



# Petitioner's Demonstratives

***Reolink Innovations Inc. et al. v. Throughtek Co., Ltd.***

**Case No. IPR2024-01193**

**U.S. Patent No. 10,602,448**

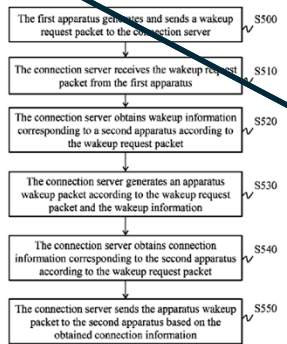
November 3, 2025

**FISH.**  
FISH & RICHARDSON

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

REOLINK 1102  
Reolink v. ThroughTek  
IPR2024-01193

# U.S. Patent No. 10,602,448 (“the ’448 patent”)

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| <br>US010602448B2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| (12) <b>United States Patent</b><br><b>Chen</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | (10) <b>Patent No.:</b> US 10,602,448 B2<br>(45) <b>Date of Patent:</b> Mar. 24, 2020                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| (54) <b>REMOTE WAKEUP METHOD, CONNECTION SERVER, AND NETWORKING APPARATUS HAVING SLEEP MODE</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | (58) <b>Field of Classification Search:</b><br>None<br>See application file for complete search history.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| (71) Applicants: <b>ThroughTek Technology (ShenZhen) Co., Ltd.,</b> Shenzhen (CN); <b>ThroughTek Co., Ltd.,</b> Taipei (TW)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | (56) <b>References Cited</b><br>U.S. PATENT DOCUMENTS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| (72) Inventor: <b>Yong-Sheng Chen,</b> Taipei (TW)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 2007/0050645 A1* 3/2007 Siegmund ..... H04L 12/12<br>2008/0034197 A1* 2/2008 Engel ..... H04L 63/0428<br>2014/0072277 A1* 3/2014 Takao ..... G06Q 10/109<br>2015/0074432 A1* 3/2015 Winter ..... G06F 1/3209<br>2015/0172423 A1* 6/2015 Wu ..... H04L 69/08<br>2015/0172473 A1* 6/2015 Estrada ..... H04M 15/00<br>2016/0112955 A1* 4/2016 Grau ..... H04W 52/0235                                                                                                                                                                                                                                                                                                                                                          |
| (73) Assignees: <b>THROUGHTTEK TECHNOLOGY (SHENZHEN) CO., LTD.,</b> Shenzhen (CN); <b>THROUGHTTEK CO., LTD.,</b> Taipei (TW)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | * cited by examiner<br>Primary Examiner: <b>Wynnah S George</b><br>(74) Attorney, Agent, or Firm: <b>Montgomery, Geissler, Olds &amp; Lowe, P.C.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| (*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 14 days.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | (57) <b>ABSTRACT</b><br>A remote wakeup method includes: receiving a wakeup request packet from a first apparatus, obtaining a wakeup information according to the wakeup request packet, generating an apparatus wakeup packet according to the wakeup request packet and the wakeup information, obtaining a connection information corresponding to a second apparatus according to the wakeup request packet, and sending the apparatus wakeup packet to the second apparatus based on the connection information. The wakeup request packet includes a device identifier (UID) of the second apparatus, and the apparatus wakeup packet includes the device identifier of the second apparatus and wakeup information. |
| (21) Appl. No.: <b>15/685,661</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | (65) <b>Prior Publication Data</b><br>US 2018/0063789 A1 Mar. 1, 2018                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| (22) Filed: <b>Aug. 24, 2017</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | (30) <b>Foreign Application Priority Data</b><br>Aug. 29, 2016 (TW) ..... 105127737 A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| (51) Int. Cl. <b>H04W 52/02</b> (2009.01)<br><b>H04L 12/12</b> (2006.01)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | (52) U.S. Cl. <b>H04W 52/0229</b> (2013.01); <b>H04L 12/12</b> (2013.01); <b>H04W 52/027</b> (2013.01); <b>H04W 52/0216</b> (2013.01); <b>H04L 70/00</b> (2018.01); <b>Y02D 90/022</b> (2018.01)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>25 Claims, 10 Drawing Sheets</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|  <pre> graph TD     S500[The first apparatus generates and sends a wakeup request packet to the connection server] --&gt; S510[The connection server receives the wakeup request packet from the first apparatus]     S510 --&gt; S520[The connection server obtains wakeup information corresponding to a second apparatus according to the wakeup request packet]     S520 --&gt; S530[The connection server generates an apparatus wakeup packet according to the wakeup request packet and the wakeup information]     S530 --&gt; S540[The connection server obtains connection information corresponding to a second apparatus according to the wakeup request packet]     S540 --&gt; S550[The connection server sends the apparatus wakeup packet to the second apparatus based on the obtained connection information]           </pre> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

# U.S. Patent No. 10,602,448 (“the ’448 patent”)

## Independent Claim 1:

1. A remote wakeup method, comprising: a connection server receiving a wakeup request packet from a first apparatus, wherein the wakeup request packet comprises a device identifier of a second apparatus, wherein the first apparatus is connected to the connection server via local area network or internet; the connection server obtaining wakeup information stored in the connection server according to the wakeup request packet, wherein the wakeup information stored in the connection server is the same as wakeup information stored in the second apparatus; the connection server generating an apparatus wakeup packet according to the wakeup request packet and the wakeup information, wherein the apparatus wakeup packet comprises the device identifier of the second apparatus from the wakeup request packet and the obtained wakeup information; 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;

the connection server sending the apparatus wakeup packet to the second apparatus based on the network address, 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.

