

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

METASWITCH NETWORKS LTD. AND METASWITCH NETWORKS
CORPORATION
Petitioners

v.

SONUS NETWORKS, INC. (d/b/a RIBBON COMMUNICATIONS
OPERATING COMPANY),
Patent Owner

Case IPR2019-00395
Patent No. 6,950,441

PATENT OWNER PRELIMINARY RESPONSE

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List of Exhibits

METASWITCH-1001	U.S. Patent No. 6,950,441
METASWITCH-1002	Excerpts from the Prosecution History of U.S. Patent No. 6,950,441
METASWITCH-1003	Declaration of Dr. Vishal Sharma
METASWITCH-1004	U.S. Patent No. 6,570,869
METASWITCH-1005	U.S. Patent No. 7,336,649
METASWITCH-1006	U.S. Patent No. 6,614,781
METASWITCH-1007	U.S. Patent No. 6,111,893
METASWITCH-1008	Christian Huitema, An Architecture for Residential Internet Telephony Service, IEEE Internet Computing, June 1999
METASWITCH-1009	Ramnath A. Lakshmi-Ratan, The Lucent Technologies Softswitch—Realizing the Promise of Convergence, Bell Labs Technical Journal, June 1999
METASWITCH-1010	U.S. Patent No. 6,418,205
METASWITCH-1011	U.S. Patent No. 6,052,448
METASWITCH-1012	U.S. Provisional Application 60/127,169
METASWITCH-1016	U.S. Patent No. 6,249,572
METASWITCH-1017	M. Sestak et al., Traffic Monitoring in a Network of PBXs, GLOBECOM '90: IEEE Global Telecommunications Conference and Exhibition
METASWITCH-1018	Media Gateway Control Protocol (MGCP), v 1.0, The Internet Society (October, 1999)
METASWITCH-1019	U.S. Patent No. 6,311,072
METASWITCH-1020	Newton's Telecom Dictionary, 11th Ed., 1996, p. 228

I. Introduction

Institution should be denied, because Petitioner has failed to meet its burden of showing a reasonable likelihood of success that the claims of U.S. Patent No. 6,950,441 (the '441 Patent) are invalid. Generally, the claims of the '441 Patent are directed to a system that bridges telecommunications networks of different protocols. METASWITCH-1001, Title, Abstract. Petitioner raises five grounds alleging that certain claims of the '441 Patent are invalid over different combinations involving U.S. Patent No. 6,570,869 (*Shankar*). Petition, 2. All of these grounds are deficient for several reasons.

Petitioner alleges that *Shankar* teaches an originating call control (OCC), universal call model (UCM), and terminating call control (TCC) that form the claimed “call agent in communication with the signaling agent and operable to receive the call model event, request outgoing resources for establishing data sessions, generate outgoing signaling messages, and send the outgoing signaling messages to the signaling agent, the signaling agent further terminating the data sessions on the requested outgoing resources.” Petition 18–24. These components however, do not perform every function of the claimed call agent.

First, these components do not “request outgoing resources for establishing data sessions.” Petitioner alleges that the UCM requests outgoing resources when the UCM queries external systems or uses routing tables to determine which

terminating signaling unit should receive a call. Petition, 22. Consulting an external system or routing table to determine what IP address corresponds to a called number, however, is **not** requesting outgoing resources to establish a data session. The external systems and routing tables merely tell the UCM to which terminating signaling unit to connect a call, which is not requesting the outgoing resources to establish the data session for the call.

Second, these components do not “generate outgoing signaling messages” or “send the outgoing signaling messages to the signaling agent.” Petitioner first alleges that the UCM generates and sends signaling messages to a signaling agent, because the UCM sends universal protocol messages to a terminating call control (TCC). Petition, 23. *Shankar*, however, explicitly teaches that the UCM does not generate these universal protocol messages but “merely passes the universal protocol messages between the OCC 322 and TCC 326.” METASWITCH-1004, 6:24–28; 11:40–44. Petitioner also alleges that the TCC performs this function when it converts the universal protocol message from the UCM to a protocol of another terminating signaling unit and sends the converted message to that terminating signaling unit. Petition, 23. The other terminating signaling unit, however, is not “the signaling agent” recited in the claim, because that terminating signaling unit does not convert signaling messages to a universal protocol message for the UCM.

