preliminary Response, PNC proposes constructions for the following two claim terms: (1) “external system”; and (2) “secure service router.” Prelim. Resp. 8–13. We address each term below.

1. “external system”

PNC proposes to construe the claim term “external system” as “a system external to the institution receiving the request from the data source system.” Prelim. Resp. 8. To support its proposed construction, PNC directs us to a disclosure in the specification of the ’786 patent that purports to distinguish the term “external” based on systems inside an institution and those outside the institution, together with the supporting testimony of its declarant, Mr. Stephen Gray. *Id.* at 8–9 (citing Ex. 1001, 1:48–51; Ex. 2001 (Declaration of Stephen Gray in support of Preliminary Response) ¶ 36).

At this stage in the proceeding, PNC does not address separately USAA’s explanations and supporting evidence as to how the teachings of Corneil, either alone or in combination with the teachings of Abjanic,

account for the “external system” recited in the challenged claims. *See* Prelim. Resp. 13–35. Based on the preliminary record, because there is no controversy as to whether Corneil’s second trading partner 217 teaches the claim term “external system,” we need not construe this claim term for purposes of institution. *See, e.g., Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (“[W]e need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

2. “secure service router”

PNC proposes to construe the claim term “secure service router” as “a component that authenticates the data source system, locates a service, and forwards a message or request to the service.” Prelim. Resp. 9. According to PNC, the term “secure service router” “is a specialized component of the claimed inventions that does not have an established meaning in the art, but rather is best understood through the specification” of the ’786 patent. *Id.* (citing Ex. 2001 ¶ 31). Turning to the testimony of its declarant, Mr. Gray, together with multiple dictionary definitions of “router,” PNC argues that the claim term “secure service router” has a specialized meaning in the context of the ’786 patent that is inconsistent with the ordinary and customary meaning of a “router.” *Id.* at 9–11 (citing Ex. 1001, code (57), 1:64–67; Ex. 2001 ¶¶ 35, 38; Exs. 2002–2005). PNC then argues that the specification of the ’786 patent discloses multiple service routers, including “asynchronous service routers,” “synchronous service routers,” and the claimed “secure service router.” *Id.* at 11 (citing Ex. 1001, 6:22–46, Fig. 2). PNC, however, argues that the specification makes clear that each service

router locates a service, and forwards a message or request to that service. *Id.* at 11–12 & n.1 (citing Ex. 1001, code (57), 1:64–67, 6:25–28, 8:9–21, 12:1–15; Ex. 2001 ¶ 39). In addition, PNC argues that the specification consistently reinforces that the “secure service router” must authenticate the data source system. *Id.* at 12–13 (citing Ex. 1001, code (57), 1:64–67, 6:50–52, 8:11–12; Ex. 2001 ¶ 40).

Based on the preliminary record, we decline to adopt PNC’s proposed construction of the claim term “secure service router.” PNC’s proposed construction of a “secure service router” as “a component that authenticates the data source system, locates a service, and forwards a message or request to the service” merely restates the language of the limitations recited in independent claims 1 and 7. Prelim. Resp. 9. That is, each of independent claims 1 and 7 already recite “the secure service router [is operative] to authenticate the data source system.” Ex. 1001, 15:38–40, 16:20–21. In addition, independent claim 7 already recites “the secure service router . . . locate[s] a transformation service to transform the request.” *Id.* at 16:20–22. It is well settled that the U.S. Court of Appeals for the Federal Circuit disfavors any claim interpretation that renders a claim term or phrase superfluous. *See Apple, Inc. v. Ameranth, Inc.*, 842 F.3d 1229, 1237 (Fed. Cir. 2016) (“The Board was correct to not include in its construction of ‘menu’ features of menus that are expressly recited in the claims. . . . Construing a claim term to include features of that term already recited in the claims would make those expressly recited features redundant.”). If we were to adopt PNC’s proposed construction, it would render superfluous the

language we identified above that already is explicitly recited in independent claims 1 and 7.

For purposes of institution, we preliminarily determine that the claim term “secure service router,” at a minimum, must “authenticate the data source system” that sends a message or request because this is recited explicitly in independent claims 1 and 7. Ex. 1001, 15:38–40, 16:20–21. This preliminary determination also finds support in the specification of the ’786 patent, which, as PNC correctly argues, consistently reinforces that the “secure service router” must authenticate the data source system. Prelim. Resp. 12–13 (citing Ex. 1001, code (57), 1:64–67, 6:50–52, 8:11–12). We, however, take this opportunity to invite the parties to provide further briefing during trial to help clarify the impact, if any, of the word “router” when arriving at the proper construction of the claim term “secure service router” in the context of the ’786 patent.³

B. Obviousness Over the Teachings of Corneil

USAA contends that claims 1–17 of the ’786 patent are unpatentable under § 103(a) as obvious over teachings of Corneil. Pet. 9–69. USAA

³ On January 5, 2022, which was a week before our due date to issue a decision on institution in this proceeding, USAA submitted a “Claim Construction Memorandum Opinion and Order” (“Order”) issued by the U.S. District Court for the Eastern District of Texas as Exhibit 1032. In this Order, the district court construed the claim term “secure service router” to mean a “servicer router than can verify authentication and authorization.” Ex. 1032, 88. During trial, we encourage the parties to address the impact of the district court’s claim construction on the issues raised in this proceeding. See 37 C.F.R. § 42.100(b) (“Any prior claim construction determination concerning a term of the claim in a civil action, or a proceeding before the International Trade Commission, that is timely made of record in the *inter partes* review proceeding will be considered.”).

contends that the teachings of Corneil account for the subject matter of each challenged claim, and provides reasoning as to why a person of ordinary skill in the art would have been prompted to modify the teachings of this reference. *Id.* USAA also relies on the testimony of Sam Malek, Ph.D. to support its positions. Ex. 1003 (Declaration of Sam Malek, Ph.D. in support of Petition).

Based on the preliminary record, we determine that USAA has shown that there is a reasonable likelihood that it would prevail in challenging at least one of claims 1–17 of the '786 patent as unpatentable. We begin our analysis with the principles of law that generally apply to an asserted ground based on obviousness, an assessment of the level of skill in the art, followed by a brief overview of Corneil, and then we address the parties' contentions with respect to the challenged claims.

1. Principles of Law

A claim is unpatentable under § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, “would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) when in evidence, objective indicia of non-obviousness

(i.e., secondary considerations).⁴ *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). We analyze the asserted grounds based on obviousness with the principles identified above in mind.

2. Level of Skill in the Art

For purposes of institution, there is sufficient evidence in the record that enables us to determine the knowledge level of a person of ordinary skill in the art. Relying on the testimony of Dr. Malek, USAA argues the following:

[a] person of ordinary skill in the art . . . at the time of the alleged invention would have had a Bachelor’s degree in computer science, software engineering, or electrical engineering and two years of experience in software development and programming in the area of web services, including familiarity with enterprise systems and standard web transport and security protocols. This level of skill is approximate, and more experience would compensate for less formal education, and vice versa.

Pet. 9 (citation omitted) (citing Ex. 1003 ¶ 53).

Relying on the testimony of Mr. Gray, PNC offers a slightly different assessment of the level of skill in the art, arguing the following:

[a] “person of ordinary skill in the art” . . . at the time of the alleged invention would have had a degree in electrical engineering, computer engineering, computer science or the equivalent knowledge gained through experience; and at least two years of computer programming experience in the design and implementation of distributed computing systems and related Internet technologies.

Prelim. Resp. 7–8 (citing Ex. 2001 ¶ 34).

⁴ In its Preliminary Response, PNC does not present arguments or evidence of secondary considerations. *See* Prelim. Resp.

