

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

REOLINK INNOVATION INC.
and
SHENZHEN REOLINK TECHNOLOGY CO., LTD.,
Petitioner,

v.

THROUGHTTEK TECHNOLOGY (SHENZHEN) CO., LTD.
and
THROUGHTTEK CO., LTD.,
Patent Owner.

IPR2024-01193
Patent 10,602,448 B2

Before MICHAEL J. STRAUSS, DAVID C. McKONE, and
SHEILA F. McSHANE, *Administrative Patent Judges*.

McKONE, *Administrative Patent Judge*.

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

I. INTRODUCTION

Reolink Innovation Inc. and Shenzhen Reolink Technology Co., Ltd. (collectively, “Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting *inter partes* review of claims 1–3, 5, 7–13, 15–19, and 23–25 of U.S. Patent No. 10,602,448 B2 (Ex. 1001, “the ’448 patent”). Throughtek Co., Ltd. and Throughtek Technology (Shenzhen) Co., Ltd. (collectively, “Patent Owner”) did not file a Preliminary Response to the Petition.

We have authority to determine whether to institute an *inter partes* review. *See* 35 U.S.C. § 314; 37 C.F.R. § 42.4(a). The standard for instituting an *inter partes* review is set forth in 35 U.S.C. § 314(a), which provides that an *inter partes* review may not be instituted “unless . . . there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” For the reasons explained below, we institute an *inter partes* review of the ’448 patent.

II. BACKGROUND

A. Related Proceedings

The parties identify *Throughtek Co. Ltd. v. Reolink Innovation Inc.*, Case No. 1:24-cv-00169-GBW (D. Del.) as involving the ’448 patent. Pet. 74; Paper 4, 2.

B. The ’448 Patent

The ’448 patent relates to remotely waking up a sleeping networked apparatus. Ex. 1001, code (57), 1:18–21. Figure 2 is reproduced below:

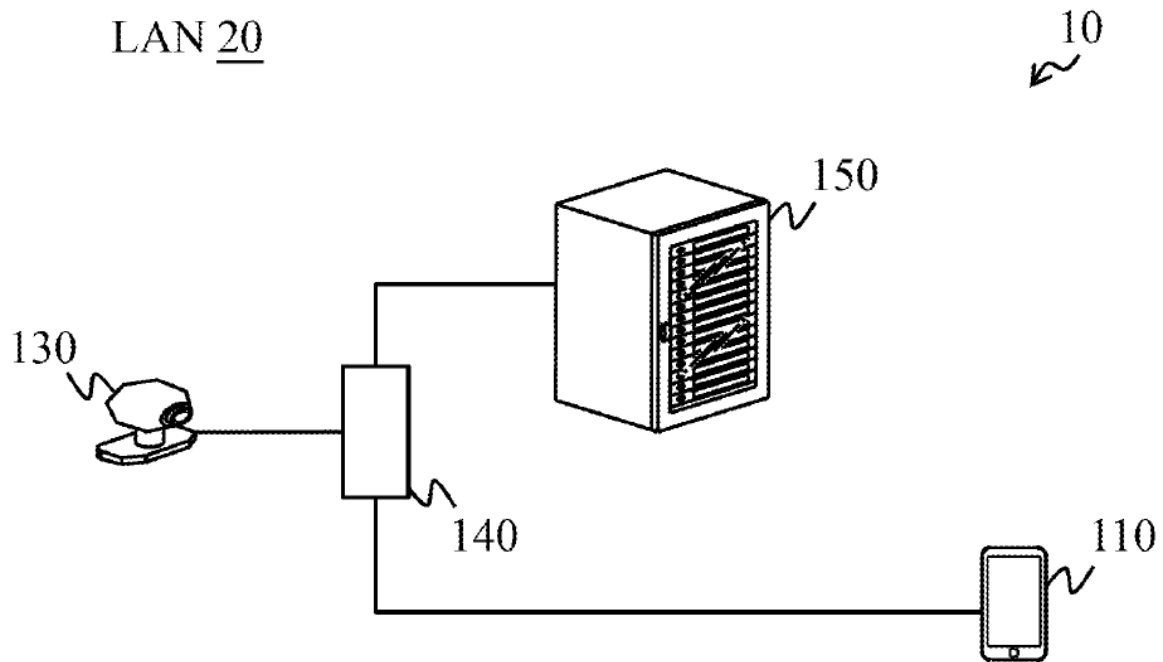


FIG. 2

Figure 2 is a schematic diagram of a network communications system. *Id.* at 2:53–55, 3:21–23. Network communications system 10 includes first apparatus 110, second apparatus 130, and connection server 150. *Id.* at 3:24–27. The network apparatuses can be personal computers, smartphones, tablet computers, video cameras, IP cameras, or intelligent appliances, for example. *Id.* at 3:28–33.

Figure 3 is reproduced below:

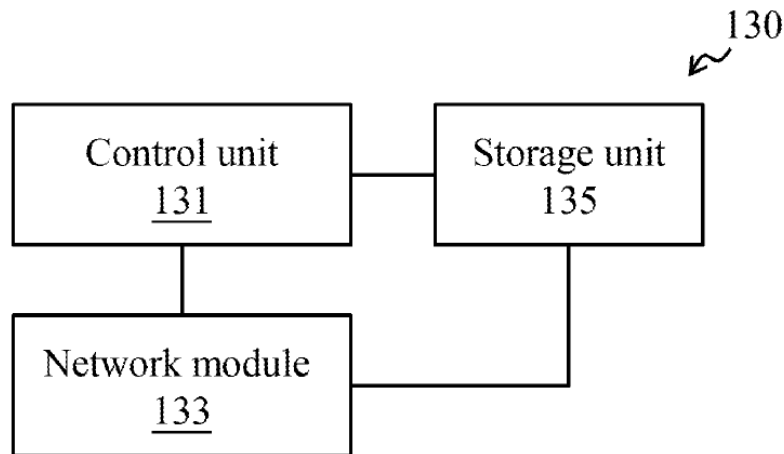


FIG. 3

Figure 3 is a block diagram of second apparatus 130. *Id.* at 2:56–57, 4:31–32. In second apparatus 130, control unit 131 is coupled to network module 133 and storage unit 135. *Id.* at 4:33–37. Second apparatus 130 can also include a functional module (not shown), such as a module with a photographing function when second apparatus 130 is an IP cam. *Id.* at 4:37–49. In this example, second apparatus 130 is a low power consumption apparatus with a power-saving (sleep) mode. *Id.* at 4:50–55. When second apparatus 130 is in sleep mode, network module 133 does not sleep and, instead, keeps running. *Id.* at 4:55–59.