## Independent Claim 19:

5. *Claims 19 and 23-25.*

The Patent Owner agrees that claim 19, an independent apparatus claim is anticipated by Zhang and withdraws it from consideration. However, it is

## Independent Claim 11:

11. A connection server, comprising:  
a network module; a storage unit, which stores a network address and wakeup information that correspond to a second apparatus; and a control unit, which connects to the network module and storage unit, receives a wakeup request packet from a first apparatus through the network module, obtains the wakeup information stored in the storage unit and the network address stored in the storage unit according to the wakeup request packet, generates an apparatus wakeup packet according to the received wakeup request packet and the obtained wakeup information, and sends the generated apparatus wakeup packet to the second apparatus through the network module according to the network address, wherein the wakeup request packet comprises a device identifier of the second apparatus, and the apparatus wakeup packet comprises the device identifier from the wakeup request packet and the obtained wakeup information of the second apparatus, wherein the wakeup information stored in the connection server is the same as wakeup information stored in the second apparatus,

and 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.

# The Petition

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Patent of: Yong-Sheng Chen  
U.S. Patent No.: 10,602,448 Attorney Docket No.: 52472-0008IP1  
Issue Date: March 24, 2020  
Appl. Serial No.: 15/685,661  
Filing Date: August 24, 2017  
Title: REMOTE WAKEUP METHOD, CONNECTION SERVER, AND NETWORKING APPARATUS HAVING SLEEP MODE

**Mail Stop Patent Board**  
Patent Trial and Appeal Board  
U.S. Patent and Trademark Office  
P.O. Box 1450  
Alexandria, VA 22313-1450

**PETITION FOR *INTER PARTES* REVIEW OF UNITED STATES PATENT NO. 10,602,448 PURSUANT TO 35 U.S.C. §§311–319, 37 C.F.R. §42**

**B. Challenge and Relief Requested—37 C.F.R. §42.104(b)**

Petitioners request IPR on Grounds 1-3. An expert declaration from Vlad Kardashov supports all Grounds. EX1003.

| Ground | Claims                                  | Basis                                       |
|--------|-----------------------------------------|---------------------------------------------|
| 1      | 1, 7-8, 10-11, 15-16, 18-19, 23-25      | §102 – Anticipated by Zhang (EX1004)        |
| 2      | 1-3, 5, 7-8, 10-13, 15-16, 18-19, 23-25 | §103 – Obvious based on Zhang+Zill (EX1005) |
| 3      | 1-3, 5, 7-13, 15-18                     | §103 – Obvious based on Liu (EX1006)+Zhang  |

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**DECLARATION OF VLAD KARDASHOV**

1 REOLINK 1003

**SECOND DECLARATION OF VLAD KARDASHOV**

i REOLINK 1101  
Reolink v. ThroughTek  
IPR2024-01193

Patent Owner elected to never cross-examine Mr. Kardashov.

# The Petition

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of: Yong-Sheng Chen  
U.S. Patent No.: 10,602,448 Attorney Docket No.: 52472-0008IP1  
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| 3      | 1-3, 5, 7-13, 15-18                     | §103 – Obvious based on Liu (EX1006)+Zhang  |

## Issues Disputed by Patent Owner:

1. Ground 1 - Zhang discloses Element [1c] (“the connection server generating . . .”);
2. Ground 2 – the motivation to combine Zhang + Zill;
3. Ground 3 – the motivation to combine Liu + Zhang;
4. Dependent claim 8 (and 16, 23-25) – narrow construction of “feature flag” element; and
5. Non-dispositive claim constructions – other claim constructions untethered from any patentability argument.

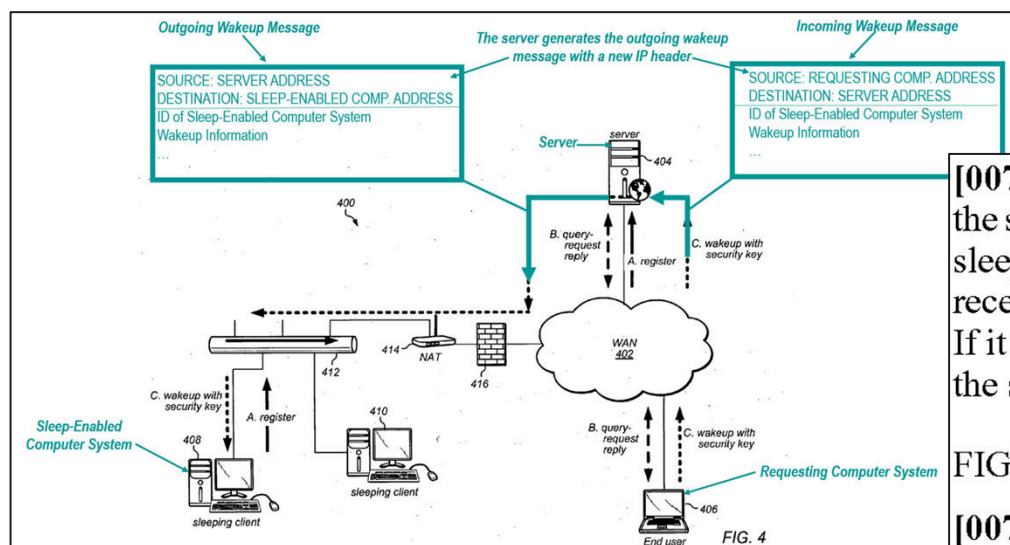
**Issue 1:**  
*Zhang* discloses Element [1c] (GROUND 1)

# Zhang discloses Element [1c] (GROUND 1)

[1c]

the connection server generating an apparatus wakeup packet according to the wakeup request packet and the wakeup information,

## Zhang's para. [0066] and [0078]-[0082]:



[0078] The end user 406 may send the wakeup message to the server 404, which may forward the wakeup message to the sleeping client 408. The NIC in the sleeping client 408 may receive the wakeup message, and check the encrypted nonce. If it is encrypted using the correct key, the NIC may wake up the sleeping client 408.