The level of skill in the art advanced by each party requires at least a Bachelor of Science degree in electrical engineering, computer/software engineering, computer science, or equivalent. We do not discern a material difference between the industry experiences advanced by either party, nor does either party premise its arguments exclusively on its own industry experience. To the extent necessary, and for purposes of institution, we adopt USAA's assessment of the level of skill in the art because Dr. Malek's identification of relevant industry experience applicable to software development and programming in the area of web services, including familiarity with enterprise systems and standard web transport and security protocols, is consistent with the '786 patent and the asserted prior art. We note, however, that our obviousness analysis would be the same under either party's assessment.

3. Overview of Corneil

Corneil generally relates to “[a] service, method, apparatus and/or network configuration that provides the exchange of electronic data or message transactions through a third party network service between trading partners that have disparate systems.” Ex. 1004, code (57). According to Corneil, its system provides data processing services that include, but are not limited to, “authentication, validation, transformation and routing of a plurality of trading partners’ electronic transactions.” *Id.* “The system uses a centralized computing platform to receive input messages from one or more trading partners in one or more message formats. If required[,] messages are transformed to a second message format The data is then sent to the plurality of trading partners as required by the originating trading partner.” *Id.*

Figure 2 of Corneil, reproduced below, illustrates a transaction processing system for electronic messages in accordance with one embodiment. Ex. 1004 ¶¶ 15, 32.

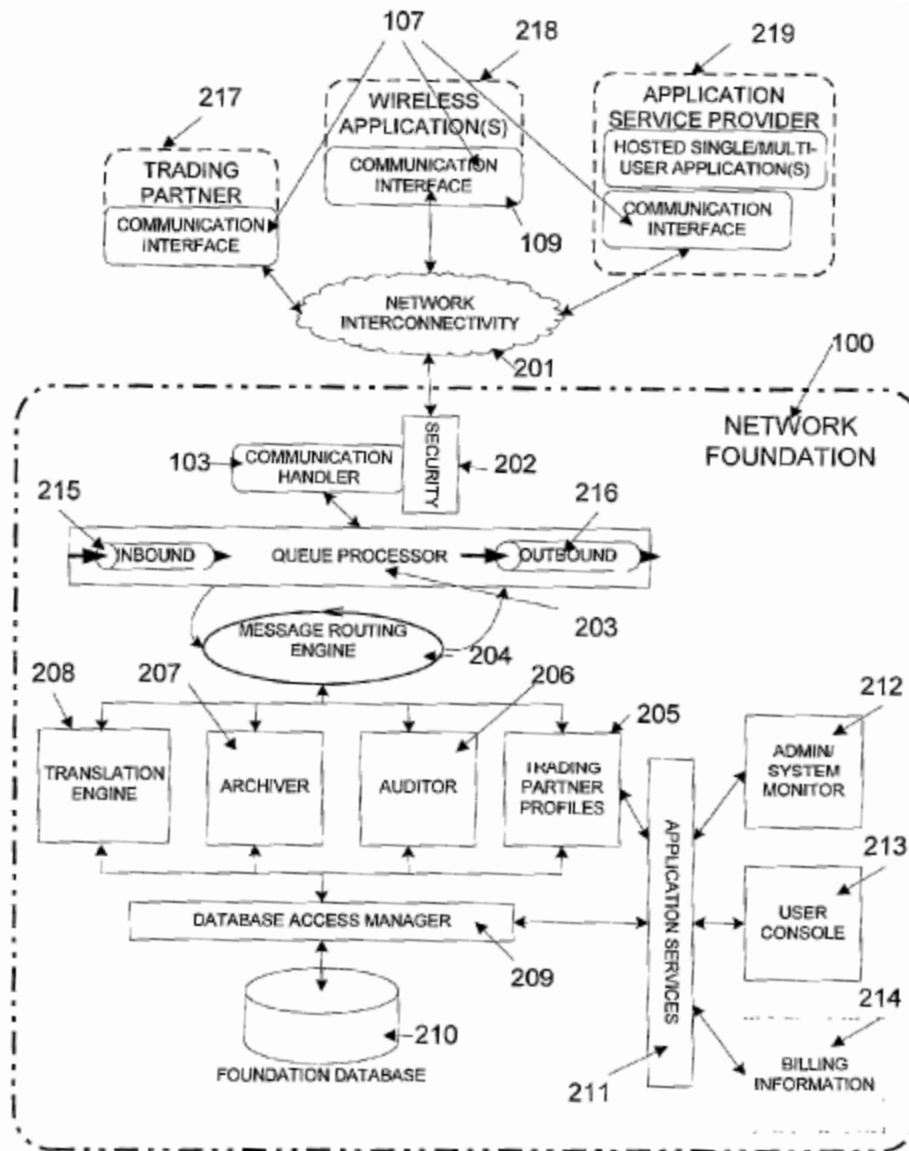


FIGURE 2

Figure 2, reproduced above, illustrates how messages are routed from trading partners 217 through network interconnectivity 201 to network

foundation 100. *Id.* ¶¶ 32, 33. Network foundation 100 further includes, among other things, security handler 202 that “executes processes to assure the security of the messages received over” network interconnectivity 201 (e.g., “by validating authentication information”), communication handler 103 that “understands and manages” different communication protocols used by trading partners 217, queue processor 203 that maintains inbound 215 and outbound 216 electronic message queues, and message routing engine 204 that serves as “the main execution thread for transaction processing.” *Id.* ¶¶ 33, 34.

When describing the operations of one embodiment, Corneil discloses that message routing engine 204 “picks up, authenticates and properly routes incoming messages and outgoing messages.” Ex. 1004 ¶ 51. In connection with Figure 6 (not reproduced here), Corneil discloses that the processing of messages as they are received by network foundation 101 includes checking the messages “to ensure that they are sent by the authorized Trading Partner by reconciling 604 the message[s] with a Trading Partner Profile.” *Id.* ¶ 45, Fig. 6, step 604.

4. Claims 1 and 12

The preamble of independent claim 1 recites “[a] system, comprising.” Ex. 1001, 15:9. To the extent the preamble should be treated as limiting, USAA contends that Corneil teaches the preamble because Figure 2 of Corneil illustrates a system having all the elements of independent claim 1, including a “web services hub,” a “secure service router,” and multiple “data source systems” and “external systems.” Pet. 10. Each of these elements is illustrated in the annotated version of Figure 2 of Corneil, reproduced below.