Figure 4 is reproduced below:

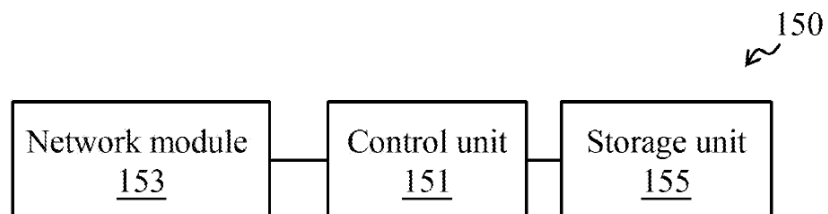


FIG. 4

Figure 4 is a block diagram of connection server 150. *Id.* at 2:58–59, 5:4–5. Connection server 150 includes control unit 151 connected to network module 153 and storage unit 155. *Id.* at 5:6–10. When first apparatus 110

needs to communicate with a sleeping second apparatus 130, it first wakes up second apparatus 130 by means of connection server 150. *Id.* at 5:11–15. This is shown in Figure 5, reproduced below:

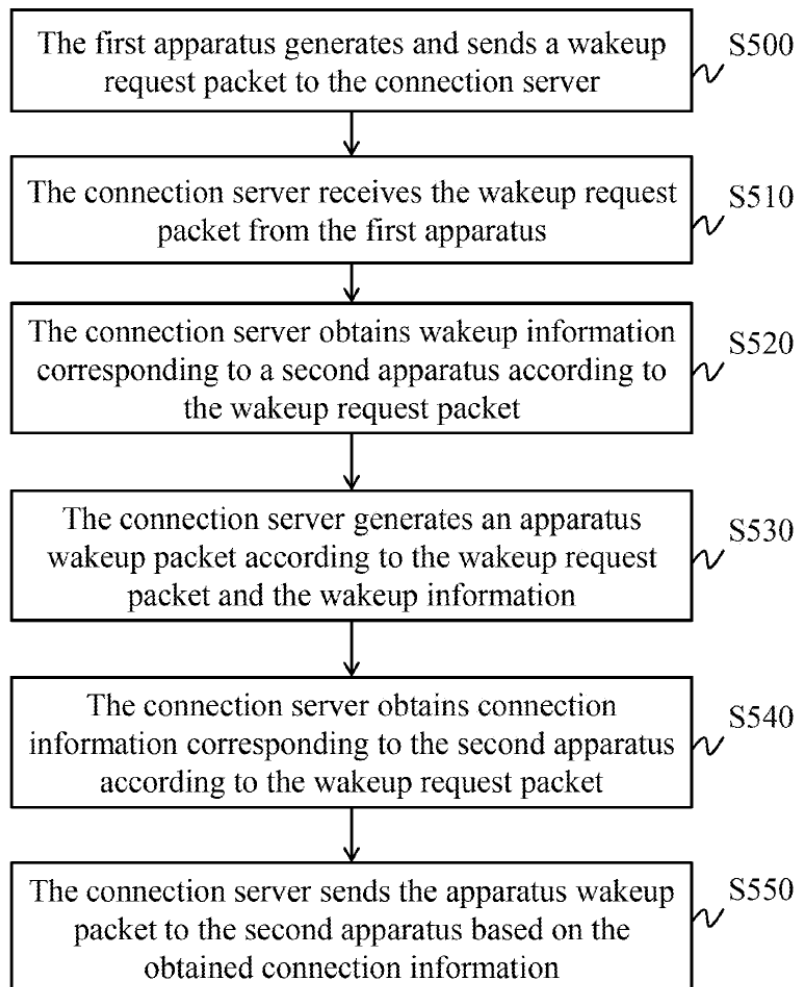


FIG. 5

Figure 5 is a flowchart of a first part of a remote wakeup method. *Id.* at 2:60–61, 5:16–17.

To wake up second apparatus 130, first apparatus 110 generates a wakeup request packet and sends it to connection server 150 through a network such as a local area network (LAN) or the Internet. *Id.* at 5:20–24, Fig. 5 (step S500). The wakeup request packet WRP includes general

information HD and device identifier ID of second apparatus 130. *Id.* at 5:24–31, Fig. 6 (schematic diagram of a wakeup request packet). After control unit 151 of connection server 150 receives wakeup request packet WRP from first apparatus 110, control unit 151 obtains wakeup information corresponding to second apparatus 130 from storage unit 155 according to device identifier ID, and generates an apparatus wakeup packet according to wakeup request packet WRP and the wakeup information obtained from storage unit 155. *Id.* at 5:32–40, Fig. 5 (steps S510, S520, S530), Fig. 7 (block diagram of an apparatus wakeup packet). Control unit 151 also obtains connection information AD (e.g., including a network address) corresponding to second apparatus 130 from storage unit 155 according to the device ID. *Id.* at 6:1–7, Fig. 5 (step S540). Control unit 151 then sends apparatus wakeup packet EWP to second apparatus 130 through network module 153 based on connection information AD. *Id.* at 6:34–40, Fig. 5 (step S550).

Figure 8 is reproduced below:

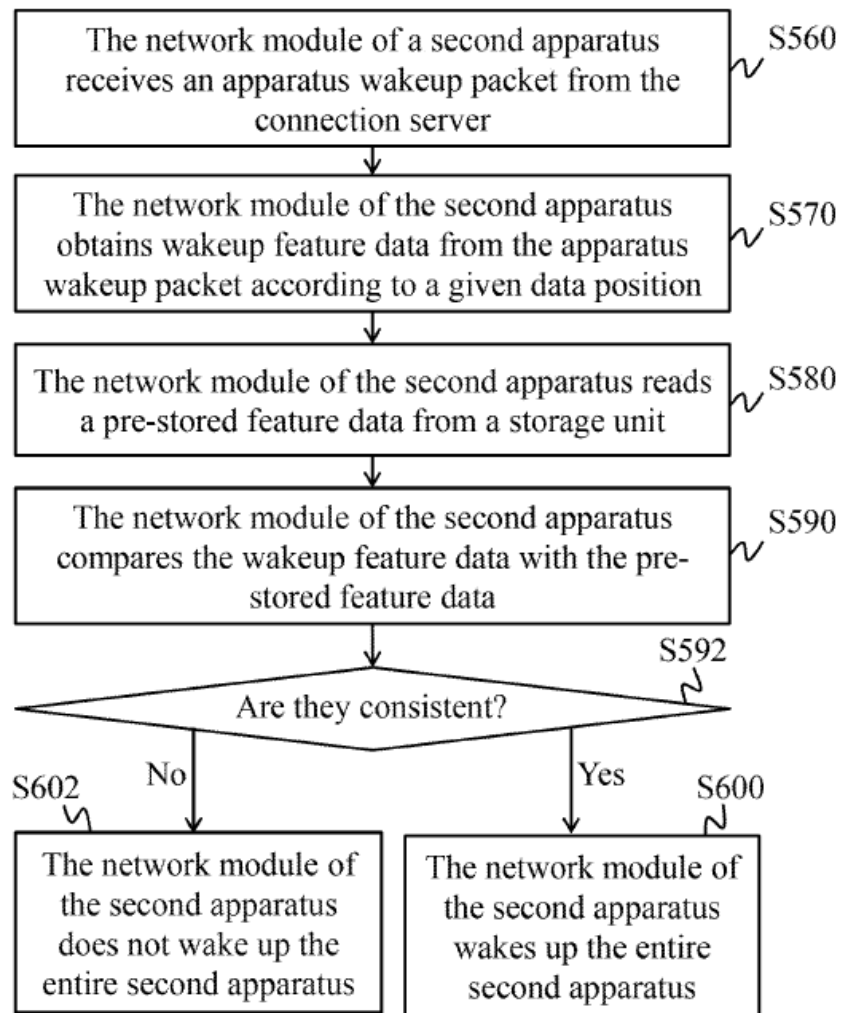


FIG. 8

Figure 8 is a flowchart of a second part of the remote wakeup method of Figure 5. *Id.* at 2:66–67, 6:41–42. Network module 133, which is still awake, receives apparatus wakeup packet EWP from connection server 150, obtains wakeup feature data from packet EWP, and reads feature data that is pre-stored in storage unit 135. *Id.* at 6:43–53, Fig. 8 (steps S560, S570, S580). Network module 133 compares the wakeup feature data from packet EWP with the pre-stored feature data and determines whether they are the same. *Id.* at 7:29–32, Fig. 8 (steps S590, S592). If so, network module 133

wakes up the entire second apparatus 130, so that second apparatus 130 can communicate with first apparatus 110. *Id.* at 7:32–37, Fig. 8 (step S600).

Claims 1 and 19, reproduced below, are illustrative of the claimed subject matter (bracketed numbering and formatting supplied to track those presented in the Petition at iv):

[1pre] A remote wakeup method, comprising:

- [1a] a connection server receiving a wakeup request packet from a first apparatus,
 - [1a.i] wherein the wakeup request packet comprises a device identifier of a second apparatus,
 - [1a.ii] wherein the first apparatus is connected to the connection server via local area network or internet;
- [1b] the connection server obtaining wakeup information stored in the connection server according to the wakeup request packet,
 - [1b.i] wherein the wakeup information stored in the connection server is the same as wakeup information stored in the second apparatus;
- [1c] the connection server generating an apparatus wakeup packet according to the wakeup request packet and the wakeup information,
 - [1c.i] wherein the apparatus wakeup packet comprises the device identifier of the second apparatus from the wakeup request packet and the obtained wakeup information;
- [1d] the connection server obtaining a network address corresponding to the second apparatus from a storage unit of the connection server according to the wakeup request packet;
- [1e] the connection server sending the apparatus wakeup packet to the second apparatus based on the network address,

[1e.i] wherein wakeup feature data is a segment of data of the apparatus wakeup packet and is for determining whether the entire second apparatus be awoken.

[19pre] A networking apparatus having a normal running mode and a sleep mode, comprising:

[19a] a network module;

[19b] a storage unit, which stores a device identifier and wakeup information; and

[19c] a control unit, which

[19c.i] connects to the network module and storage unit, and

[19c.ii] before entering the sleep mode, generates a pre-stored feature data according to the device identifier and the wakeup information and stores the pre-stored feature data in the storage unit,

[19d] wherein the pre-stored feature data comprises entire data or partial data of the device identifier and the wakeup information,

[19e] wherein: in the normal running mode, the control unit sends a normal login packet through the network module, to provide a network address of the networking apparatus;

[19f] in the sleep mode, the control unit sleeps, but the network module still keeps running and when receiving an apparatus wakeup packet sent to the network address of the networking apparatus from a connection server and generated by the connection server,

[19g] compares the pre-stored feature data and a wakeup feature data being a segment of data of the apparatus wakeup packet to determine whether to wake up the entire networking apparatus.

C. Evidence

Petitioner relies on the references listed below (Pet. 1–2).

Reference		Date	Exhibit No.
Zhang	US 2014/0298066 A1	Oct. 2, 2014	1004
Zill	US 2009/0210519 A1	Aug. 20, 2009	1005
Liu	US 2017/0366753 A1	Dec. 21, 2017	1006

Petitioner also relies on the Declaration of Vlad Kardashov (Ex. 1003).

D. The Asserted Grounds of Unpatentability

Petitioner contends that claims 1–3, 5, 7–13, 15–19, and 23–25 are unpatentable under the following grounds. Pet. 1.

Claims Challenged	35 U.S.C. §	References
1, 7, 8, 10, 11, 15, 16, 18, 19, 23–25	102 ¹	Zhang
1–3, 5, 7, 8, 10–13, 15, 16, 18, 19, 23–25	103	Zhang, Zill
1–3, 5, 7–13, 15–18	103	Liu, Zhang

III. ANALYSIS

A. Level of Ordinary Skill in the Art

Petitioner, relying on the testimony of Mr. Kardashov, contends that a person of ordinary skill in the art “would have had a bachelor’s degree in electrical engineering and two years of work experience with network and

¹ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. §§ 102 and 103. Because the ’448 patent was filed after March 16, 2013, the effective date of the relevant amendment, the AIA versions of §§ 102 and 103 apply.

communication technologies.” Pet. 5 (citing Ex. 1003 ¶ 13–15). For purposes of this Decision, we adopt Petitioner’s description of the level of ordinary skill in the art, as it is consistent with the technology described in the ’448 patent and the asserted prior art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

B. Claim Construction

We construe a claim “using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. [§] 282(b), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” 37 C.F.R. § 42.100(b); *see also Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). Petitioner contends that “no claim elements need a formal construction for purposes of resolving controversies in this proceeding.” Pet. 5. Based on the record before us, we do not find it necessary to provide express claim constructions of any claim terms. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (noting that “we 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)).