FIG. 5

[0079] FIG. 5 illustrates an exemplary message format which may be used as part of a system and method for securely waking a computer system over a network according to one embodiment. The message format illustrated may take the form of a user datagram protocol (UDP) packet.

[0080] As shown, the message may include a media access control (MAC) header, an internet protocol (IP) header, and a UDP header. Following these headers, which may be implemented as known in the art according to UDP protocol, a

[0066] At step 312, the wakeup message may be sent to the first computer system by the server. In some embodiments, the wakeup message may be sent by the server to the first computer system as received from the second computer system. Alternatively, the server may modify or authenticate the wakeup message before sending the wakeup message to the first computer system.

## Zhang discloses Element [1c] (GROUND 1)

|      |                                                                                                                                              |
|------|----------------------------------------------------------------------------------------------------------------------------------------------|
| [1c] | the connection server <u>generating</u> an apparatus wakeup <u>packet</u> according to the wakeup request packet and the wakeup information, |
|------|----------------------------------------------------------------------------------------------------------------------------------------------|

### Mr. Kardashov's testimony re Zhang's para. [0066]:

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to never cross-examine  
Mr. Kardashov.



[0066] At step 312, the wakeup message may be sent to the first computer system by the server. In some embodiments, the wakeup message may be sent by the server to the first computer system as received from the second computer system. Alternatively, the server may modify or authenticate the wakeup message before sending the wakeup message to the first computer system.

59. As a first reason, Zhang expressly discloses that the server “may modify or authenticate the wakeup message before sending the wakeup message to the [sleep-enabled] computer system.” EX1004 (Zhang), [0066]. For example, at a minimum, Zhang teaches that the server “modif[ies]” the incoming wakeup message by adding the IP address of the sleep-enabled computer, which is stored internally at the server, but which was not included in the incoming wakeup message (which instead includes the “human-readable ID” of the sleep-enabled computer in some embodiments). *Infra* [1d], EX1004, [0063] (“may include the user-selected human-readable ID”), [0018], [0054], [0056]. The server’s modifying of the incoming message wakeup message results in the generation of a new outgoing wakeup message (the claimed apparatus wakeup packet) because the outgoing wakeup message includes information not present in the incoming wakeup message. The outgoing wakeup message outgoing wakeup message (the claimed *apparatus wakeup packet*) must also include one or more items of registration information retrieved from the server’s memory. For example, the outgoing wakeup message

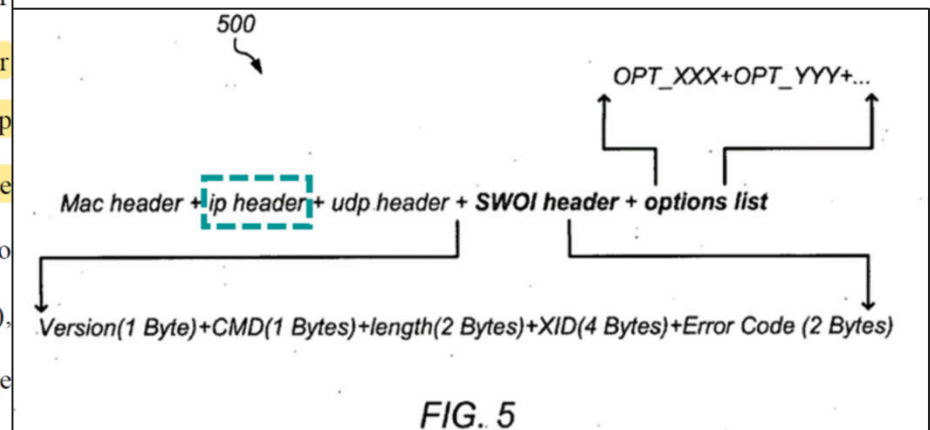
# Zhang discloses Element [1c] (GROUND 1)

|      |                                                                                                                                              |
|------|----------------------------------------------------------------------------------------------------------------------------------------------|
| [1c] | the connection server <u>generating</u> an apparatus wakeup <u>packet</u> according to the wakeup request packet and the wakeup information, |
|------|----------------------------------------------------------------------------------------------------------------------------------------------|

## Mr. Kardashov's testimony re Zhang's para. [0078]-[0082]:

60. As a second reason, regardless of whether Zhang's server "modif[ies]" the incoming wakeup message as described in paragraph [0066] or the server "forwards" the incoming wakeup message as described in paragraph [0078]), every message sent from a server to a computer system over the internet includes one or more IP packets that must be generated at the server. Specifically, Zhang's server (including the message sent when the server "forwards" the incoming wakeup message as described in paragraph [0078]), is disclosed as being sent via one or more IP packets that are generated at the server to include the appropriate IP headers so that the message will be delivered to the correct destination. EX1004 (Zhang), [0080-0082]; Figure 5. Figure 5, for example, shows an "exemplary message format":

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EX1004 (Zhang), Figure 5 (annotated), [0079-0082]. The IP headers must include a source address header (e.g., associated with the device sending the packet) and the destination address header (e.g., associated with the device receiving the packet) to

# Zhang discloses Element [1c] (GROUND 1)

|      |                                                                                                                                              |
|------|----------------------------------------------------------------------------------------------------------------------------------------------|
| [1c] | the connection server <u>generating</u> an apparatus wakeup <u>packet</u> according to the wakeup request packet and the wakeup information, |
|------|----------------------------------------------------------------------------------------------------------------------------------------------|

## Patent Owner Response: “packet” versus “message” ...

Attorney  
argument alone.  
No exhibits.  
No testimony.  
No cross-exam.



In contrasts, Zhang’s disclosure teaches a communication that corresponding to the claimed “apparatus wakeup message” is created by a second computer which corresponds to the “requesting apparatus” of the ‘448 Patent. It then sends this message to a server to be forwarded to the target computer.

server. As such, the alternative embodiment does not anticipate claims 1 or 11 of the ‘448 Patent, as both claims require the server -- not the requesting apparatus -- to create the wakeup message.