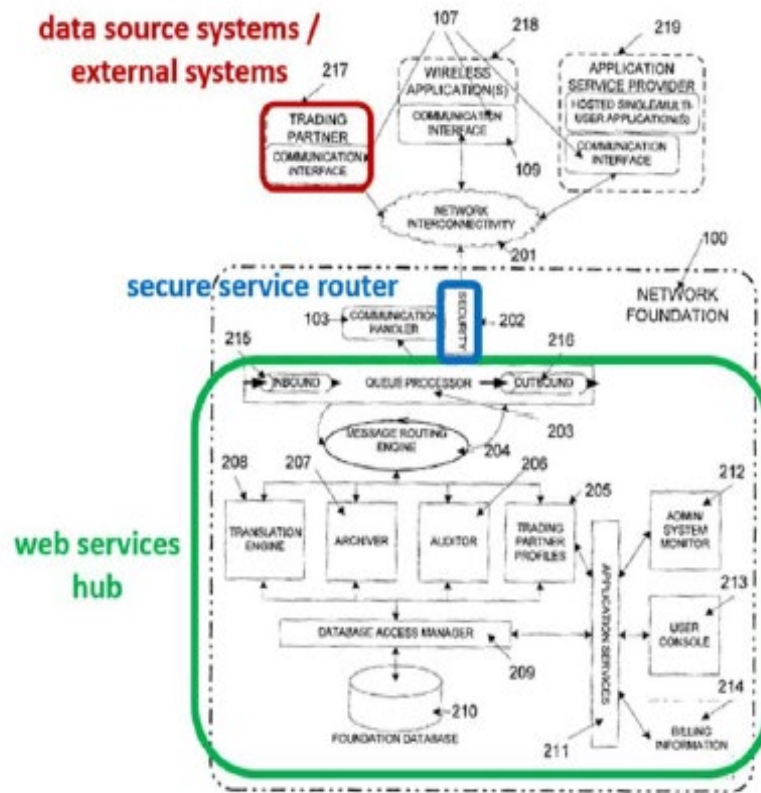


FIGURE 2

Id. Based on the annotated version of Figure 2, reproduced above, which illustrates a transaction processing system for electronic messages, USAA argues that “trading partner 217” (in red) represents a collection of “distinct, plural trading partners [who] communicate with each other by routing electronic documents through the managed network.” *Id.* at 10 (quoting Ex. 1004 ¶ 23). More specifically, USAA argues that first trading partner 217 is the “data source system” (in red) that sends a request via “web services hub” (in green) to second trading partner 217 that is the “external system” (also in red). *Id.* at 10–11 (citing Ex. 1004 ¶ 23; Ex. 1003 ¶ 83).

Next, independent claim 1 recites “a web services hub comprised of hardware, the hardware comprising at least one non-transitory memory connected to at least one processor.” Ex. 1001, 15:10–12. USAA contends

that Corneil teaches this limitation because it discloses that the “web services hub” (in green above) includes, among other things, queue processor 203, message routing engine 204, and translation engine 208. Pet. 11 (citing Ex. 1004, code (57), ¶ 31). USAA then argues that Corneil’s “web services hub” includes at least one processor that executes software processes, and the software executing on the processor stores data, which means Corneil’s system necessarily includes at least one non-transitory memory connected to the processor. *Id.* at 12–13 (citing Ex. 1004 ¶¶ 25, 26, 32, Fig. 2, claims 15 and 16; Ex. 1003 ¶ 85).

Independent claim 1 further recites “the web services hub configured to receive a request from a data source system that is external to the web services hub.” Ex. 1001, 15:12–14. USAA contends that Corneil teaches this limitation because it discloses that first trading partner 217 sends a message or request (e.g., purchase orders and other business transactions) to second trading partner 217 by passing the message through communication handler 103 and security handler 202 to inbound 215 electronic message queue of queue processor 203 located in “web services hub” (in green above). Pet. 14–15 (citing Ex. 1004 code (57), ¶¶ 2, 33, 51, Fig. 2, claim 15; Ex. 1003 ¶¶ 86–88). USAA argues that Corneil’s trading partners 217, which are disclosed as being computer applications, are “data source systems” within the meaning of the ’786 patent because the specification states that “data source” may include “databases, computer applications and/or internal or external networks.” *Id.* at 15–16 (quoting Ex. 1001, 2:33–34) (citing Ex. 1004 ¶ 23).

Independent claim 1 also recites “[the web services hub configured to] transform the request into a transformed request, and transmit the

transformed request to an external system, the request to be transformed by the web services hub into the transformed request by a process comprising.” Ex. 1001, 15:14–18. USAA contends that Corneil teaches this limitation because it discloses that, after the “web services hub” (in green above) receives a message from first trading partner 217, translation engine 208 is capable of transforming the message into a format recognizable by second trading partner 217 prior to sending the message to the second trading partner. Pet. 16–17 (citing Ex. 1004, code (57), ¶¶ 11, 35, 45; Ex. 1003 ¶ 90). USAA argues that Corneil’s second trading partner 217 is an “external system” to the “web services hub” within the meaning of the ’786 patent because it is capable of receiving a message or request from each trading partner and providing a response. *Id.* at 17 (citing Ex. 1004, Fig. 2; Ex. 1003 ¶ 89; Ex. 1001, 3:56–60).

The first processing step of independent claim 1 recites “the web services hub evaluating the data source system identified in the request as being a source of the request.” Ex. 1001, 15:19–21. USAA contends that Corneil teaches this limitation because it discloses that message routing engine 204 within Corneil’s “web services hub” (in green above) determines the data source system identified in the message or request by inspecting the trading partner information within the message to ensure it was sent by an authorized trading partner. Pet. 18–19 (citing Ex. 1004 ¶¶ 34, 45, 52, Fig. 2; Ex. 1003 ¶¶ 93, 94).

The second processing step in independent claim 1 recites “the web services hub identifying a business service handler configured to transform the request.” Ex. 1001, 15:22–23. USAA contends that Corneil teaches this limitation because it discloses that, when message routing engine 204

receives a message or request from first trading partner 217, it examines the header information of the message to determine if it requires transformation and, if transformation is required, message routing engine 204 sends the message to translation engine 208 for further processing. Pet. 19 (citing Ex. 1004 ¶ 35; Ex. 1003 ¶ 96). According to USAA, the '786 patent identifies a “transformation service” as just one example of a service that would qualify as “a business service handler.” *Id.* at 19–20 (quoting Ex. 1001, 10:25–30).

The third processing step in independent claim 1 recites “the web services hub transforming the request via the business service handler such that the transformed request is in a format that is understandable and processable by the external system.” Ex. 1001, 15:24–27. USAA contends that Corneil teaches this limitation because it discloses that translation engine 208, which is part of the “web services hub” (in green above), transforms the message or request received from first trading partner 217 to a format that second trading partner 217 is capable of understanding and processing. Pet. 20–21 (citing Ex. 1004 ¶¶ 11, 33, 34, 42, 45; Ex. 1003 ¶¶ 97, 98).

The fourth processing step in independent claim 1 recites the following:

the web services hub to receive a response to the transformed request from the external system after the external system has completed processing of the transformed request and transmitted a response to the transformed request, the web services hub to parse the response to the transformed request for the data source system and transform the response to the transformed request into a transformed response to send to the data source system

such that the transformed response is understandable and processable by the data source system.

Ex. 1001, 15:28–37. USAA contends that Corneil teaches this limitation because its system receives the message or request from first trading partner 217, uses translation engine 208 to transform the message into a format that second trading partner 217 is capable of understanding and processing, and then transmits the transformed message to second trading partner 217. Pet. 22–23 (citing Ex. 1004 ¶ 2; Ex. 1003 ¶ 99). Relying on the testimony of Dr. Malek, USAA argues that a person of ordinary skill in the art would have recognized that, in situations such as the one taught by Corneil, it would have been beneficial for second trading partner 217 to transmit a response after it processes the transformed message. *Id.* at 23 (citing Ex. 1003 ¶ 100). As one example, USAA argues that “a buyer using Corneil’s system to send a purchase order request to a seller would want to receive a response indicating acceptance or rejection of the purchase order.” *Id.* According to USAA, this would provide the predictable benefit of letting first trading partner 217 know that second trading partner 217 received and processed the purchase order, as well as informing first trading partner 217 about the status of the purchase order and whether any changes were necessary to complete the purchase order. *Id.* As further support for its argument, USAA directs us to Corneil’s use of “EDI” messages as “a standardized message format used for business transactions” that typically involves one request message and one response message. *Id.* at 23–24 (citing Ex. 1004 ¶ 32; Ex. 1006, 58 (an E-Commerce textbook that discloses an exemplary “EDI enable procurement process”); Ex. 1003 ¶ 100).