C. Alleged Anticipation by Zhang

Petitioner contends that claims 1, 7, 8, 10, 11, 15, 16, 18, 19, and 23–25 are anticipated by Zhang. Pet. 8–34.

“[A] prior art reference will anticipate if it ‘disclose[s] each and every element of the claimed invention . . . arranged or combined in the same way as in the claim.’” *Blue Calypso, LLC v. Groupon, Inc.*, 815 F.3d 1331, 1341 (Fed. Cir. 2016) (quoting *In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009) (alteration by Federal Circuit)). “However, a reference can anticipate a claim even if it ‘d[oes] not expressly spell out’ all the limitations arranged or combined as in the claim, if a person of skill in the art, reading the reference, would ‘at once envisage’ the claimed arrangement or combination.” *Id.* (quoting *Kennametal, Inc. v. Ingersoll Cutting Tool Co.*, 780 F.3d 1376, 1381 (Fed. Cir. 2015) (alteration by Federal Circuit); *In re Petering*, 301 F.2d 676, 681 (CCPA 1962)).

For the reasons explained below, we are persuaded that Petitioner has made a sufficient showing as to at least one claim.

1. Overview of Zhang

Zhang relates to securely waking a computer system over a network. Ex. 1004 ¶ 2. Figures 3 and 4 illustrate an example method according to Zhang. Figure 3 of Zhang is reproduced below:

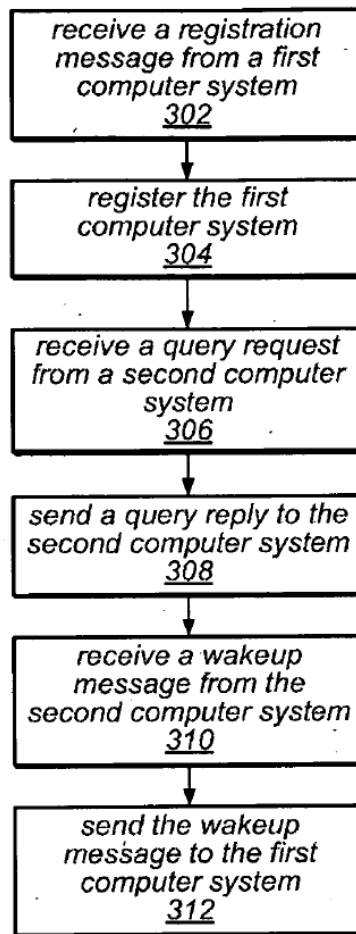


FIG. 3

Figure 3 is a flowchart of a method for securely waking a computer system over a network. *Id.* ¶ 26. Figure 4 of Zhang is reproduced below:

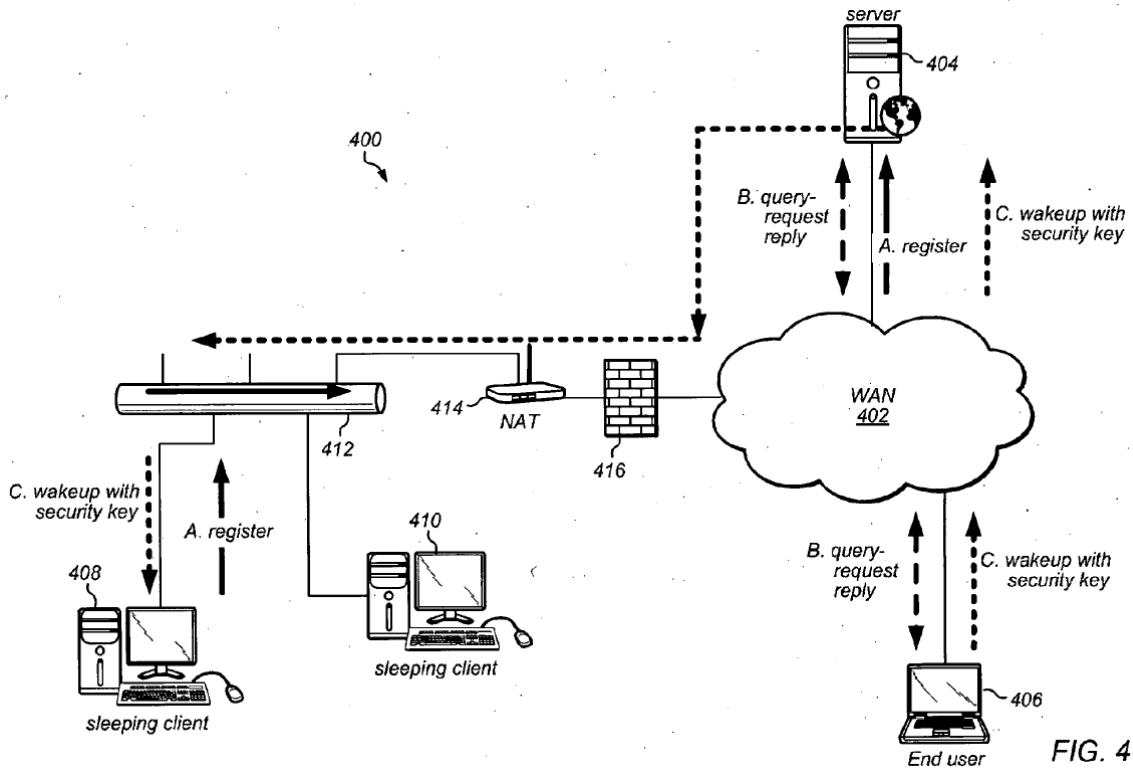


Figure 4 is a block diagram of a system of network devices, and includes message flows. *Id.* ¶ 27.

System 400 includes network 402 (e.g., a wide-area network (WAN) such as the Internet), and server computer system 404, end user computer system 406, and sleeping client computer system 408 all connected to WAN 402 from different locations. *Id.* ¶ 73. A network interface card (NIC) of sleeping client 408 registers with server 404 prior to sleeping by sending a message with an encoded hostname of sleeping client 408, a nonce (e.g., a randomly generated octet), an encryption algorithm, and a password or other authentication information. *Id.* ¶¶ 53–55, 74, Fig. 3 (step 302). Server 404 registers sleeping client 408 by storing this information in a memory. *Id.* ¶¶ 56, 74, Fig. 3 (step 304).