Because of these deficiencies, Petitioner has not shown a reasonable likelihood of success and the Board should deny institution.

II. The '441 Patent is directed to a system that bridges telecommunications networks that use different protocols.

The '441 Patent teaches a softswitch that allows connects calls between telecommunications networks that use different protocols. METASWITCH-1001, Abstract. The softswitch includes a signaling agent that translates signaling messages to a call model event for a call agent. METASWITCH-1001, 6:10–24. The call agent receives the call model event and requests resources for establishing data sessions from a resource manager. METASWITCH-1001, Figure 5, 7:26–29. The call agent then sends an outgoing signaling message to a signaling agent to terminate data sessions on the requested resource. METASWITCH-1001, Figure 5, 13:50–53. The call agent also requests routing information from a network directory server. METASWITCH-1001, Figure 5, 7:37–52.

III. The Cited References

Petitioner alleges that certain claims of the '441 Patent are invalid as obvious in view of *Shankar* in combination with one or more of U.S. Patent No. 7,336,649 (*Huang*), U.S. Patent No. 6,418,205 (*Capers*), U.S. Patent No. 6,052,448 (*Janning*), and an article titled “An Architecture for Residential Internet Telephony Service” (*Huitema*).

A. *Shankar* teaches a system to connect voice calls over a packet switching network.

Shankar's system connects voice calls over a packet switching network. METASWITCH-1004, Title, Abstract. The system includes an originating call control that translates signaling messages into a universal protocol message. METASWITCH-1004, 6:16–28; 11:16–25. A universal call model passes the universal protocol message to a terminating call control. METASWITCH-1004, 11:38–52. The terminating call control translates the universal call model to a protocol of a destination network. METASWITCH-1004, 11:26–36.

B. The other cited references teach various aspects of telephony systems.

Huang teaches a hybrid telephony system that uses both packet switching and circuit switching. METASWITCH-1005, Title, Abstract. *Capers* teaches a state machine for a signaling gateway. METASWITCH-1010, Title, Abstract. *Janning* teaches a system that formats call detail records. METASWITCH-1011, Title, Abstract. *Huitema* teaches a residential Internet telephony architecture. METASWITCH-1008, 1.

IV. Claim Construction

For the purposes of this Patent Owner Preliminary Response, Patent Owner does not propose any claim terms for construction and will not address the terms that Petitioner proposed for construction in the co-pending District Court litigation. Patent Owner reserves the right to present claim construction issues should the

Board institute *inter partes* review and in other proceedings involving the '441 Patent.

V. Level of Ordinary Skill in the Art

A person of ordinary skill in the art in the relevant time period would have had at least a Bachelor of Science Degree in electrical engineering, computer engineering, computer science, or in a related field, with at least 3 years of experience with telecommunications networks. Alternatively, a person of ordinary skill in the relevant timeframe could have been someone lacking formal technical education but having practical experience that would be equivalent to such education.

VI. Ground 1A: The proposed *Shankar-Huang* combination does not render obvious a call agent that requests outgoing resources for establishing data sessions, generates outgoing signaling messages, and sends the signaling messages to a signaling agent.