USAA also argues that Corneil provides explicit motivation that its system is capable of handling a request-response exchange because it discloses the following: (1) message routing engine 204 “maintains running conversations, i.e., multi-message communication threads, and processes messages”; and (2) Corneil already permits two disparate systems associated with different trading partners 217 to communicate, without the need to understand the same data format. Pet. 24–25 (emphasis omitted) (quoting Ex. 1004 ¶ 34) (citing Ex. 1004, code (57), ¶¶ 31, 34, 35; Ex. 1003 ¶¶ 101, 102). USAA asserts that transforming a message or request from second trading partner 217 to a format that first trading partner 217 would be able to understand and process “would provide the same predictable and known benefits as the initial [message]” and “would require no modification to Corneil’s existing functionality.” *Id.* at 25 (citing Ex. 1004, code (57); Ex. 1003 ¶ 102). USAA also asserts that a person of ordinary skill in the art would have been motivated to implement a request-response exchange in Corneil’s system with a reasonable expectation of success because it would require “only routine programming using the existing functionality of Corneil” (i.e., Corneil already supports “running conversations” or “multi-message communication threads” between first and second trading partners 217). *Id.* at 25–26 (quoting Ex. 1004 ¶ 34) (citing Ex. 1003 ¶ 103).

Lastly, independent claim 1 recites “a secure service router coupled to the web services hub, the secure service router to authenticate the data source system prior to the transformed request being sent to the external system.” Ex. 1001, 15:38–41. USAA contends that Corneil teaches this limitation because it discloses that security handler 102 ensures the security of the message or request sent by first trading partner 217 over network

interconnectivity 201, “for example by validating authentication information.” Pet. 31–33 (emphasis omitted) (quoting Ex. 1004 ¶ 33) (citing Ex. 1004 ¶ 31, Fig. 2; Ex. 1003 ¶ 1007). Stated differently, USAA argues that security handler 102 authenticates an incoming message or request from first trading partner 217 prior to translation engine 208 transforming the message into a format that second trading partner 217 would be able to understand and process, and these steps of authentication and transformation occur prior to second trading partner 217 receiving the transformed message. *Id.* at 34 (citing Ex. 1004 ¶¶ 33–34).

Alternatively, USAA takes the position that, even if PNC argues that Corneil’s security processes do not “authenticate the data source system,” this would have been obvious to a person of ordinary skill in the art. Pet. 33 n.4. According to USAA, the ’786 patent broadly describes authentication as including any verification of the data source system’s identity by using well-known methods, such as username/password or access tokens. *Id.* (citing Ex. 1001, 6:47–67). Relying on the testimony of Dr. Malek, USAA argues that it would have been obvious to apply these well-known techniques to Corneil’s security processes because it would improve the security of its system and prevent unauthorized access. *Id.* (citing Ex. 1003 ¶ 108).

USAA relies on essentially the same arguments and evidence identified above with respect to independent claim 1 to explain how the teachings of Corneil account for all the limitations of independent claim 12. *Compare* Pet. 64–66, *with id.* at 10–34. Based on the preliminary record, we discern no deficiency in USAA’s characterizations of Corneil and the knowledge in the art, or in USAA’s reasoning as to why a person of ordinary

skill in the art would have been prompted to modify this reference. In addition, for purposes of institution, we accept Dr. Malek's testimony concerning the relevant teachings of Corneil. At this stage of the proceeding, PNC raises the following arguments: (1) Corneil does not teach "the web services hub identifying a business service handler configured to transform the request," as recited in each of independent claims 1 and 12; (2) Corneil does not teach a "secure service router" that "authenticate[s] the data source system," as recited in independent claim 1; and (3) Corneil does not teach the claim term "secure service router," if that term is construed properly. Prelim. Resp. 17–25. We address these arguments in turn.

a. "the web services hub identifying a business service handler configured to transform the request"

In its Preliminary Response, PNC contends that Corneil does not teach "the web services hub identifying a business service handler configured to transform the request" because Corneil's system only includes a single translation engine that transforms a message or request according to a predetermined process. Prelim. Resp. 17 (citing Ex. 1004 ¶ 35). PNC argues that Corneil discloses a binary choice of sending the message to a single translation engine (i.e., translation engine 208), but this does not teach identifying a translation engine because there is only one such translation engine in Corneil's system. *Id.* (citing Ex. 2001 ¶ 47). PNC asserts that USAA disregards that Corneil only discloses a single translation engine, and that Corneil's determination to send the message to this predetermined translation engine "is not the same as identifying a business service handler from among multiple possible handlers." *Id.* at 18 (emphasis omitted) (citing Ex. 1004 ¶ 35, Fig. 2; Ex. 2001 ¶ 48).

Based on the preliminary record, we are not persuaded by PNC's argument because it is predicated on the notion that the limitation at issue must identify a business service handler to transform a request from a plurality of business service handlers. In our view, the language of "identifying a business service handler configured to transform the request" recited in the limitation at issue is not so restrictive, but is broad enough to encompass identifying a single business service handler to transform the request. Corneil discloses that, when message routing engine 204 receives a message or request from first trading partner 217, it examines the header information that includes "*information on message incoming and outgoing formats*, trading partner information, routing characteristics and application information for [the] transaction." Ex. 1004 ¶ 34 (emphasis added). Corneil then discloses that, if necessary, message routing engine 204 sends the message to translation engine 208 for further processing, which includes transforming the message "from the incoming message format . . . to the outbound message format" acceptable to second trading partner 217. *Id.* ¶ 35. Accordingly, for purposes of institution, we are persuaded that USAA has presented sufficient evidence that would support a finding that Corneil teaches "the web services hub identifying a business service handler configured to transform the request," as recited in each of independent claims 1 and 12.

b. "*secure service router*" that "*authenticate[s] the data source system*"

In its Preliminary Response, PNC contends that Corneil does not teach a "secure service router" that "authenticate[s] the data source system" because it does not disclose that security handler 202 authenticates first trading partner 217. Prelim. Resp. 18 (citing Pet. 31–34; Ex. 2001 ¶ 49).

According to PNC, Corneil only discloses that security handler 202 authenticates the message from first trading partner 217, but “says nothing about authentication of the data source system.” *Id.* at 19 (emphasis omitted) (citing Ex. 1004 ¶ 33). PNC also argues that USAA’s position that it would have been obvious to a person of ordinary skill to implement well-known methods, such as username/password or access tokens, in Corneil’s system to authenticate first trading partner 217 is nothing more than a conclusory assertion about the general knowledge in the art that cannot be used as substitute for sufficient evidentiary support. *Id.* at 19–20 (citing Ex. 2001 ¶ 51). PNC asserts that a single sentence in the relevant testimony of USAA’s declarant, Dr. Malek, does not provide the evidentiary support required to justify USAA’s position in this regard, nor does USAA provide a sufficient motivation to implement these well-known methods in Corneil’s system with a reasonable expectation of success. *Id.* 20–21 (Ex. 2001 ¶¶ 52, 53).

Based on the preliminary record, we are not persuaded by PNC’s argument that Corneil’s security handler 202 only authenticates the message or request from first trading partner 217 and not the identity of first trading partner 217. Corneil discloses that security handler 202 ensures the security of the message sent by first trading partner 217 over network interconnectivity 201, “for example by validating authentication information.” Ex. 1004 ¶ 33; *see also id.* ¶ 31 (disclosing that security handler 202 contains a “set of tools . . . that assist with the process of securing data to the network [that] include, but are not limited to validation, authentication and authorization”). For purposes of institution, we are persuaded that USAA has presented sufficient evidence that would support a

finding that Corneil's statement that the security handler 202 "validat[es] authentication information" to ensure the security of the message or request sent by first trading partner 217 includes authenticating the identity of first trading partner 217.