To wake up sleeping client 408, end user 406 generates and sends a query request, including the encoded ID of sleeping client 408, to server

404. *Id.* ¶¶ 59, 75, Fig. 3 (step 306). When it receives the request from end user 406, server 404 sends a query reply, including the encoded ID, the nonce, and the encryption algorithm, to end user 406. *Id.* ¶¶ 61, 77, Fig. 3 (step 308). End user 406 then generates, with a security key, a wakeup message that includes the encoded ID and an encrypted version of the nonce (using the encryption algorithm). *Id.* ¶¶ 63–64, 77. End user 406 sends the wakeup message to server 404, which forwards the wakeup message to sleeping client 408. *Id.* ¶¶ 62, 66, 78, Fig. 3 (steps 310, 312). The NIC of sleeping client 408 receives the wakeup message, checks the encrypted nonce, and, if the nonce was encrypted using the right key, wakes up sleeping client 408. *Id.* ¶¶ 67–68, 78.

2. Claims 1, 7, 8, 10, 11, 15, 16, 18, 19, and 23–25

Petitioner contends that Zhang’s “method for remotely waking a sleeping computer” discloses a “remote wakeup method,” as recited in the preamble of claim 1, assuming it is limiting.² Pet. 8 (citing Ex. 1004 ¶¶ 36, 49–71, Fig. 3; Ex. 1003 ¶ 47). As to claim limitations 1a, 1a.i, and 1a.ii, Petitioner argues that Zhang’s query request, sent by end user 406 to server 404, is a wakeup request, that the identification information for sleeping client 408 included in the query request is a device identifier of a second apparatus, and that Zhang’s WAN shows that end user 406 is connected to server 404 via a local area network or internet. *Id.* at 8–9 (citing Ex. 1004 ¶¶ 9, 16, 38, 49–67, 73–78, Fig. 4; Ex. 1003 ¶¶ 48–52).

² We need not determine, at this time, whether the preamble of claim 1 is limiting, as Petitioner has shown sufficiently, on the current record, that it is disclosed in Zhang.

As to claim limitation 1b, Petitioner contends that Zhang's query reply from server 404 to end user 406 includes information, including a nonce stored in the server's memory, needed by end user 406 to generate and send a wakeup message to sleeping client 408. *Id.* at 9–11 (citing Ex. 1004 ¶¶ 15, 43, 45, 55, 56, 58, 60, 61, 64, 74, 76, 77; Ex. 1003 ¶¶ 53–56). Petitioner contends that sleeping client 408 also stores the same nonce, satisfying claim limitation 1b.i. *Id.* at 11 (citing Ex. 1004 ¶¶ 15, 55, 58, 61, 68, 74; Ex. 1003 ¶ 57).

As to claim limitations 1c and 1c.i, Petitioner contends that end user 406 generates a wakeup message that includes both the device identifier of sleeping client 408 and the nonce. *Id.* at 11–16 (citing Ex. 1004 ¶¶ 17, 62–64, 66, 76, 77, 81; Ex. 1003 ¶¶ 58, 63). Petitioner acknowledges that end user 406 generates this message and sends it to server 404, but argues that the server modifies the wakeup message by adding the IP address of sleeping client 408; thus, the server's modifying the incoming message results in server 404 generating a new packet that includes the device identifier and nonce. *Id.* at 12–16 (citing Ex. 1004 ¶¶ 18, 54, 56, 60, 61, 63, 64, 66, 70, 71, 78–82, Fig. 4; Ex. 1003 ¶¶ 58–62).

As to claim limitation 1d, Petitioner argues that Zhang's server 404 obtains a network address of sleeping client 408, and that the network address is registered and stored by sleeping client 408 in the server's memory and associated with the device identifier. *Id.* at 17–18 (citing Ex. 1004 ¶¶ 31, 42, 43, 54, 56, 59, 61, 74; Ex. 1003 ¶¶ 64–65).

As to claim limitation 1e, Petitioner contends that server 404 sends the wakeup packet to sleeping client 408 at the network address retrieved from the server's memory. *Id.* at 18 (citing Ex. 1003 ¶ 66). Petitioner contends

that the nonce is a segment of data qualifying as “wakeup feature data,” recited in claim limitation 1e.1, and that the nonce is used to determine whether to wake the entire sleeping client 408. *Id.* at 18–19 (citing Ex. 1004 ¶¶ 34, 67, 68, 78; Ex. 1003 ¶¶ 67, 68).

Patent Owner does not yet dispute any of Petitioner’s contentions as to claim 1.

On the current record, Petitioner has shown a reasonable likelihood that it will prevail on its allegations that Zhang anticipates claim 1.

Petitioner provides citations to evidence to show that Zhang anticipates claims 7, 8, 10, 11, 15, 16, and 18 (Pet. 19–26), and Patent Owner does not yet contest these allegations.

As to the preamble of claim 19, assuming it is limiting, Petitioner contends that, to the extent it is limiting, it is disclosed by Zhang’s sleeping client 408, which Petitioner asserts is a network apparatus operable in both a running and sleep mode. Pet. 26 (citing Ex. 1004 ¶¶ 34, 40, 49, 53, 66, 74, 78, Figs. 1, 3; Ex. 1003 ¶¶ 90–91). Zhang’s Figure 2 is reproduced below:

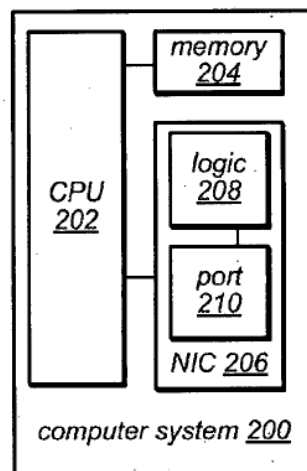


FIG. 2

Figure 2 is a block diagram of a computer system. Ex. 1004 ¶ 25. As to claim limitations 19a and 19b, Petitioner contends that sleeping client 408 corresponds to a computer system (as shown in Figure 2) that includes network interface controller (NIC) 206 and memory 204 storing an encrypted nonce and device identifier. Pet. 26–27 (citing Ex. 1004 ¶¶ 31, 42, 43, 47, 50, 53–55, 57, 58, 67, 68, 74, 78, Fig. 2; Ex. 1003 ¶¶ 92–94).

As to claim limitations 19c, 19c.i, 19c.ii, and 19d, Petitioner points to processor 202, coupled to memory 204 and NIC 206, that generates the encrypted nonce and device identifier, stores them in memory 204, and, prior to going to sleep, generates and sends a registration message with the nonce and device identifier to server 404. *Id.* at 27–29 (citing Ex. 1004 ¶¶ 43, 53, 54, 68, 74, Fig. 2; Ex. 1003 ¶¶ 95–100).