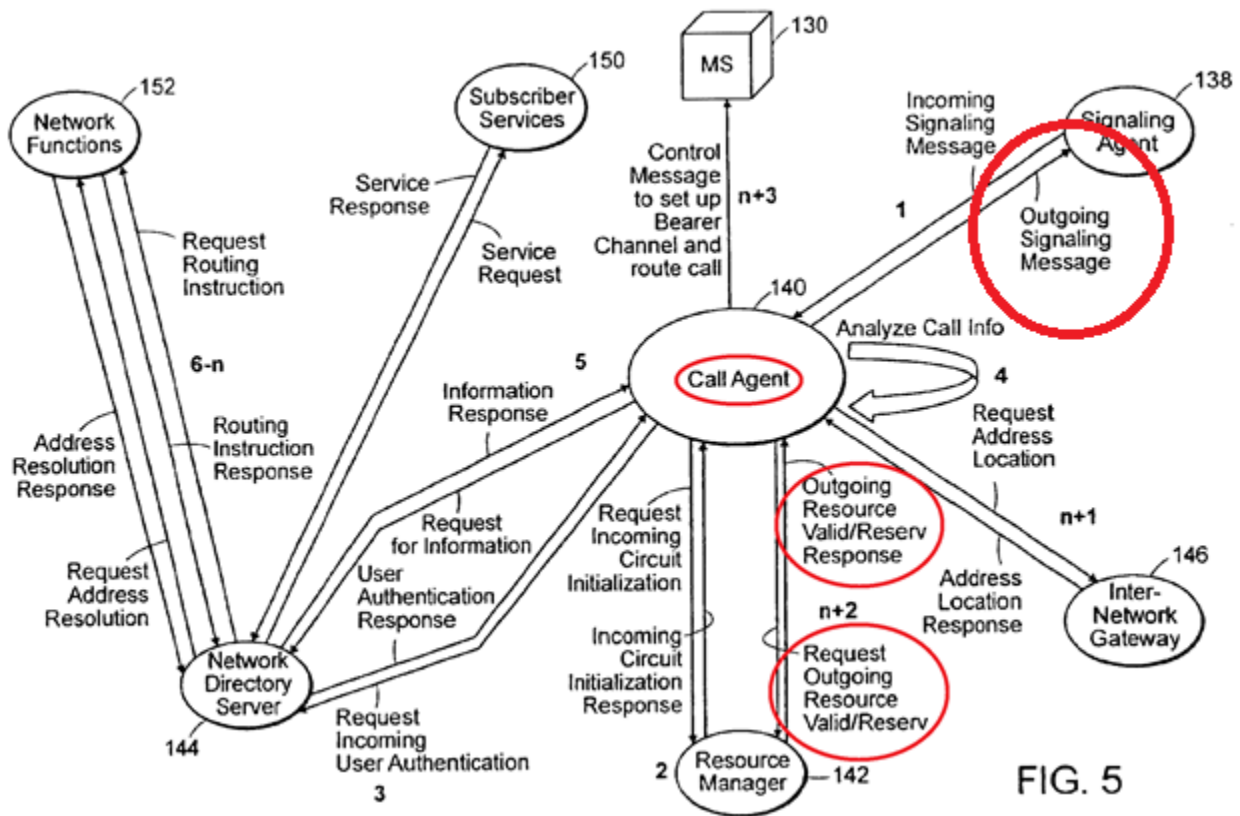
Petitioner alleges that Claims 1, 3, 5–9, and 12–17 are obvious in view of the proposed *Shankar-Huang* combination. Petitioner, 2. The proposed combination, however, does not render obvious “a call agent . . . operable to . . . request outgoing resources for establishing data sessions, generate outgoing signaling messages, and send the outgoing signaling messages to the signaling agent,” as

recited in Claim 1.¹ As a result, Petitioner fails to establish a reasonable likelihood of success, and the Board should deny institution.

A. The combination does not render obvious a call agent that requests outgoing resources for establishing data sessions.

Claim 1 recites “a call agent . . . operable to . . . request outgoing resources for establishing data sessions.” The ’441 Patent explains this feature. As seen below in Figure 5 of the ’441 Patent, the call agent (labeled 410) requests an outgoing resource by sending a resource manager a “Request Outgoing Resource Valid/Reserv.” In response, the resource manager sends the call agent an “Outgoing Resource Valid/Reserv Response” that “provide[s] resource availability information for the outgoing call.” METASWITCH-1001, 7:26–29. The call agent then sends an outgoing signaling message to a signaling agent to terminate data sessions on the requested resource. METASWITCH-1001, Figure 5, 13:50–53.

¹ Claims 3, 5, and 9 recite similar elements. Thus, the analysis explained here for Claim 1 applies equally to Claims 3, 5, and 9. Additionally, Claims 6–8 and 12–17 depend from Claims 5 and 1, respectively. Thus, the analysis presented here for Claim 1 applies equally to Claims 6–8 and 12–17.



METASWITCH-1001, Figure 5 (annotations added). Petitioner fails to establish that the proposed *Shankar-Huang* combination renders this feature obvious.