### Legal Precedent:

- *Gemtron Corp. v. Saint-Gobain Corp.*, 572 F.3d 1371, 1380 (Fed. Cir. 2009) (“unsworn attorney argument . . . is not evidence”).
- *Enzo Biochem, Inc. v. Gen-Probe, Inc.*, 424 F.3d 1276, 1284 (Fed. Cir. 2005) (“Attorney argument is no substitute for evidence.”).
- *Wasica Fin. GmbH v. Cont’l Auto. Sys.*, 853 F.3d 1272, 1284 (Fed. Cir. 2017) (“it was reasonable for the Board to accept [] expert testimony over [] bare attorney argument”).

POR, 6, 8; Reply, 6-7 (citing EX1011, ¶¶15-21)

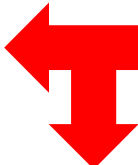
# Zhang discloses Element [1c] (GROUND 1)

|      |                                                                                                                                              |
|------|----------------------------------------------------------------------------------------------------------------------------------------------|
| [1c] | the connection server <u>generating</u> an apparatus wakeup <u>packet</u> according to the wakeup request packet and the wakeup information, |
|------|----------------------------------------------------------------------------------------------------------------------------------------------|

## Mr. Kardashov's reply testimony:

19. Again, as a first reason, Zhang expressly discloses that the server can “modify” the wakeup message “before sending the wakeup message to the [sleep-enabled] computer.” EX1004 (Zhang), [0066]. A POSITA would have readily recognized that Zhang’s server “modifying” an incoming message before sending a new outgoing packet (carrying the newly modified content) amounted to much more than “merely forwarding” the incoming message. This is because, after modifying the incoming message, Zhang’s server produces a new packet containing new information (which was absent from the incoming message). EX1003 (First Declaration), ¶59 (where I explain that “[t]he server’s modifying of the incoming message wakeup message results in the generation of a new outgoing wakeup message (the claimed apparatus wakeup packet) because the outgoing wakeup message includes information not present in the incoming wakeup message” and EX1004 (Zhang), [0066] (explaining that “the server may modify ... the wakeup message before sending the wakeup message to the first computer system.”)).

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Mr. Kardashov.



20. Furthermore, even beyond the scenario where Zhang’s server modifies the incoming message to generate a new packet (with the modified content), Zhang also discloses that the server constructs a new packet each time it sends a wakeup message to the sleep-enabled computer. See EX1003 (First Declaration), ¶60 (where I explain that “the server generates at least one new outgoing packet to send the outgoing wakeup message to the sleep-enabled computer system”) and EX1004 (Zhang), [0078]-[0082] (new packet with new “header”), FIG. 5). This teaching in Zhang at paragraphs [0078]-[0082] about the format of each packet is particularly pertinent here because Elements [1c] and [11c.iv] merely describe that a wakeup “packet” is generated (not an entirely new “message”). Patent Owner’s contentions in the POR appear to overlook this fact and Zhang’s details of the “packet” that must be produced at Zhang’s server when sending an outgoing packet.

**Issue 2:**  
The motivation to combine *Zhang* + *Zill* (Ground 2)

# The motivation to combine *Zhang* + *Zill* (Ground 2)

## Petition (Ground 2):

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Mr. Kardashov.



## Mr. Kardashov's testimony:

### 2. *The Zhang-Zill Combination*

Again, Zhang taught a method for waking up the remote device (e.g., a sleep-enabled computer) that includes steps in which the server sends a query reply to a requesting computing to provide information needed for the requesting computer to generate a wakeup message at the requesting computer. EX1004, [0061]-[0062]. For multiple reasons articulated below, a POSITA would have been motivated to implement Zhang in a predictable manner that employs Zill's suggestion for generating the wakeup packets at a server to achieve known benefits. EX1003, ¶¶112-119.

117. As a fourth reason, a POSITA would have been motivated to generate the wakeup packets at the server to achieve known benefits.
116. As a third reason, a POSITA would have been motivated to implement Zhang in a predictable manner that employs Zill's suggestion for generating the wakeup packets at a server to achieve known benefits.
114. As a second reason, a POSITA would have been motivated to implement Zill's suggestion for generating the wakeup packets at a server to achieve known benefits.
113. As a first reason, a POSITA would have been motivated to implement Zhang in a predictable manner that employs Zill's suggested generation of wakeup packets at a server because generating the wakeup message at the server would advantageously allow the sever to facilitate "remote wake up of [a] target host for all legacy remote hosts." EX1005 (Zill), [0111]. Specifically, Zhang's steps for

# The motivation to combine *Zhang* + *Zill* (Ground 2)

## Patent Owner Response: bare attorney argument ...

Petitioner relies upon the declaration of Mr. Vlad Kardashov, its expert, to attempt to establish the requisite motivation to combine the teachings of Zill to alter Zhang and reach the claimed invention. However, Petitioner's contentions regarding the alleged motivations are conclusory, not supported by prior art and the reasoning of alleged advantages is flawed and illusory. In this regard, the opinions are not corroborated by other documents and, when subject to scrutiny are neither convincing nor compelling. More importantly, Petitioner ignores the actual

Patent Owner elected to never cross-examine Mr. Kardashov.

No testimony evidence cited by Patent Owner.