As to claim limitation 19e, Petitioner argues that, when sleeping client 408 is awake, processor 202 sends to server 404 a registration packet with an IP address of sleeping client 408. *Id.* at 29–30 (citing Ex. 1004 ¶¶ 43, 53–56, 67; Ex. 1003 ¶¶ 101–103).

As to claim limitations 19f and 19g, Petitioner contends that, when sleeping client 408 is asleep, NIC 206 keeps running and, when it receives a wakeup packet from server 404, compares the encrypted nonce received from server 404 to a pre-encrypted nonce stored in memory 204 to authenticate the wakeup message and determine whether to wake up the entire sleeping client 408. *Id.* at 31–33 (citing Ex. 1004 ¶¶ 19, 20, 68, 74–78; Ex. 1003 ¶¶ 105–108).

Patent Owner does not yet dispute any of Petitioner’s contentions as to claim 19.

On the current record, Petitioner has shown a reasonable likelihood that it will prevail on its allegations that Zhang anticipates claim 19.

Petitioner provides citations to evidence to show that Zhang anticipates claims 23–25 (Pet. 33–34), and Patent Owner does not yet contest these allegations.

D. Alleged Obviousness Over Zhang and Zill

Petitioner contends that claims 1–3, 5, 7, 8, 10–13, 15, 16, 18, 19, and 23–25 would have been obvious over Zhang and Zill. Pet. 34–46.

A claim is unpatentable under 35 U.S.C. § 103 “if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains.” We resolve the question of obviousness 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) objective evidence of nonobviousness, i.e., secondary considerations.³ *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

For the reasons explained below, we are persuaded that Petitioner has made a sufficient showing as to at least one claim.

³ The record does not include allegations or evidence of objective indicia of nonobviousness.

1. Overview of Zill

Zill relates to systems and methods that facilitate efficient and transparent remote wakeup of computers over a network (e.g., a LAN).

Ex. 1005 ¶¶ 1–2. Figure 6 of Zill, reproduced below, illustrates an example:

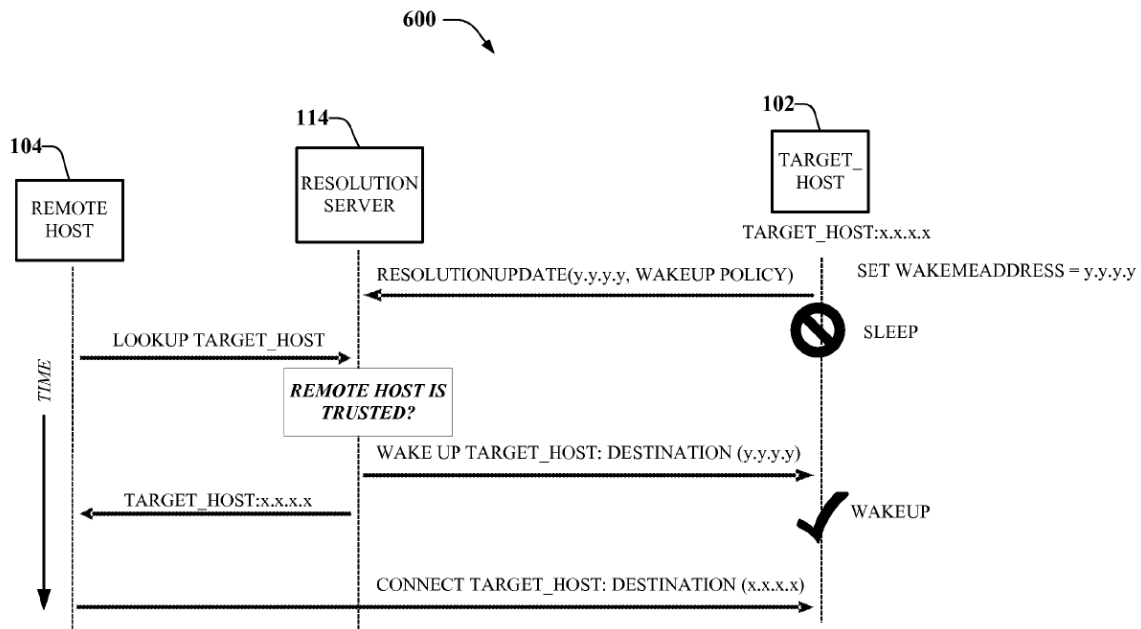


FIG. 6

Figure 6 is a timing diagram of a process for remote wakeup of target host 102 in communication with remote host 104 and resolution server 114 in a network environment. *Id.* ¶¶ 27, 106. Prior to target host 102 entering a sleep mode, target host 102 sends an associated wakemeaddress (e.g., y.y.y.y) in a resolution update to resolution server 114. *Id.* ¶ 108. When resolution server 114 receives from remote host 104 a name resolution request for target host 102, resolution server 114 facilitates waking target host 102. *Id.* ¶ 109. Specifically, resolution server 114 sends a packet to target host 102 via the wakemeaddress to wake it up and responds to remote

host 104 by sending a regular address associated with target host 102. *Id.* Target host 102 can then communicate with remote host 104 via the regular address. *Id.* ¶ 110.

2. *Claims 1–3, 5, 7, 8, 10–13, 15, 16, 18, 19, and 23–25*

Petitioner contends that a skilled artisan would have implemented Zhang, in light of Zill’s suggestion, to generate wakeup packets at Zhang’s server 404 rather than at end user 406. Pet. 36 (citing Ex. 1004 ¶¶ 61, 62; Ex. 1003 ¶¶ 112–119). Petitioner contends that doing so would have allowed Zhang to accommodate more types of requesting computers, including legacy hosts that might not have the software or hardware to securely process Zhang’s query replies and generate wakeup messages. *Id.* at 36–37 (citing Ex. 1004 ¶¶ 61, 62, 64, 65, 77; Ex. 1005 ¶ 111; Ex. 1003 ¶ 113). Petitioner also argues that generating the wakeup messages at the server would improve security, as servers would have been able to operate better security features. *Id.* at 37 (citing Ex. 1004 ¶ 36; Ex. 1005 ¶¶ 40, 111; Ex. 1003 ¶¶ 114–115). Petitioner further argues that generating wakeup messages at the server would have reduced the quantity of messages exchanged containing sensitive information, reducing the risk of interception by a malicious actor. *Id.* at 37–38 (citing Ex. 1003 ¶ 116). Petitioner further argues that it would have been more efficient to generate the wakeup message at the server, as Zill suggests, as the server can include optimized hardware. *Id.* at 38 (citing Ex. 1003 ¶ 117). According to Petitioner, the combination would only require combining familiar elements according to known methods, to yield predictable results, and that a skilled artisan would

have a reasonable expectation of success doing so. *Id.* at 38–39 (citing Ex. 1003 ¶¶ 118–119).