Petitioner and its expert, Dr. Sharma, allege that *Shankar* teaches this feature because the “universal call model” (UCM) in *Shankar* is a “call agent” (Petition, 19) that “makes a request for outgoing resources when ‘querying external systems’ or by ‘accessing internal routing tables’ to determine which terminating signaling unit 140 should receive the call” (Petition, 22) (emphasis added). METASWITCH-1003, ¶¶ 49–50. These statements from *Shankar*, however, do not teach that resources for terminating the call have been requested. METASWITCH-1004, 5:44–52. Rather, these statements teach that external

systems and internal routing tables tell the originating signaling unit to which terminating signaling unit to connect the call. METASWITCH-1004, 5:44–52. *Shankar* does not teach that the queries to external systems or the access to the routing tables, unlike a request for resources, can result in a denial of the query or access because insufficient resources are available.

Shankar teaches that after the terminating signaling unit is determined, “the originating signaling unit 120 transmits a signaling message . . . to terminating signaling unit 140.” METASWITCH-1004, 5:48–52. Thus, *Shankar* does not teach that the UCM requests the terminating signaling unit or the resources needed to connect the call before transmitting the signaling message to the terminating signaling unit. Rather, *Shankar* teaches that the external systems and internal routing tables tell the originating signaling unit to connect to a particular terminating signaling unit, and in response, the originating signaling unit sends the signaling message to the terminating signaling unit. METASWITCH-1004, 5:44–52. No request for resources is taught.

Nevertheless, Petitioner argues that “‘querying external systems’ and ‘accessing internal routing tables’ to determine which terminating signaling unit should 140 should receive the call” is a request for outgoing resources because they “result in a determination of at least a portion of the outgoing resources that will be used to terminate requested data sessions, such as the ‘terminating signaling

unit,’ and ‘terminating coding unit.’” Petition, 22. Petitioner’s argument, however, assumes (1) that the terminating signaling unit and the terminating coding unit are “outgoing resources” and (2) that anything that results in a determination of the terminating signaling unit and the terminating coding unit is a request for outgoing resources. Petitioner provides no explanation or evidence to support these assumptions. Indeed, the terminating signaling unit and the terminating coding unit can be determined without requesting the terminating signaling unit and the terminating coding unit. For example, *Shankar*’s UCM can send a called number to the external systems or routing tables. In response, the external systems or routing tables can tell *Shankar*’s UCM which terminating signaling unit is assigned to the called number. No request need be made (e.g., to see if the terminating signaling unit is available). In other words, *Shankar*’s UCM determines the terminating signaling unit without requesting the terminating signaling unit or resources to connect to the terminating signaling unit.

Therefore, contrary to Petitioner’s allegations, *Shankar* does not teach requesting an outgoing resource, such as the terminating signaling unit.

B. The combination does not render obvious a call agent that generates outgoing signaling messages and sends the signaling messages to the signaling agent.

Claim 1 recites “a call agent . . . operable to . . . generate outgoing signaling messages, and send the outgoing signaling messages to the signaling agent.”

Petitioner appears to allege that this feature is obvious for two different reasons, both of which are deficient.

First, Petitioner alleges that the UCM in *Shankar* generates and sends signaling messages to a signaling agent, because the UCM sends universal protocol messages to a terminating call control (TCC). Petition, 23. Even if the UCM sends universal protocol messages to a TCC, *Shankar* explicitly teaches that the UCM does not generate universal protocol messages. METASWITCH-1004, 6:24–28. Rather, an originating call control (OCC) generates the universal protocol message by converting a signaling message to the universal protocol message. METASWITCH-1004, 6:24–28. The UCM “merely passes the universal protocol messages between the OCC 322 and TCC 326.” METASWITCH-1004, 11:40–44. Petitioner appears to agree that the UCM does not generate universal protocol messages, because the Petition alleges that the OCC converts signaling messages to universal protocol messages. Petition, 15–16. Thus, even if the UCM acts as a call agent that sends an outgoing signaling message to a signaling agent when the UCM sends a universal protocol message to the TCC, Petitioner’s allegation is deficient because the UCM does not generate the universal protocol message.

