

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

RESMED CORP.,
Petitioner,

v.

CLEVELAND MEDICAL DEVICES, INC.,
Patent Owner.

Case IPR2025-00160
U.S. Patent No. 11,786,680

PATENT OWNER'S RESPONSE

TABLE OF CONTENTS

	<u>Page</u>
I. INTRODUCTION	1
II. OVERVIEW OF THE ’680 PATENT AND ASSERTED ART	2
A. The ’680 Patent	2
B. Toge.....	4
C. Kumar.....	6
III. LEVEL OF ORDINARY SKILL IN THE ART	7
IV. CLAIM CONSTRUCTION	7
V. GROUND 1: THE CHALLENGED CLAIMS ARE PATENTABLE OVER TOGE IN VIEW OF KUMAR AND BURTON.....	8
A. Toge in View of Kumar Does Not Render Obvious a “Remote Internet Site and a Database” That is “Hosted on At Least One Server”	8
1. Toge Does Not Expressly or Inherently Disclose a “Remote Internet Site and a Database” That is “Hosted on At Least One Server”	9
2. A POSITA Would Not Have Been Motivated to Implement Toge’s Physician-Side Computer with a Web Server in View of Kumar	11
a) A POSITA Would Not Have Implemented a Web Server on Toge’s Physician-Side Computer That Operates as a Client Device Because Client and Server Are on Separate Machines in a Client- Server Architecture.....	11
b) Changing the Physician Side-Computer into Just a Web Server Would Have Interfered with Toge’s Purpose	15

B.	A POSITA Would Not Have Been Motivated to Add a Patient’s Cell Phone that Receives and Displays Treatment Data to Toge’s System	20
VI.	GROUND 2: THE CHALLENGED CLAIMS ARE PATENTABLE OVER TOGE IN VIEW OF KUMAR, BURTON, AND KISNER	23
VII.	CONCLUSION.....	23

TABLE OF AUTHORITIES

	Page(s)
Cases	
<i>ActiveVideo Networks, Inc. v. Verizon Commc'ns, Inc.</i> , 694 F.3d 1312 (Fed. Cir. 2012)	18
<i>ASUSTeK Comput. Inc. v. LiTL LLC</i> , No. IPR2024-00532, Paper 20 (P.T.A.B. May 23, 2024)	18
<i>Henry Penny Corp. v. Frymaster LLC</i> , 938 F.3d 1324 (Fed. Cir. 2019)	17
<i>Medtronic, Inc. v. Teleflex Innovations S.à.r.l.</i> , 69 F.4th 1341 (Fed. Cir. 2023)	15
<i>Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.</i> , 868 F.3d 1013 (Fed. Cir. 2017)	7
<i>Surgalign Spine Techs., Inc. v. LifeNet Health</i> , No. IPR2019-00569, Paper 73 (P.T.A.B. Aug. 26, 2020).....	19
<i>Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.</i> , 200 F.3d 795 (Fed. Cir. 1999)	7
<i>Winner Int'l Royalty Corp. v. Wang</i> , 202 F.3d 1340 (Fed. Cir. 2000)	21

PATENT OWNER'S EXHIBIT LIST

Exhibit	Description
2001	Duan, Zhenhai, et al., “Push vs. Pull: Implications of Protocol Design on Controlling Unwanted Traffic” (USENIX July 7, 2005)
2002	Bunny webpage, “What is the Hypertext Transfer Protocol (HTTP)?” available at https://bunny.net/academy/http/what-is-http-hypertext-transfer-protocol/# , dated March 12, 2025
2003	Appsierra webpage, “Software Architecture: N Tier, 3 Tier, 1 Tier, 2 Tier Architecture,” available at https://www.appsierra.com/blog/tiers-in-software-architecture#:~:text=One , dated April 1, 2024
2004	Excerpts of Plaintiff and Counterclaim Defendant ResMed Corp.’s Initial Invalidity and Unenforceability Contentions cover pleading, <i>ResMed Corp. v. Cleveland Med. Devices, Inc.</i> , No. 23-cv-02221-BMB (N.D. Ohio), served on July 15, 2024
2005	Excerpts of Defendant ResMed Inc.’s Initial Invalidity Contentions cover pleading from <i>Cleveland Med. Devices, Inc. v. ResMed, Inc.</i> , No. 22-cv-00794-JLH (D. Del.) (the “Delaware Case”), served on February 21, 2023
2006	Excerpts of Plaintiff ResMed Corp.’s Response and Affirmative Defenses to Defendant’s Counterclaims for Patent Infringement, <i>ResMed Corp. v. Cleveland Med. Devices, Inc.</i> , No. 23-cv-02221-BMB, Dkt. No. 66 (N.D. Ohio), filed on March 18, 2024
2007	Excerpts of Declaration of James Hannah in Support of Defendant CleveMed’s Opposition to Plaintiff ResMed’s Motion for Temporary Stay Pending Mediation, <i>ResMed Corp. v. Cleveland Med. Devices, Inc.</i> , No. 23-cv-02221-BMB, Dkt. No. 87-1 (N.D. Ohio), filed on August 21, 2024
2008	Excerpts of Declaration of Lisa Kobialka in Support of Defendant CleveMed’s Opposition to Plaintiff ResMed’s Motion to Stay, <i>ResMed Corp. v. Cleveland Med. Devices, Inc.</i> , No. 23-cv-02221-BMB, Dkt. No. 100-1 (N.D. Ohio), filed on January 24, 2025