Patent Owner does not yet contest these allegations.

Upon consideration of Petitioner’s evidence, including Mr. Kardashov’s testimony, we are persuaded that Petitioner shows sufficiently that a skilled artisan would have had reasons, with rational underpinning, to combine the teachings of Zhang and Zill.

Petitioner contends that this combination provides an alternative teaching of claim limitation 1c. *Id.* at 40–41. Specifically, Petitioner argues that, in this combination, Zhang’s server 404 would generate the wakeup message, including a nonce, pursuant to end user 406’s query request. *Id.* (citing Ex. 1004 ¶¶ 17, 61, 64, 66, 76; Ex. 1005 ¶¶ 109–11; Ex. 1003 ¶¶ 121–122). Petitioner further contends that this combination provides an alternative teaching of claim limitation 19f. *Id.* at 45–46 (citing Ex. 1003 ¶ 137). Patent Owner does not yet contest these allegations. On the current record, Petitioner has demonstrated a reasonable likelihood that it will prevail on its allegations that claims 1 and 19 would have been obvious over Zhang and Zill.

Additionally, Petitioner contends that the combination of Zhang and Zill teaches the additional limitations of claims 2, 3 and 5, which Patent Owner does not yet contest. *Id.* at 41–45.

A. Alleged Obviousness Over Liu and Zhang

Petitioner contends that claims 1–3, 5, 7–13, and 15–18 would have been obvious over Liu and Zhang. Pet. 49–70. For the reasons explained

below, we are persuaded that Petitioner has made a sufficient showing as to at least one claim.

1. Overview of Liu

Liu describes facilitating a standby state for an IP camera to reduce power consumption. Ex. 1006 ¶¶ 6–7. Figure 7 of Liu, reproduced below, illustrates an example:

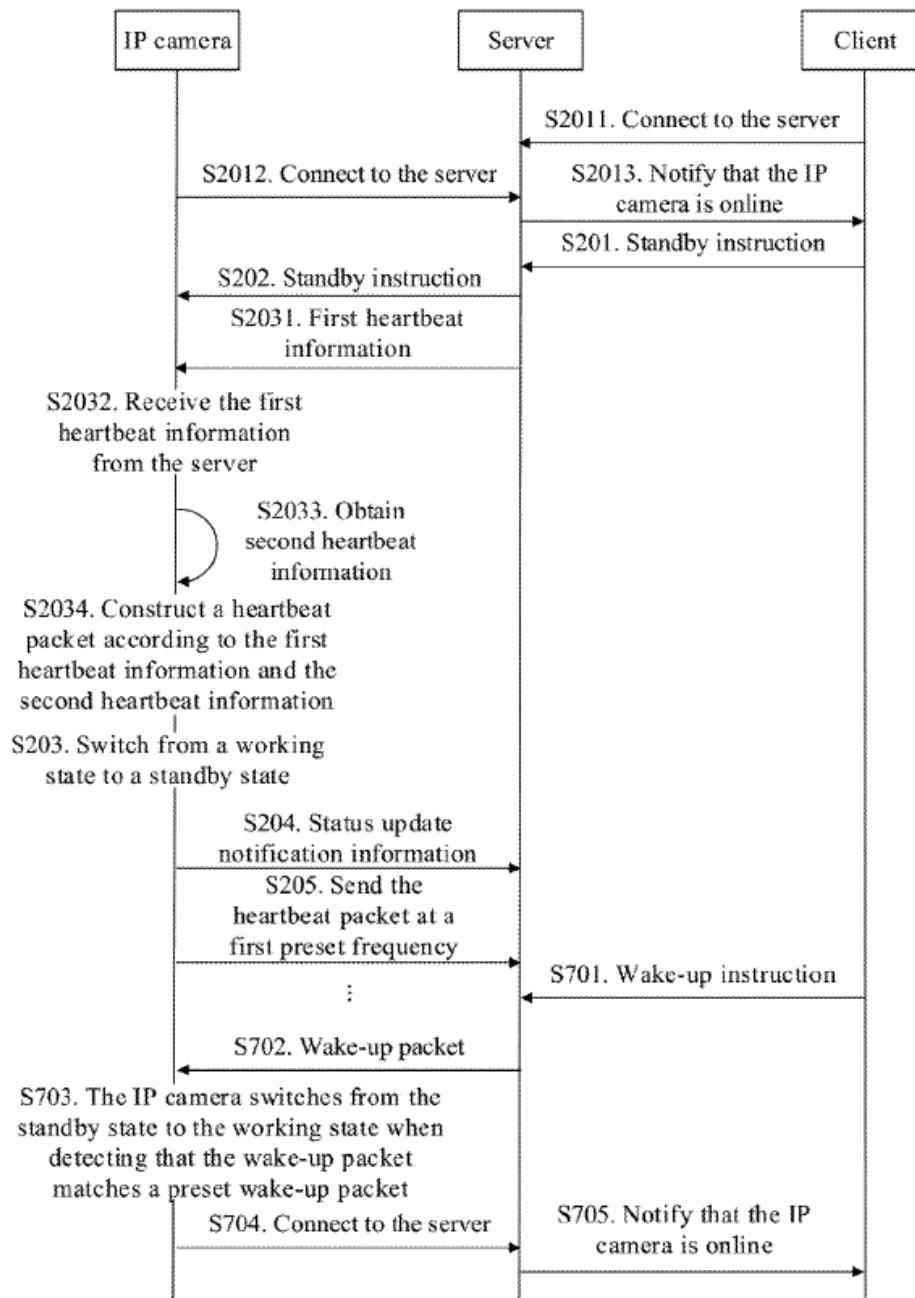


FIG. 7

Figure 7 is a signaling interaction diagram of an IP camera control method. *Id.* ¶¶ 35, 94. A client sends a wakeup instruction, including a port number and communication address of a sleeping IP camera, to a server. *Id.* ¶¶ 95–97, Fig. 7 (step S701). The server searches for a wakeup packet for waking

up the IP camera according to the port number and address. *Id.* ¶ 99. The wakeup packet is pre-agreed between the server and the IP camera.

Id. ¶ 100. The server sends a wakeup packet to the IP camera according to the port number and communication address. *Id.* ¶ 98, Fig. 7 (step S702). The IP camera switches from the standby state to a working state when it detects a wakeup packet from the server that matches a preset wakeup packet. *Id.* ¶¶ 101–102, Fig. 7 (step S703). The IP camera then connects to the server and the server notifies the client that the IP camera is online. *Id.* ¶¶ 103–105, Fig. 7 (steps S704, S705).