Although we understand USAA to argue that Corneil's disclosure of security handler 202 ensuring the security of the message or request from first trading partner 217 by validating authentication information includes authenticating the identity of first trading partner 217, USAA also provides an alternative position. Pet. 31–34. That is, USAA takes the alternative position that it would have been obvious to a person of ordinary skill in the art to improve Corneil's security processes by authenticating the identity of first trading partner 217 to prevent unauthorized access. *See* Pet. 33 n.4. In support of this alternative position, USAA directs us to the testimony of Dr. Malek, who avers that "[t]here were many authentication methods known to a [person of ordinary skill in the art] that would have been obvious to implement in order to secure against unauthorized access by validating the identity of the sending data source system, e.g., verifying a username/password or an access token." Ex. 1003 ¶ 108. Dr. Malek's testimony in this regard appears to be consistent with Corneil's corresponding description of Figure 6, which states, in relevant part, "[m]essages are checked to ensure that they are sent by the authorized Trading Partner by reconciling 604 the message[s] with a Trading Partner Profile." Ex. 1004 ¶ 45. Nevertheless, PNC's argument that it would not have been obvious to a person of ordinary skill in the art to modify Corneil's security processes in the manner proposed by USAA raises an issue that is best resolved upon a full record.

*c. PNC's argument based on the claim term "secure service router,"
if that term is construed properly*

In its Preliminary Response, PNC contends that the claim term "secure service router" should be construed as "a component that authenticates the data source system, locates a service, and forwards a message or request to the service." Prelim. Resp. 21. According to PNC, Corneil's security handler 202 does not teach the claimed "secure service router" because it does not meet the three elements identified in PNC's proposed construction: (1) it does not authenticate the identity of first trading partner 217; (2) it does not locate any service, much less the claimed "service"; and (3) it is nothing more than a layer of security that has no need to forward a message to a business service, much less transformation engine 208. *Id.* at 21–24 (citing Ex. 1004 ¶¶ 33–35, 41, 45, 51, Fig. 2; Ex. 2001 ¶¶ 54–58).

Based on the preliminary record, we are not persuaded by PNC's argument that Corneil does not teach the claim term "secure service router." As we explain in our claim construction section above, we do not adopt PNC's proposed construction of the claim term "secure service router" because it would render superfluous the language that already is recited in independent claims 1 and 7—namely, "the secure service router [is operative] to authenticate the data source system" and "the secure service router . . . locate[s] a transformation service to transform the request." *See supra* Section II.A.2. Instead, we clarify that, at a minimum, this claim term must "authenticate the data source system" that sends a message or request because this is recited explicitly in independent claims 1 and 7. *Id.* Based on this minimum requirement, we are persuaded that USAA has

presented sufficient evidence that would support a finding that Corneil's security handler 202 either alone, or together with the general background knowledge of a person of ordinary skill in the art as evidenced by the supporting testimony of Dr. Malek, teaches the claimed "secure service router." *See supra* Section II.B.4.b.

d. Summary

In summary, USAA has shown a reasonable likelihood that it would prevail on its assertions that the subject matter of independent claims 1 and 12 would have been obvious over the teachings of Corneil.

5. Claims 2–6 and 13–17

USAA also contends that dependent claims 2–6 and 13–17 of the '786 patent are unpatentable under § 103(a) as obvious over teachings of Corneil. Pet. 34–57, 66–69. USAA explains how the teachings of Corneil account for the subject matter of each dependent claim, and provides reasoning as to why a person of ordinary skill in the art would have been prompted to modify the teachings of this reference. *Id.*

As one example, claim 2 directly depends from independent claim 1 and further recites "a web container coupled to the data source system." Ex. 1001, 15:43. USAA contends that Corneil teaches this limitation by relying on an annotated version of Figure 2, reproduced below.

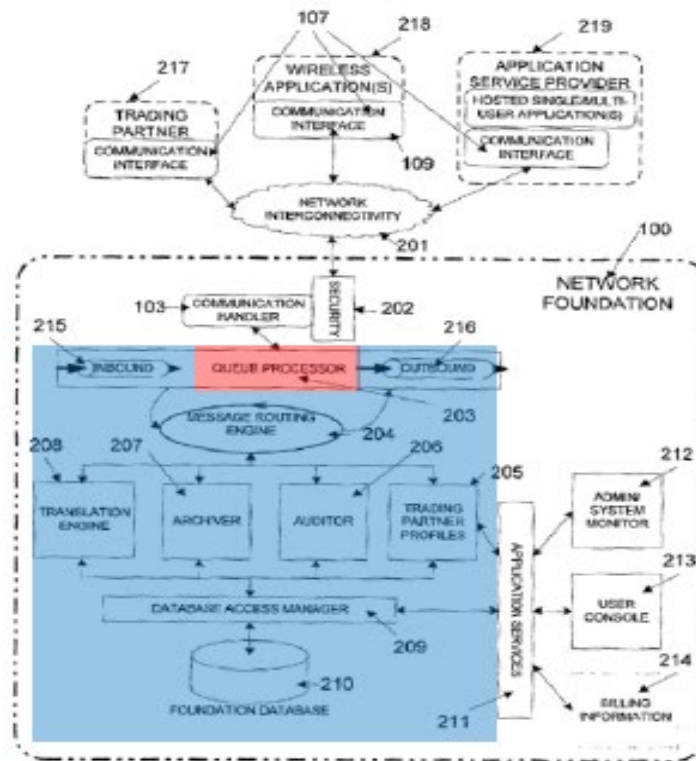


FIGURE 2

Pet. 35. Based on the annotated version of Figure 2, reproduced above, which illustrates queue processor 203 (in red) and web container (in blue), USAA argues that Corneil teaches the claimed “web container” because, when considering how the specification of ’786 describes the “web container,” Corneil’s system possesses the same functionality. Pet. 36. That is, similar to the “web container” of the ’786 patent, USAA argues that Corneil’s web container includes, among other things, message routing engine 204 that “establishes and maintains the execution environment, provides global access to run-time session data, . . . and processes messages,” various software modules for processing messages and storing messages, and inbound 215 and outbound 216 electronic message queues that are “preferably implemented, but not limited to using a Java Messenger Services (JMS) queueing system.” *Id.* (quoting Ex. 1004 ¶¶ 33, 34) (citing

Ex. 1004 ¶ 35; Ex. 1003 ¶ 112). USAA also argues that Corneil's web container is coupled to the data source systems of trading partners 217 via its inbound 215 electronic message queue, which receives incoming messages from the trading partners. *Id.* (citing Ex. 1004 ¶ 51, Figs. 1, 2).

Dependent claim 2 also recites “a queue processor coupled to the web container: coupled to the data source system via a first secure transmission channel; and coupled to the secure service router, the queue processor to listen to an input queue of the request contained in the web container.” Ex. 1001, 15:44–48. USAA contends that Corneil teaches this limitation because it discloses queue processor 203 (in red above) coupled to web container (in blue above) that maintains inbound 215 and outbound 216 electronic message queues. Pet. 38 (citing Ex. 1004 ¶ 33; Ex. 1003 ¶ 114). USAA argues that the connection between the web container and first trading partner 217 is a secure communication channel (e.g., a secure hypertext transfer protocol secure (“HTTPS”) channel). *Id.* at 39–40 (citing Ex. 1004 ¶¶ 27, 33, 45). USAA also argues that Corneil's queue processor 203 listens to inbound 215 electronic message queue, which is a simple first in first out (“FIFO”) queue, contained within the web container. *Id.* at 40–41 (citing Ex. 1004 ¶ 33).

Based on the preliminary record, USAA's arguments and supporting evidence with respect to dependent claims 2–6 and 13–17 are sufficient for purposes of institution. At this stage of the proceeding, PNC does not address separately USAA's arguments and supporting evidence as to how the teachings of Corneil account for the limitations of these dependent claims. *See* Prelim. Resp. 32. When considering USAA's un rebutted arguments and supporting evidence, USAA has demonstrated a reasonable

likelihood that it will prevail on its assertions that the subject matter of dependent claims 2–6 and 13–17 would have been obvious over the teachings of Corneil.