Second, Petitioner appears to allege that the TCC in *Shankar* acts as a call agent that generates and sends signaling messages to a signaling agent, because the

TCC converts the universal protocol message from the UCM to a protocol of another terminating signaling unit and sends the converted message to that terminating signaling unit. Petition, 23. This position is also deficient; because, even if the TCC generates a signaling message by converting the universal protocol message to another protocol, the TCC does not send this converted message to “the signaling agent,” as recited in Claim 1. Notably, Claim 1 requires that the signaling agent to which the call agent sends the outgoing signaling message be the signaling agent that “translates the incoming signaling messages to a call model event” for the call agent. In *Shankar*’s system and as alleged by the Petition, however, the TCC sends the converted message to another terminating signaling unit. METASWITCH-1004, 5:47–52, 6:40–53; Petition, 23. This terminating signaling unit then works with a terminating node to establish a call between the terminating node and an originating node on the TCC’s side of the network. METASWITCH-1004, 5:53–63. Significantly, this termination signaling unit does not translate signaling messages for the UCM; because, as discussed above, the OCC performs that function. METASWITCH-1004, 6:24–28. As seen below in Figure 1 of *Shankar*, the TCC and the terminating signaling unit are on different sides of a network, and the terminating signaling unit does not translate signaling messages for the UCM.

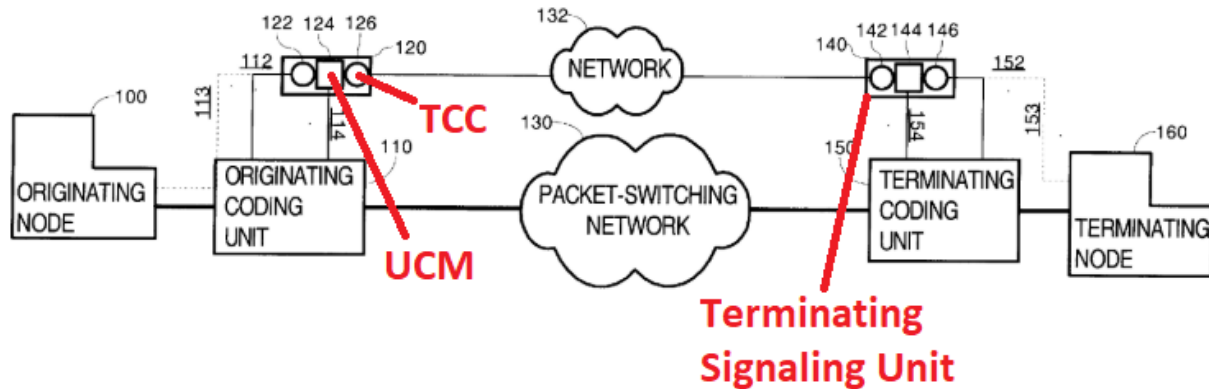


FIG. 1

METASWITCH-1004, Figure 1 (annotations added). Thus, Petitioner’s allegation is deficient because the TCC does not send outgoing signaling messages to “the signaling agent,” as recited in Claim 1.

Therefore, Petitioner does not establish that the proposed *Shankar-Huang* combination renders obvious “a call agent . . . operable to . . . request outgoing resources for establishing data sessions, generate outgoing signaling messages, and send the outgoing signaling messages to the signaling agent,” as recited in Claim 1. As a result, Petitioner fails to show a reasonable likelihood of success, and the Board should deny institution.

VII. Ground 1B: Petitioner fails to show that the proposed *Shankar-Huang-Capers* combination renders obvious Claim 2.

Petitioner alleges that Claim 2, which depends from Claim 1, is obvious in view of the proposed *Shankar-Huang-Capers* combination. Petition, 2. As discussed above, Petitioner fails to demonstrate that the proposed *Shankar-Huang*

combination renders obvious “a call agent . . . operable to . . . request outgoing resources for establishing data sessions, generate outgoing signaling messages, and send the outgoing signaling messages to the signaling agent,” as recited in Claim 1. *See* Section VI, *supra*. Moreover, Petitioner does not allege that *Capers* remedies the deficiencies of the proposed *Shankar-Huang* combination. Petition, 47–54. Therefore, Petitioner fails to establish a reasonable likelihood of success for Ground 1B, and the Board should deny institution.