2. Claims 1–3, 5, 7–13, and 15–18

Petitioner proposes combining Liu and Zhang such that Liu’s system and method for remotely waking up an IP camera would use Zhang’s secure wakeup message and Liu’s wakeup packet. Pet. 49–50 (citing Ex. 1004 ¶¶ 9, 14, 19, 53, 65, 66; Ex. 1006 ¶¶ 98–100; Ex. 1003 ¶ 138). According to Petitioner, a skilled artisan would have done so to provide additional security to an unsecured system. *Id.* at 50 (citing Ex. 1004 ¶ 7, 12, 13, 71; Ex. 1006 ¶¶ 95–102; Ex. 1003 ¶ 139). Petitioner further argues that Zhang’s human readable ID would have been easier to remember than a network address for a user of Liu’s system. *Id.* at 51 (citing Ex. 1004 ¶ 59; Ex. 1003 ¶ 140). Petitioner contends that the combination would only require combining familiar elements according to known methods, to yield predictable results, and that a skilled artisan would have a reasonable expectation of success doing so. *Id.* at 51–52 (citing Ex. 1003 ¶ 141).

Patent Owner does not yet contest these allegations.

Upon consideration of Petitioner's evidence, including Mr. Kardashov's testimony, we are persuaded that Petitioner shows sufficiently that a skilled artisan would have had reasons, with rational underpinning, to combine the teachings of Liu and Zhang.

Assuming the preamble of claim 1 is limiting, Petitioner contends it is taught by Liu's disclosure of a method for remotely waking up a camera. Pet. 52 (citing Ex. 1006 ¶ 94, Fig. 7; Ex. 1003 ¶ 142).

As to claim limitation 1a, Petitioner cites to Zhang's teaching of end user 406 sending a wakeup message to server 404. *Id.* (citing Ex. 1004 ¶¶ 62, 65; Ex. 1003 ¶ 143). For claim limitation 1a.i, Petitioner contends that a skilled artisan would have added Zhang's security to Liu's wakeup instruction, and that the packet would have included a human-readable device identifier. *Id.* (citing Ex. 1004 ¶¶ 63, 65, 77, 78; Ex. 1003 ¶¶ 144). As to claim limitation 1a.ii, Petitioner contends that Liu's mobile client and cloud-end server are connected via the Internet. *Id.* at 53 (citing Ex. 1006 ¶ 42, Fig. 1; Ex. 1003 ¶ 145).

As to limitation 1b, Petitioner argues that Liu's server searches for a wakeup packet using the port number and communication address of the IP camera and, pursuant to Zhang's teaching, would have searched in a memory associated with the server. *Id.* at 53 (citing Ex. 1004 ¶¶ 15, 18, 43, Fig. 2; Ex. 1006 ¶ 99; Ex. 1003 ¶ 146). Petitioner argues that, per Zhang's teaching, the incoming wakeup message would include identification information for the IP camera rather than a communication address. *Id.* at 53–54 (citing Ex. 1006 ¶ 99; Ex. 1003 ¶ 147). As to claim limitation 1b.i, Petitioner contends that the wakeup packet obtained by the server is the

same as a preset wakeup packet kept by Liu's IP camera. *Id.* at 54 (citing Ex. 1006 ¶ 99; Ex. 1003 ¶ 148).

As to claim limitations 1c and 1c.i, Petitioner contends that Liu's server generates a wakeup message with the obtained wakeup packet and, per Zhang, would have included the device identifier of the IP camera. *Id.* at 54–55 (citing Ex. 1004 ¶ 66; Ex. 1006 ¶¶ 98–100; Ex. 1003 ¶¶ 149–150).

As to claim limitation 1d, Petitioner argues that it would have been predictable for Liu's server, in combination with Zhang's modified wakeup message, to obtain the IP address of the IP camera from the server's memory in order to send the modified wakeup message to the IP camera. *Id.* at 55–56 (citing Ex. 1004 ¶¶ 62, 63, 65, 77, 78; Ex. 1003 ¶ 151). Petitioner also argues that Zhang describes an incoming wakeup message that is modified at the server to include an IP address of sleeping client 408. *Id.* at 56–57 (citing Ex. 1004 ¶¶ 54, 56, 65, 66; Ex. 1003 ¶ 152). Petitioner contends that a skilled artisan would have incorporated Zhang's teaching of a server managing the IP address of a sleep-enabled computer into Liu's system to allow the system to function in additional network environments. *Id.* at 57–58 (citing Ex. 1004 ¶¶ 6, 10, 11, 22, 58; Ex 1003 ¶ 153).

As to claim limitation 1e, Petitioner contends that Zhang's modified wakeup message would be sent to Liu's sleeping IP camera. *Id.* at 58 (citing Ex. 1004 ¶¶ 66, 67, 78; Ex. 1003 ¶ 154). Petitioner argues that Liu's wakeup packet, with Zhang's wakeup message, is the wakeup feature data of claim limitation 1e.i. *Id.* According to Petitioner, Liu's wakeup packet is a segment of data of the modified wakeup message of the Liu/Zhang combination, and Liu's IP camera switches from a standby state to a work

state when it detects that the wakeup packet and its stored preset wakeup packet match. *Id.* (citing Ex. 1006 ¶¶ 99, 102; Ex. 1003 ¶ 155).

Patent Owner does not yet dispute any of Petitioner's contentions as to claim 1.

On the current record, Petitioner has shown a reasonable likelihood that it will prevail on its allegations that claim 1 would have been obvious over Liu and Zhang.

Petitioner provides citations to evidence to show that claims 2, 3, 5, 7–13, and 15–18 would have been obvious over Liu and Zhang (Pet. 59–70), and Patent Owner does not yet contest these allegations.

IV. CONCLUSION

Petitioner has established a reasonable likelihood that it would prevail with respect to at least one claim of the '448 patent.

Our factual findings, conclusions of law, and determinations at this stage of the proceeding are preliminary, and based on the evidentiary record developed thus far. This is not a final decision as to the patentability of the claim for which *inter partes* review is instituted. Our final decision will be based on the record as fully developed during trial.

V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that pursuant to 35 U.S.C. § 314(a), an *inter partes* review is instituted as to claims 1–3, 5, 7–13, 15–19, and 23–25 of the '448 patent on the grounds set forth in the Petition; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, 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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