6. *Claim 7*

Independent claim 7 recites “a web services hub comprising a web container and a queue processor, the web services hub comprising hardware, the hardware comprised of non-transitory memory connected to at least one processor.” Ex. 1001, 16:9–12. USAA relies on essentially the same arguments and evidence identified above with respect to “web services hub” of independent claim 1 and the “web container” of dependent claim 2 to explain how the teachings of Corneil account for this limitation. Pet. 57. That is, based on annotated versions of Figure 2 of Corneil, USAA argues that Corneil’s web services hub contains web container and queue processor 203. *See id.* at 12, 35. USAA also argues that Corneil’s web services hub includes at least one processor that executes software processes, and the software executing on the processor stores data, which means Corneil’s system necessarily includes at least one non-transitory memory connected to the processor. *Id.* at 12–13 (citing Ex. 1004 ¶¶ 25, 26, 32, Fig. 2, claims 15 and 16; Ex. 1003 ¶ 85).

Independent claim 7 further recites “the web container coupled to a data source system to receive a request from a data source system.” Ex. 1001, 16:13–14. USAA contends that Corneil teaches this limitation because its web container (identified above in blue in the analysis of dependent claim 2) is coupled to first trading partner 217 via secure handler 202, communication handler 103, and queue processor 203. Pet. 47. USAA argues that message routing engine 204 within Corneil’s web container

receives the message from first trading partner 217 via this coupling. *Id.* at 58 (citing Ex. 1004 ¶¶ 34, 51).

Independent claim 7 also recites “the queue processor coupled to the web container, coupled to the data source system via a secure response transmission channel, and coupled to a secure service router, the queue processor to listen to an input queue of the request contained in the web container.” Ex. 1001, 16:15–19. USAA relies on essentially the same arguments and evidence identified above with respect to “queue processor” of dependent claim 2 to explain how the teachings of Corneil account for this limitation. Pet. 57. That is, USAA argues that queue processor 203 is coupled to web container and maintains inbound 215 and outbound 216 electronic message queues. *Id.* at 38 (citing Ex. 1004 ¶ 33; Ex. 1003 ¶ 114). USAA further argues that the connection between the web container and first trading partner 217 is a secure communication channel (e.g., a secure HTTPs channel). *Id.* at 39–40 (citing Ex. 1004 ¶¶ 27, 33, 45). USAA also argues that Corneil’s queue processor 203 listens to inbound 215 electronic message queue, which is a simple FIFO queue, contained within the web container. *Id.* at 40–41 (citing Ex. 1004 ¶ 33). Lastly, USAA argues that Corneil teaches “the queue processor . . . coupled to a secure service router” because it discloses that message routing engine 204 performs the authentication and routing functions within the web container. *Id.* at 59 (citing Ex. 1004 ¶ 45).

Independent claim 7 then recites “wherein the secure service router is operative to authenticate the data source system and locate a transformation service to transform the request such that the request is transformed by the transformation service via a transformation process comprising.” Ex. 1001,

16:20–24. USAA contends that Corneil teaches this limitation because, after message routing engine 204 receives the message from first trading partner 217, it reviews the message header information to determine the processes that need to be performed, one of which is authenticating first trading partner 217. Pet. 60 (citing Ex. 1004 ¶ 45). According to USAA, one way by which Corneil’s message routing engine 204 authenticates first trading partner 217 is by checking its messages “to ensure that they are sent by the authorized Trading Partner by reconciling 604 the message[s] with a Trading Partner Profile.” *Id.* (quoting Ex. 1004 ¶ 45). USAA also argues that, if necessary, Corneil’s message routing engine 204 routes a message from first trading partner 217 to translation engine 208, which “performs the necessary data transformation.” *Id.* at 61 (quoting Ex. 1004 ¶ 51) (citing Ex. 1004 ¶¶ 34, 35, Fig. 2).

The only processing step of independent claim 7 recites “transforming the request such that the transformed request is in a format that is understandable and processable by an external system.” Ex. 1001, 16:25–27. USAA relies on essentially the same arguments and evidence identified above with respect to “transforming the request” of independent claim 1 to explain how the teachings of Corneil account for this limitation. Pet. 62. That is, USAA contends that Corneil teaches this limitation because it discloses that translation engine 208 transforms the message received from first trading partner 217 to a format that second trading partner 217 would be able to understand and process. *Id.* at 20–21 (citing Ex. 1004 ¶¶ 11, 33, 34, 42, 45; Ex. 1003 ¶¶ 97, 98).

Finally, independent claim 7 recites the following:

the web services hub to receive a response to the transformed request from the external system after the external system has completed processing of the transformed request and transmitted a response to the transformed request, the web services hub to parse the response to the transformed request for the data source system and transform the response to the transformed request into a transformed response to send to the data source system such that the transformed response is understandable and processable by the data source system.

Ex. 1001, 16:28–37. USAA relies on essentially the same arguments and evidence identified above with respect to the “response” steps of independent claim 1 to explain how the teachings of Corneil account for these limitations. Pet. 62. That is, USAA contends that Corneil teaches these limitations because its system receives the message or request from first trading partner 217, uses translation engine 208 to transform the message into a format that second trading partner 217 would be able to understand and process, and then transmits the transformed message to second trading partner 217. *Id.* at 22–23 (citing Ex. 1004 ¶ 2; Ex. 1003 ¶ 99). Relying on the testimony of Dr. Malek, USAA argues that a person of ordinary skill in the art would have recognized that, in situations such as the one taught by Corneil, it would have been beneficial for second trading partner 217 to transmit a response after it processes the transformed message. *Id.* at 23 (citing Ex. 1003 ¶ 100). As one example, USAA argues that “a buyer using Corneil’s system to send a purchase order request to a seller would want to receive a response indicating acceptance or rejection of the purchase order.” *Id.* According to USAA, this would provide the predictable benefit of letting first trading partner 217 know that second

trading partner 217 received and processed the purchase order, as well as informing first trading partner 217 about the status of the purchase order and whether any changes were necessary to complete the purchase order. *Id.* As further support for its argument, USAA directs us to Corneil’s use of “EDI” messages as “a standardized message format used for business transactions” that typically involves one request message and one response message. *Id.* at 23–24 (citing Ex. 1004 ¶ 32; Ex. 1006, 58; Ex. 1003 ¶ 100).

USAA also argues that Corneil provides explicit motivation that its system is capable of handling a request-response exchange because it discloses the following: (1) message routing engine 204 “maintains running conversations, i.e., multi-message communication threads, and processes messages”; and (2) Corneil already permits two disparate systems associated with different trading partners 217 to communicate, without the need to understand the same data format. Pet. 24–25 (emphasis omitted) (quoting Ex. 1004 ¶ 34) (citing Ex. 1004, code (57), ¶¶ 31, 34, 35; Ex. 1003 ¶¶ 101, 102). USAA asserts that transforming a message or request from second trading partner 217 to a format that first trading partner 217 would be able to understand and process “would provide the same predictable and known benefits as for the initial [message]” and “would require no modification to Corneil’s existing functionality.” *Id.* at 25 (citing Ex. 1004, code (57); Ex. 1003 ¶ 102). USAA also asserts that a person of ordinary skill in the art would have been motivated to implement a request-response exchange in Corneil’s system with a reasonable expectation of success because it would require “only routine programming using the existing functionality of Corneil” (i.e., Corneil already supports “running conversations” or “multi-

message communication threads” between trading partners). *Id.* at 25–26 (quoting Ex. 1004 ¶ 34) (citing Ex. 1003 ¶ 103).