### Legal Precedent:

- *Gemtron Corp. v. Saint-Gobain Corp.*, 572 F.3d 1371, 1380 (Fed. Cir. 2009) (“unsworn attorney argument . . . is not evidence”).
- *Enzo Biochem, Inc. v. Gen-Probe, Inc.*, 424 F.3d 1276, 1284 (Fed. Cir. 2005) (“Attorney argument is no substitute for evidence.”).
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# The motivation to combine *Zhang* + *Zill* (Ground 2)

## Patent Owner Response: layers of legal error ...

*Eli Lilly v. Zenith Goldline Pharm.*, 471 F.3d 1369, 1380 (Fed. Cir. 2006)). It is submitted that such a motivation or reason is absent from prior art. While Zill may use the server for the creation of the wakeup message and creates communication packets from the address, Zill's objectives and teachings are inapposite to the

← Argues the motivation-to-combine must be expressed within the four corners of the prior art publication.

To the extent that a PHOSITA would consider using Zill's technology in Zhang, it would focus on Zill's use of separate messages to the target server, which Zill contends facilitate the receipt of wakeup packets. Ex 1000X [0016] The

← Error based on "bodily incorporation" of the secondary reference.

used a server to create the apparatus wakeup message. Since Zill does not provide the solution to any articulated problem a PHOSITA may face, there is no reason to make the combination.

← Overly rigid test for obviousness.

# The motivation to combine *Zhang* + *Zill* (Ground 2)

## The proper legal test:

The motivation-to-combine analysis **is a flexible one**. “[A]ny need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed.” *KSR*, 550 U.S. at 420 (emphasis added). And “[a] person of ordinary skill is also a person of ordinary creativity, **not an automaton**.” *Id.* at 421. So, “in many cases[,] a person of ordinary skill will be able to fit the teachings of multiple patents together like pieces of a puzzle.” *Id.* at 420. That’s why the motivation-to-combine analysis “need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ.” *Id.* at 418.

Additionally, “universal” motivations known in a particular field to improve technology provide “a motivation to combine prior art references **even absent any hint of suggestion** in the references **themselves**.” *Intel*, 21 F.4th at 797-99 (cleaned up) (emphasis in original) [].

... And if there's a known technique to address a known problem using “prior art elements according to their established functions,” then there is a motivation to combine. *Intel*, 21 F.4th at 799-800. **And we specify *address* a known problem because “[i]t's not necessary to show that a combination is the *best* option, only that it be a *suitable* option.”** *Id.* at 800.

*Intel Corp. v. PACT XPP Schweiz AG*, 61 F.4th 1373, 1379-80 (Fed Cir. 2023)

## Mr. Kardashov's reply testimony (one example from ¶¶30-41):

31. The POR does not directly dispute my testimony, but instead alleges, at pages 23-24, that this advantage is not expressly linked within the four corners of Zill to “generating” of the wakeup packet. POR, 23-24. This argument ignores **what a POSITA would have recognized from Zill's explanation** at paragraph [0111], (and what I explained in my First Declaration) that the server “can facilitate remote wake up of target host for all legacy remote hosts, depending on whether a remote host can be trusted or authenticated.” **EX1005 (Zill), [0111]**; *see also* EX1003 (First Declaration), ¶113.

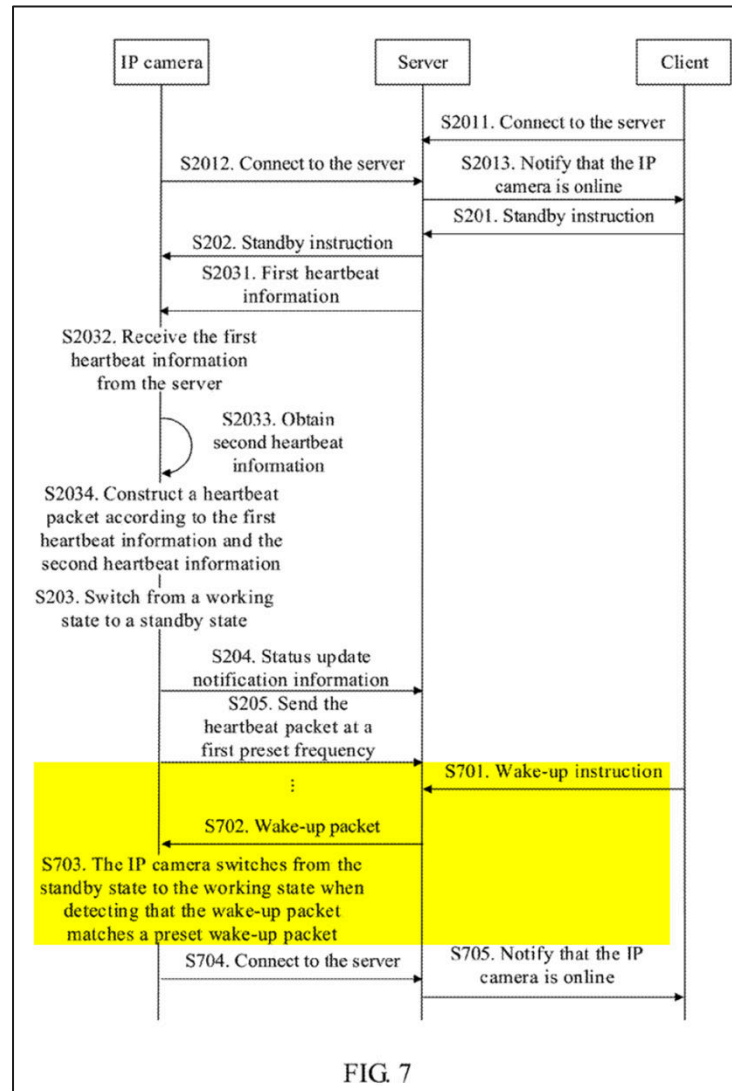


Patent Owner elected  
to never cross-examine  
Mr. Kardashov.