VIII. Ground 1C: Petitioner fails to show that the proposed *Shankar-Huang-Capers-Janning* combination renders obvious Claims 18–25 and 28–32.

Petitioner alleges that Claims 18–25 and 28–32 are obvious in view of the *Shankar-Huang-Capers-Janning* combination. Petition, 2. Claim 18 recites “a call agent . . . operable to . . . generate a request for an outgoing resources for establishing data sessions.” As discussed above, the proposed *Shankar-Huang* combination fails to render obvious “a call agent . . . operable to . . . request outgoing resources for establishing data sessions,” as recited in Claim 1. *See* Section VI.A, *supra*. For at least certain analogous reasons, the proposed *Shankar-Huang* combination fails to render obvious “a call agent . . . operable to . . . generate a request for an outgoing resources for establishing data sessions,” as recited in Claim 18. Moreover, Petitioner does not allege that *Capers* or *Janning* remedy the deficiencies of the proposed *Shankar-Huang* combination. Petition, 54–65. Thus, Petitioner fails to show that the proposed *Shankar-Huang-Capers-*

Janning combination renders obvious Claim 18, and the Board should deny institution.²

IX. Ground 1D: Petitioner fails to show that the proposed *Shankar-Huang-Huitema* combination renders obvious Claims 4 and 10.

Petitioner alleges that Claims 4 and 10 are obvious in view of the proposed *Shankar-Huang-Huitema* combination. Petition, 2. Like Claim 1, Claim 4 recites “a call agent . . . operable to . . . request outgoing resources for establishing data sessions, generate outgoing signaling messages, and send the outgoing signaling messages to the signaling agent.” As discussed above for Claim 1, the proposed *Shankar-Huang* combination fails to render obvious this feature. *See* Section VI, *supra*. Moreover, Petitioner does not allege that *Huitema* remedies the deficiencies of the proposed *Shankar-Huang* combination. Petition, 65–73. Thus, Petitioner fails to show that the proposed *Shankar-Huang-Huitema* combination renders obvious Claim 4.

Claim 10 depends from Claim 9, shown above to be nonobvious over the proposed *Shankar-Huang* combination. *See* Section VI, *supra*. Moreover, Petitioner does not allege that *Huitema* remedies the deficiencies of the proposed *Shankar-Huang* combination. Petition, 65–73. Thus, Petitioner fails to show that

² Claims 19–25 and 28–32 depend from Claim 18. Thus, the analysis provided for Claim 18 applies equally to Claims 19–25 and 28–32.

the proposed *Shankar-Huang-Huitema* combination renders obvious Claim 10.

For these reasons, the Board should deny institution.

X. Ground 1E: Petitioner fails to show that the proposed *Shankar-Huang-Capers-Janning-Huitema* combination renders obvious Claim 26.

Petitioner alleges that Claim 26 is obvious in view of the proposed *Shankar-Huang-Capers-Janning-Huitema* combination. Petition, 2. Claim 26 depends from 18, shown above to be nonobvious over the proposed *Shankar-Huang-Capers-Janning* combination. See Section VIII, *supra*. Moreover, Petitioner does not allege that *Huitema* remedies the deficiencies of the proposed *Shankar-Huang-Capers-Janning* combination. Petition, 73. Thus, Petitioner fails to show that the proposed *Shankar-Huang-Capers-Janning-Huitema* combination renders obvious Claim 26. For these reasons, the Board should deny institution.

XI. Conclusion

For the foregoing reasons, Petitioner's grounds are deficient. Patent Owner requests that the Board decline to institute inter partes review of the '441 Patent.

Respectfully submitted,

Date: April 10, 2019

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CERTIFICATE OF WORD COUNT

Pursuant to 37 C.F.R. § 42.24(d), the undersigned certifies that the word count of this paper is 3,075, according to the word count of the word-processing system used to prepare the paper.

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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e)(4), the undersigned certifies that on April 10, 2019, a complete and entire copy of this **PATENT OWNER PRELIMINARY RESPONSE** was served on Petitioner via electronic mail at IPR42360-0004IP3@fr.com (referencing No. 42360-0004IP3 and cc'ing PTABInbound@fr.com, griswold@fr.com, conrad@fr.com, and deutsch@fr.com).

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