At this stage of the proceeding, PNC raises the following arguments: (1) USAA inconsistently maps the “secure service router” recited in each of independent claims 1 and 7 to different components in Corneil; (2) Corneil does not teach a “secure service router” that “authenticate[s] the data source system,” as recited in independent claim 7; (3) Corneil does not teach a “secure service router” that “locate[s] a transformation service,” as recited in independent claim 7; and (4) Corneil does not teach the claim term “secure service router,” if that term is construed properly. Prelim. Resp. 26–31. We address these arguments in turn.

a. Inconsistent mapping argument

In its Preliminary Response, PNC contends that USAA inconsistently maps the “secure service router” recited in each of independent claims 1 and 7 to different components in Corneil. Prelim. Resp. 26. On the one hand, PNC argues that USAA takes the position that Corneil’s security handler 202 teaches the “secure service router” of independent claim 1. *Id.* On the other hand, PNC argues that USAA takes the position that Corneil’s message routing engine 204 teaches the “secure service router” of independent claim 7. *Id.* According to PNC, Corneil’s security handler 202 and message routing engine 204 “are completely different elements with different functionality” and they both cannot perform the same authentication function required by the claimed “secure service router.” *Id.* at 26–28 (citing Ex. 1004 ¶¶ 33, 34, Fig. 2; Ex. 2001 ¶¶ 59, 60).

At this stage of the proceeding, we see no issue with USAA’s mapping of the “secure service router” recited in each of independent claims

1 and 7 to different components in Corneil, so long as each component in Corneil satisfies our preliminary determination for the claim term “secure service router.” As we explain in our claim construction section above, the claim term “secure service router,” at a minimum, must “authenticate the data source system” that sends a message or request. *See supra* Section II.A.2. Based on the preliminary record, Corneil’s message routing engine 204 satisfies this minimum requirement because it authenticates first trading partner 217 by checking its messages “to ensure that they are sent by the authorized Trading Partner by reconciling 604 the message[s] with a Trading Partner Profile.” Ex. 1004 ¶ 45, Fig. 6; *see also id.* ¶ 51 (disclosing that message routing engine 204 “picks up, authenticates and properly routes incoming messages and outgoing messages”).

b. “secure service router” that “authenticate[s] the data source system”

In its Preliminary Response, PNC contends that Corneil does not teach a “secure service router” that “authenticate[s] the data source system” because message routing engine 204 merely confirms that a message was sent by first trading partner 217, but it does not authenticate the identity of first trading partner 217. Prelim. Resp. 29–30 (citing Pet. 59; Ex. 1004 ¶ 45). According to PNC, USAA does not provide any evidentiary support whatsoever, either from the teachings of Corneil or its declarant’s testimony, that Corneil’s message routing engine 204 performs any steps to authenticate first trading partner 217. *Id.* at 30 (Ex. 2001 ¶¶ 63, 64).

Based on the preliminary record, we are not persuaded by PNC’s argument that Corneil’s message routing engine 204 does not perform any steps to authenticate first trading partner 217. Corneil discloses that, when message routing engine 204 receives a message or request from first trading

partner 217, it examines the header information that includes “information on message incoming and outgoing formats, *trading partner information*, routing characteristics and application information for [the] transaction.” Ex. 1004 ¶ 34 (emphasis added). As we explain above, Corneil’s message routing engine 204 authenticates first trading partner 217 by checking its messages “to ensure that they are sent by the authorized Trading Partner by reconciling 604 the message[s] with a Trading Partner Profile.” *Id.* at ¶ 45, Fig. 6; *see also id.* ¶ 51 (disclosing that message routing engine 204 “picks up, authenticates and properly routes incoming messages and outgoing messages”). Therefore, contrary to PNC’s argument, we are persuaded that USAA has presented sufficient evidence that would support a finding that Corneil’s message routing engine 204 teaches a “secure service router” that “authenticate[s] the data source system,” as recited in independent claim 7.

c. “secure service router” that “locate[s] a transformation service”

In its Preliminary Response, PNC contends that Corneil does not teach a “secure service router” that “locate[s] a transformation service” because message routing engine 204 only identifies a single translation engine. Prelim. Resp. 30. According to PNC, USAA “conflates the determination of *whether* to send a message to the single [t]ranslation [e]ngine with the claimed concept of *locating* a [t]ranslation [e]ngine.” *Id.* (citing Ex. 2001 ¶ 65).

PNC relies on virtually the same argument when disputing that Corneil does not teach “the web services hub identifying a business service handler configured to transform the request,” as recited in each of independent claims 1 and 12. *Compare* Prelim. Resp. 30, *with id.* at 17–18.

For essentially the same reasons we identify above, we are not persuaded by PNC's argument in this regard. *See supra* Section II.B.4.a.

That is, based on the preliminary record, the language of “locat[ing] a transformation service to transform the request” recited in the limitation at issue is not so restrictive, but is broad enough to encompass identifying a single transformation service to transform the request. Corneil discloses that, when message routing engine 204 receives a message or request from first trading partner 217, it examines the header information that includes “*information on message incoming and outgoing formats, trading partner information, routing characteristics and application information for [the] transaction.*” Ex. 1004 ¶ 34 (emphasis added). Corneil then discloses that, if necessary, message routing engine 204 sends the message to translation engine 208 for further processing, which includes transforming the message “from the incoming message format . . . to the outbound message format” acceptable to second trading partner 217. *Id.* at ¶ 35. Accordingly, for purposes of institution, we are persuaded that USAA has presented sufficient evidence that would support a finding that Corneil's message routing engine 204 teaches a “secure service router” that “locate[s] a transformation service,” as recited in independent claim 7.

*d. PNC's argument based on the claim term “secure service router,”
if that term is construed properly*

In its Preliminary Response, PNC contends that the claim term “secure service router” should be construed as “a component that authenticates the data source system, locates a service, and forwards a message or request to the service.” Prelim. Resp. 31. According to PNC, Corneil's message routing engine 204 does not teach the claimed “secure

service router” because it does not meet two of the three elements identified in PNC’s proposed construction: (1) it does not authenticate the data source system; (2) it does not locate a service. *Id.* (citing Ex. 2001 ¶ 66).

Based on the preliminary record, we are not persuaded by PNC’s argument that Corneil does not teach the claim term “secure service router.” As we explain in our claim construction section above, we do not adopt PNC’s proposed construction of the claim term “secure service router” because it would render superfluous the language that already is recited in independent claims 1 and 7—namely, “the secure service router [is operative] to authenticate the data source system” and “the secure service router . . . locate[s] a transformation service to transform the request.” *See supra* Section II.A.2. Instead, we clarify that, at a minimum, this claim term must “authenticate the data source system” that sends a message or request because this is recited explicitly in independent claims 1 and 7. *Id.* In addition, based on the plain language of independent claim 7, the claim term “secure service router” also must “locate a transformation service to transform the request.” Ex. 1001, 16:21–22. Based on these two requirements, we are persuaded that USAA has presented sufficient evidence that would support a finding that Corneil’s message routing engine 204 teaches the claimed “secure service router.” *See supra* Section II.B.6.b, c.

e. Summary

In summary, USAA has shown a reasonable likelihood that it would prevail on its assertions that the subject matter of independent claim 7 would have been obvious over the teachings of Corneil.

7. *Claims 8–11*

USAA relies on essentially the same arguments and supporting evidence identified above with respect to dependent claims 3–6 to explain how the teachings of Corneil account for each of the limitations of dependent claims 8–11. *Compare* Pet. 63, *with id.* at 41–57. Based on the preliminary record, USAA’s arguments and supporting evidence with respect to dependent claims 8–11 are sufficient for purposes of institution. At this stage of the proceeding, PNC does not address separately USAA’s arguments and supporting evidence as to how the teachings of Corneil account for the limitations of these dependent claims. *See* Prelim. Resp. 32. When considering USAA’s un rebutted arguments and supporting evidence, USAA has demonstrated a reasonable likelihood that it will prevail on its assertions that the subject matter of dependent claims 8–11 would have been obvious over the teachings of Corneil.