**Issue 3:**  
The motivation to combine *Liu + Zhang* (Ground 3)

# The motivation to combine Liu + Zhang (Ground 3)

## Liu:



## Zhang's suggestion:

computer system (i.e., via the server). For example, according to some embodiments, a user of the second computer may be able to provide the user-selected human-readable ID of the first computer and a user-selected pre-shared password as inputs, based on which the second computer system may generate and send the wakeup message to the server, thereby

## Mr. Kardashov's testimony:

### A. The Liu and Zhang Combination

138. Based upon my knowledge and experience in the field of the '448 Patent and my review of Liu and Zhang, a POSITA would have been motivated to implement Liu's systems and method for remotely waking up an IP camera in a predictable manner that employs Zhang's suggestions for using a secure wakeup message. EX1004 (Zhang), [0009], [0014], [0053]. For example, Zhang describes

# The motivation to combine Liu + Zhang (Ground 3)

## Mr. Kardashov's testimony:

141. As a third reason, a POSITA would have been motivated to implement incorporates both Liu and devices, and implement Liu in a secure wakeup message, in wakeup message, in enabled computer, v method for waking u

140. As a second reason, a POSITA would have been motivated to implement Liu in a predictable manner that incorporates Zhang's teachings for using a secure wakeup message because Zhang's teachings for the wakeup message advantageously improve the security for the systems and methods disclosed by Liu. As outlined in Zhang, many remote wakeup solutions "provide no security" including techniques where "anyone could wake up a sleeping computing device if the IP address or MAC address is known." EX1004 (Zhang), [0007]. Zhang further explains that that in such systems "it may be possible for anyone to wake up a sleeping computer system given basic information (e.g., the IP address)" including instances where the sleeping computer system is woken up "maliciously, such as by a hacker." EX1004 (Zhang), [0012]. Zhang explains that disclosed embodiments "are both capable of being performed through NAT without any special configuration and include security/authentication features." EX1004 (Zhang), *see also* [0071]. Liu is an example of such an unsecured system that allows anyone to send the server a wake-up instruction with correct port number and communication address, to wake up the IP camera. EX1006 (Liu), [0095-0102]; EX1008, [0094-0101]. Zhang explains that the disclosed wakeup message provides a "provision of security." EX1004 (Zhang), [0012], *see also* [0013]. For example, Zhang's wakeup

Patent Owner elected to never cross-examine Mr. Kardashov.

# The motivation to combine Liu + Zhang (Ground 3)

## Patent Owner Response: concedes there was a known benefit...

While it may be advantageous to incorporate additional security measures as taught by Zhang, A PHOSITA that was motivated to employ such features would follow all relevant teachings of Zhang, including its election to create the apparatus wakeup request packet at the client. In view of these teaching, a PHOSITA would be disinclined to follow Zhang teaching and use the handheld device to create the apparatus wakeup message at the client or remote host. ?

While a wide variety of off the shelf security measures may be adopted wherein encryption techniques are associated with the transmission of the respective messages, it is submitted that a PHOSITA would not use Zhang as a guide, and, if all of its teachings were followed, the resulting system and method would not render obvious Claim 1 or 11 of the '448 Patent nor their dependent claims for the same reasons Zill-Zhang and Zhang do not render the invention obvious. ?

Admits there is a known benefit

Demands “bodily incorporation” (legal error)

No evidence cited by Patent Owner.

No evidence cited by Patent Owner.

### Legal Precedent:

- *Gemtron Corp. v. Saint-Gobain Corp.*, 572 F.3d 1371, 1380 (Fed. Cir. 2009) (“unsworn attorney argument . . . is not evidence”).
- *Enzo Biochem, Inc. v. Gen-Probe, Inc.*, 424 F.3d 1276, 1284 (Fed. Cir. 2005)
- *Wasica Fin. GmbH v. Cont'l Auto. Sys.*, 853 F.3d 1272, 1284 (Fed. Cir. 2017)

**FISH.**

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

POR, 36-37; Reply, 22-25

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# The motivation to combine Liu + Zhang (Ground 3)

## Patent Owner Response: concedes there was a known benefit...

The problem with integrating this step into Liu's system is that, if the Client ID is substituted for the client input, the entire system must be engineered to correlate such a user selected or human readable name to the stored device. Liu's method requires that a *user input* of the wake-up instructions on the mobile client including the *port number* and the *communication address* for the IP camera into the client device. See [0097] While the use of such a human readable Client ID data may improve the user experience, the combination does not address how the connection address and port number data are entered or captured by the system and correlated with the required wakeup information for the remote sleeping apparatus, steps critical to the operation.

No evidence cited by Patent Owner.

Admits there is a known benefit

No evidence cited by Patent Owner.

### Legal Precedent:

- *Gemtron Corp. v. Saint-Gobain Corp.*, 572 F.3d 1371, 1380 (Fed. Cir. 2009) ("unsworn attorney argument . . . is not evidence").
- *Enzo Biochem, Inc. v. Gen-Probe, Inc.*, 424 F.3d 1276, 1284 (Fed. Cir. 2005)
- *Wasica Fin. GmbH v. Cont'l Auto. Sys.*, 853 F.3d 1272, 1284 (Fed. Cir. 2017)

**FISH.**

DEMONSTRATIVE EXHIBIT – NOT EVIDENCE

POR, 36-37; Reply, 22-25

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# The motivation to combine Liu + Zhang (Ground 3)

## Mr. Kardashov's reply testimony re Ground 3:

46. Additionally, the POR fails to understand what is being modified in the Liu-Zhang combination. EX1003 (First Declaration), ¶138. Specifically, as I explained in my First Declaration, Liu's client device is modified to use a "user-selected human-readable ID" and a "password." EX1003, ¶138. I note that by 2016 (in fact by much earlier) a POSITA would have understood that such ID/password functionality would have been predictably used on various types of computing systems including Liu's mobile devices and Liu's other contemplated devices. See EX1004 (Zhang), [0032]-[0033]; EX1006 (Liu), [0047]; EX1008, [0046]; EX1012, [0104] (explaining that "[t]he authentication parameter is related authentication

49. For example, as outlined in my First Declaration at paragraph 138, Zhang teaches an incoming wakeup message to the server that includes "the user-selected human-readable ID of the [sleep-enabled] computer and a user-selected pre-shared password." EX1004 (Zhang), [0065]. Next, Zhang's server authenticates the incoming wakeup message using the password. EX1004 (Zhang), [0019], [0066]. Next, after authenticating Zhang's incoming wakeup message, Zhang's server modifies this wakeup message (e.g., generates a modified wakeup message) and sends the modified wakeup message to the sleep-enabled computer system (i.e., Liu's IP camera). EX1004 (Zhang), [0066]; EX1006 (Liu), [0098-100]; EX1008, [0097- 0099]. A POSITA would understand that modifying the wakeup message would include retrieving the required connection information to send the outgoing wakeup message to Liu's IP camera including the port number and communication address. In fact, I discussed such an arrangement in my First Declaration. See EX1003, (First Declaration) ¶147 ("a POSITA would have understood that the server searches according to the identification information for the [sleep-enabled]

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#### **Issue 4:**

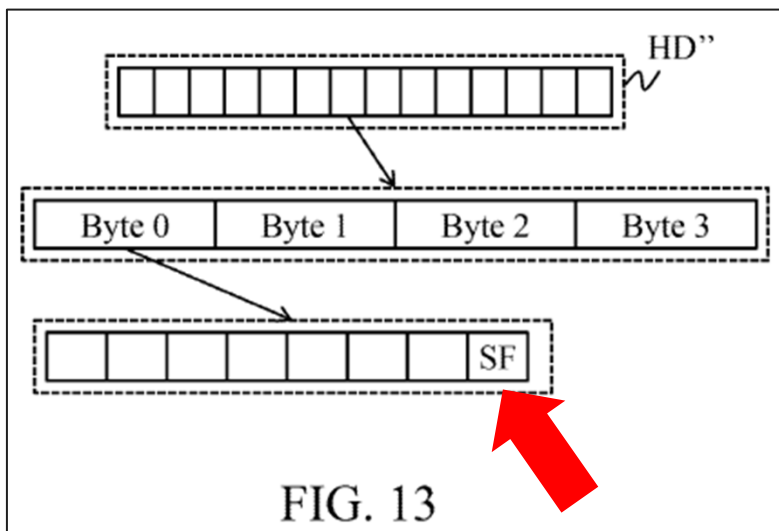
Erroneously narrow construction of “feature flag” element  
(Dependent claim 8, 16, and 23-25)

# Erroneously narrow construction of “feature flag” element

## Claim Language:

8. The remote wakeup method according to claim 7, wherein the sleep login packet has a feature flag, and the feature flag indicates that the running state of the second apparatus is the sleep state.

## FIG. 13 (a single bit “SF” of Byte 0 in header):



## Cols. 10-11:

In some embodiments, the feature flag SF may be located in a header HD" of the sleep login packet SLP, as shown in FIG. 12 and FIG. 13.

# Erroneously narrow construction of “feature flag” element

## Zhang’s paragraph [0080]:

“secure wake over internet” (“SWOI”) header may be included. The SWOI header may include version information, a command (CMD) indicator, a length field, an XID, and an Error Code, according to one embodiment. The version field may indicate a version of the message format. The CMD field may indicate a type of SWOT message, such as a registration message, a query request, a query reply, or a wakeup message. The length field may indicate a length (e.g., in bytes) of the options list to follow. Error correction information and/or other information may also be included in some embodiments. In some embodiments, a portion of the message format may be reserved for changes to the message format. While specific examples of bytes are shown for the SWOI header fields (e.g., version, 1 byte for CMD, 2 bytes for length, 4 bytes for XID, and 2 bytes for Error Code), these are exemplary and other lengths are also considered.

Patent Owner elected  
to never cross-examine  
Mr. Kardashov.



## Mr. Kardshov:

70. Zhang discloses Element [8]. As I discussed above in Section VIII.B, Element [7], Zhang discloses the claimed *sleep login packet* with Zhang’s registration message. Zhang explains that the disclosed messages includes a “CMD field” that “indicate[s] a type of [secure wake over internet] message, such as a registration message.” EX1005 (Zill), [0080]. The CMD field in the registration message therefore qualifies as the claimed *feature flag* which indicates that the running state of the sleep-enabled computer system is the sleep state because the registration message is received at the server while “the [sleep-enabled] computer system remains in a sleep mode.” EX1004 (Zhang), [0057-0058], [0080].

# Erroneously narrow construction of “feature flag” element

## Patent Owner's Construction:

*Feature Flags* “(also known as feature toggles or feature switches) are a software development and product experimentation technique that turns certain functionality on and off during runtime, without deploying new code. <https://www.optimizely.com/optimization-glossary/feature-flags/> Retrieved April 21, 2025.

## Mr. Kardshov's Reply Testimony (errors in Patent Owner's Construction):

12. Fifth, the POR at page 4 contends that the term “feature flags” should be interpreted to require substitute language: “a software development and product experimentation technique that turns certain functionality on and off during runtime, without deploying new code”). I note that the '448 patent never uses the phrase “a software development and product experimentation technique” nor the functional phrase “turns certain functionality on and off during runtime, without deploying new code,” and these phrases are certainly not in connection with the term “feature flags.” EX1001 (the '448 Patent), 10:32-33, 10:65-11:18, FIG. 13. While the '448 patent specification discloses embodiments a “feature flag” in connection with FIG. 13 (col. 10:65-11:18), the '448 patent is clear that such disclosure in the specification “is not limiting for the scope of invention.” EX1001, (the '448 Patent) 13:27-36. The