C. Obviousness Over the Combined Teachings of Corneil and Abjanic

USAA also contends that claims 1–17 of the ’786 patent are unpatentable under § 103(a) as obvious over the combined teachings of Corneil and Abjanic. Pet. 9–69. USAA contends that the teachings of Corneil and Abjanic account for the subject matter of each challenged claim, and provides reasoning as to why a person of ordinary skill in the art would have been prompted to combine the teachings of these references. *Id.* USAA also relies on the testimony of Dr. Malek to support its positions. Ex. 1003.

Based on the preliminary record, we determine that USAA has shown that there is a reasonable likelihood that it would prevail in challenging at

least one of claims 1–17 of the ’786 patent as unpatentable. We begin our analysis with a brief overview of Abjanic, and then we address the parties’ contentions with respect to the challenged claims.

1. Overview of Abjanic

Abjanic generally relates to a transforming switch “that includes a transformer to transform a message from a first format to a second format, and a switch to switch the message to a selected server or processing node.” Ex. 1005, code (57). In one embodiment, Abjanic discloses transforming switch 710 that includes, among other things, transformer 715 and switch 165. *Id.* ¶ 73, Fig. 7. “Transformer 715 can transform messages between a variety of different data formats, as required.” *Id.* ¶ 74. As one example of the functionality of transformer 715, Abjanic discloses the following:

a first node may issue a request over network or Internet 130 that is received by a second node. The second node may send a response back to the first node. Both the request and response may typically be routed over the Internet or network 130 and transforming switch 710. The request and response may both include data that may need to be transformed.

Id.; *see also id.* ¶ 75 (discloses “four general cases involving transformation,” one of which being “[transformation] may be performed . . . on data in the request and in the response”).

2. Claims 1, 7, and 12

Apart from one exception, USAA relies on the same arguments and evidence identified above with respect to independent claims 1 and 7 to explain how the combined teachings of Corneil and Abjanic account for all the limitations of independent claims 1, 7, and 12. *See* Pet. 9–34, 57–62, 64–66. Each of independent claims 1 and 7 recites, in relevant part:

the web services hub to receive a response to the transformed request from the external system after the external system has completed processing of the transformed request and transmitted a response to the transformed request, the web services hub to parse the response to the transformed request for the data source system and transform the response to the transformed request into a transformed response to send to the data source system such that the transformed response is understandable and processable by the data source system.

Ex. 1001, 15:28–37, 16:28–37. Independent claim 12 recites similar limitations. *Id.* at 17:19–33. USAA contends that, to the extent that Corneil does not teach the “response” steps required by independent claims 1, 7, and 12, Abjanic teaches these limitations because it discloses transformer 715 that parses and transforms, if necessary, requests and responses into “a format that is compatible with the receiving node.” Pet. 26 (quoting Ex. 1005 ¶ 75) (citing Ex. 1005 ¶ 74). USAA argues that Abjanic provides a specific example of a business transaction between “Bookstore.com” and “market.com,” where “Bookstore.com” understands and processes messages in “format A” and “market.com” understands and processes messages in “format B.” *Id.* at 28 (quoting Ex. 1005 ¶ 96) (citing Ex. 1003 ¶ 104). USAA argues that Abjanic’s system uses “tags” and other information to identify messages that need to be transformed so that “Bookstore.com” and “market.com” can communicate. *See id.* (quoting Ex. 1005 ¶ 98).

Turning to rationale to combine, USAA contends that, when considering the teachings of Abjanic identified above, a person of ordinary skill in the art would have been motivated “to use Corneil’s system to receive a response from the external system after it has completed processing a transformed request and to parse and transform that response

into a format understandable and processable by the data source system to which the response is to be transmitted.” Pet. 28–29 (citing Ex. 1003 ¶ 105). According to USAA, “[t]his would have allowed a [person of ordinary skill in the art] to implement a business transaction, such as a purchase order request and response accepting the order, while taking advantage of the translation and efficiency features of Corneil’s web services hub.” *Id.* at 29. USAA also argues that there would have been a reasonable expectation of success in “[u]sing Corneil’s system for both requests and responses between trading partners,” as taught by Abjanic, because it would provide certain benefits, such as “cost savings and efficiency resulting from eliminating point-to-point integrations and improved interoperability between otherwise incompatible systems, with no drawback that would have discouraged a [person of ordinary skill in the art] from implementing the claimed functionality.” *Id.* at 30 (citing Ex. 1003 ¶ 106).

In its Preliminary Response, PNC contends that the teachings of Abjanic do not remedy the deficiencies in Corneil that it identifies above in the asserted obviousness ground based on the teachings of Corneil alone. Prelim. Resp. 34–35. Based on the preliminary record, there are no such deficiencies in the teachings of Corneil for Abjanic to remedy. *See supra* Section II.B.4, 6. Moreover, we have reviewed USAA’s unrebutted arguments and supporting evidence as to how the combined teachings of Corneil and Abjanic account for all the limitations of independent claims 1, 7, and 12, and based on the preliminary record, USAA’s arguments and supporting evidence with respect to these independent claims are sufficient for purposes of institution. *See* Pet. 9–34, 57–62, 64–66. Accordingly, USAA has demonstrated a reasonable likelihood that it will prevail on its

assertions that the subject matter of independent claims 1, 7, and 12 would have been obvious over the combined teachings of Corneil and Abjanic.

3. Claims 2–6, 8–11, and 13–17

USAA relies on the same arguments and evidence identified above with respect to dependent claims 2–6, 8–11, and 13–17 to explain how the combined teachings of Corneil and Abjanic account for each of the limitations of these dependent claims. *See* Pet. 34–57, 63, 66–69. Based on the preliminary record, USAA’s arguments and supporting evidence with respect to dependent claims 2–6, 8–11, and 13–17 are sufficient for purposes of institution. At this stage of the proceeding, PNC does not address separately USAA’s arguments and supporting evidence as to how the combined teachings of Corneil and Abjanic account for the limitations of these dependent claims. *See* Prelim. Resp. 32. When considering USAA’s un rebutted arguments and supporting evidence, USAA has demonstrated a reasonable likelihood that it will prevail on its assertions that the subject matter of dependent claims 2–6, 8–11, and 13–17 would have been obvious over the combined teachings of Corneil and Abjanic.

III. CONCLUSION

Taking into account PNC’s Preliminary Response, we conclude that the information presented in the Petition demonstrates that there is a reasonable likelihood that USAA would prevail in challenging at least one of claims 1–17 of the ’786 patent as unpatentable under § 103(a) as obvious. Accordingly, we institute an IPR as to all challenged claims and all the grounds raised in the Petition. *See SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018) (holding that a decision granting institution under 35 U.S.C.

§ 314 may not institute on fewer than all challenged claims in the petition); *PGS Geophysical AS v. Iancu*, 891 F.3d 1354, 1360 (Fed. Cir. 2018) (“We read . . . the *SAS* opinion as interpreting the statute to require a simple yes-or-no institution choice respecting a petition, embracing all challenges included in the petition.”). At this stage of the proceeding, we have not made a final determination with respect to the patentability of the challenged claims or the construction of any claim term.

IV. ORDER

Accordingly, it is

ORDERED that, pursuant to 35 U.S.C. § 314 and 37 C.F.R. § 42.4(a), an IPR is hereby instituted as to all of the challenged claims and all of the grounds raised in the Petition; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), notice is hereby given of the institution of a trial; the trial will commence on the entry date of this decision.

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