13. The POR's proposed construction for the term “feature flags” is also contradicted by language of the dependent claims and the embodiment in the specification. EX1001 (the '448 Patent), 10:32-33, 11:16-18, FIG. 13. Regarding the context from the other claim language, the dependent claims 8, 16, and 23 merely states that the feature flag “indicates that the running state of the second apparatus is the sleep state,” without the added language that is imported by the POR's proposal. EX1001 (the '448 Patent), at Cl. [8], [16], [23]. Also, dependent claim 24 (depending from claim 23 which recites the “feature flag” term) describes that the claimed feature flag is simply “located at a header of the sleep login packet.” EX1001 (the '448 Patent), at Cl. [24]. Thus, consistent with claim 24, I note that an

# Erroneously narrow construction of “feature flag” element

## Patent Owner's Construction:

*Feature Flags* “(also known as feature toggles or feature switches) are a software development and product experimentation technique that turns certain functionality on and off during runtime, without deploying new code. <https://www.optimizely.com/optimization-glossary/feature-flags/> Retrieved April 21, 2025.

## Even if this construction was adopted ... Zhang's teaches a “feature flag”:

27. The POR also failed to understand Zhang's teaching nevertheless discloses Elements [8]/[16]/[23]. First, Zhang's teaching for the command field (CMD) in [0080] is equivalent to the feature flag described in the '448 patent. The CMD field in Zhang's “secure wake over internet” header” is nearly identical to, if not more functional than the single-bit flag in the header of the '448 patent's illustrated embodiment. EX1001 (the '448 Patent), FIG. 13 (showing the feature flag “SF” as a bit within a byte of a header for a packet), 10:5-20, 10:32-33; 10:56-11:18. I understand that if the '448 patent's preferred embodiment falls within the scope of the POR's interpretation, so too does Zhang's nearly identical teaching for the registration message. Second, Zhang's “registration message” can also include information that is “updated or changed,” such as an updated “nonce” to thereby turn off the security functionality of the old nonce and turn on the security functionality of the new nonce. EX1004 (Zhang), [0058] and [0080]. This teaching also falls

Patent Owner elected to never cross-examine Mr. Kardashov.

### **Issue 5:**

Non-dispositive claim constructions (“wakeup request packet,” “apparatus wakeup packet,” “connection information,” and “wakeup information”)

# Non-dispositive claim constructions

## Patent Owner's constructions:

*Wakeup Request Packet:* The wake-up request packet includes a device identifier(Unique identification UID) of a connection target and a network location indicating a source of the packet namely connection information of the first apparatus. EX1002 10-13, 3:44-48.

*Apparatus Wakeup Packet:* Contains the device ID, wakeup information and connection information.

*Connection information* includes a network (IP Address). EX1002, 4:4-8 (Each connection information includes a network address (IP Address) at which the networking apparatus is located.

*Wakeup information* or “WM” is information device-specific static data about the sleeping host, which is supplemental to the general information HD and device identifier ID, and required for the wakeup process. See EX 1003 5:43-48; Fig 7; *See also* EX 1003 ¶[53]; EX 1003 at pp 56 (authorization key), p.58 (Channel Set), p. 81 (encryption information)

# Non-dispositive claim constructions

## Petitioner's Reply:

### II. CLAIM CONSTRUCTION

The POR alleges that five phrases “require interpretation.” POR, 3-4. Oddly, one of the phrases (“connection information”) never appears in any claim. Worse yet, for four of those five phrases, the POR never actually relies on the purported constructions to resolve any controversy related to Grounds 1-3. *Google Inc. v. Intellectual Ventures II LLC*, 701 Fed. Appx. 946, 956 (Fed. Cir. 2017) (“do not require construction” for purposes of “resolv[ing] the parties’ patentability arguments”). Only one phrase—the “feature flag” term for dependent claims 8, 16, and 23—is relied upon by PO to purportedly distinguish the prior art. Petitioner addresses this flawed construction first.

# Non-dispositive claim constructions

## Mr. Kardashov's Testimony:

EX1101, ¶8 →

**Wakeup Request Packet:** The wake-up request packet includes a device identifier(Unique identification UID) of a connection target and a network location indicating a source of the packet namely connection information of the first apparatus. EX1002 10-13, 3:44-48.

EX1101, ¶9 →

**Apparatus Wakeup Packet:** Contains the device ID, wakeup information and connection information.

EX1101, ¶10 →

**Connection information** includes a network (IP Address). EX1002, 4:4-8 (Each connection information includes a network address (IP Address) at which the networking apparatus is located.

EX1101, ¶11 →

**Wakeup information** or “WM” is information device-specific static data about the sleeping host, which is supplemental to the general information HD and device identifier ID, and required for the wakeup process. See EX 1003 5:43-48; Fig 7; See also EX 1003 ¶[53]; EX 1003 at pp 56 (authorization key), p.58 (Channel Set), p. 81 (encryption information)

Patent Owner elected  
to never cross-examine  
Mr. Kardashov.

# Non-dispositive claim constructions

## Mr. Kardashov's Testimony:

proposal. *See* Elements [1a.i], [11d]. The POR cites to paragraphs in columns 2 and 3 of the '448 patent, but it is clear that these paragraphs only describe an "embodiment" and/or "embodiments." EX1001 (the '448 Patent), 1:65-2:13 ("an embodiment"), 3:34-4:3 ("some embodiments"). The '448 patent also makes it clear that such disclosure about embodiments in the specification "is not limiting for the scope of invention." EX1001 (the '448 Patent), 13:27-36. The POR has not cited to

### Col. 13

Although the present invention has been described in considerable detail with reference to certain preferred embodiments thereof, the disclosure is not for limiting the scope of the invention. Persons having ordinary skill in the art may make various modifications and changes without departing from the scope and spirit of the invention. Therefore, the scope of the appended claims should not be limited to the description of the preferred embodiments described above.