Exhibit	Description
2009	Excerpts of ResMed Corp.'s Reply in Support of its Motion to Stay, <i>ResMed Corp. v. Cleveland Med. Devices, Inc.</i> , No. 23-cv-02221-BMB, Dkt. No. 101 (N.D. Ohio), filed on January 31, 2025
2010	Excerpts of Defendant Cleveland Medical Devices, Inc.'s Memorandum in Support of its Motion to Dismiss or Transfer, <i>ResMed Corp. v. Cleveland Med. Devices, Inc.</i> , No. 23-cv-00500-TWR-JLB, Dkt. No. 10-1 (S.D. Cal.), filed on June 5, 2023
2011	<i>ResMed Corp. v. Cleveland Med. Devices, Inc.</i> , No. 1:23-cv-02221-BMB, Dkt. No. 87-5, Declaration of Hani Kayyali in Support of Patent Owner's Opposition to Motion to Stay Pending Mediation (N.D. Ohio), filed on August 21, 2024
2012	<i>ResMed Corp. v. Cleveland Med. Devices, Inc.</i> , No. 1:23-cv-02221-BMB, Dkt. No. 87-6, excerpts of Petitioner's parent company's (ResMed) Q4 FY2024 Earnings call (N.D. Ohio), filed on August 21, 2024
2013	"Reexamination Operational Statistics," last updated June 2024, available at https://www.uspto.gov/learning-and-resources/statistics/reexamination-information , last visited on January 24, 2024
2014	Excerpts from American Inventors Protection Act of 1999, H.R. Rep. No. 106-287, Part 1 (Aug. 1999)
2015	Declaration of Dr. Michael T. Goodrich in Support of Patent Owner's Response
2016	Declaration of Dr. David A. Borkholder in Support of Patent Owner's Response
2017	Excerpts from Introduction to Computer Security, by M. Goodrich & R. Tamassia, Pearson (2011)
2018	Deposition Transcript of Sandeep Chatterjee, Ph.D., <i>ResMed Corp v. Cleveland Medical Devices, Inc.</i> , Case No. IPR2025-00159 and IPR2025-00160, taken on September 8, 2025

Exhibit	Description
2019	Deposition Transcript of Jason P. Kirkness, Ph.D., <i>ResMed Corp v. Cleveland Medical Devices, Inc.</i> , Case No. IPR2025-00159 and IPR2025-00160, taken on August 28, 2025
2020	S. Zhang & M. Wang, "Server Classifications," Encyclopedia of Information Systems, Vol. 4 (2003)
2021	Online Learning Platform, "What is single-tier, Two-tier and Three-tier Architecture of Software?" dated July 17, 2025, available at https://statlearner.org/what-is-single-tier-two-tier-and-three-tier-architecture-of-software
2022	O. Korede, "Back to Basics: Tiers in Software Architecture," dated June 27, 2023, available at https://dev.to/skylinecodes/back-to-basics-tiers-in-software-architecture-4eg6
2023	Brooke, "Client vs Server Code in Anvil," dated September 3, 2025, available at https://anvil.works/articles/client-vs-server
2024	AlgoMaster webpage, "Client-Server Architecture," by Ashish Singh, dated September 8, 2025, available at https://algomaster.io/learn/system-design/client-server-architecture
2025	G. Mwamba, et al., "Architectural Review of Client-Server Models," International Journal of Scientific Research & Engineering Trends, Vol. 10, Issue 1 Jan-Feb-2024
2026	C. Probst, et al., "Where can an Insider Attack?" FAST 2006, LNCS 4691, pp. 127-142 (2007)
2027	L. Wolf, "Preventing Failure: The Value of Performing a Single Point of Failure Analysis for Critical Applications and Systems," Information Systems Security, Taylor & Francis Group, Vol. 13 (2004), available at https://www.tandfonline.com/doi/abs/10.1201/1086/44119.13.1.20040301/80434.7

Exhibit	Description
2028	P. Williams & A. Woodward, “Cybersecurity vulnerabilities in medical devices: a complex environment and multifaceted problem,” Dove Medical Press Limited, dated July 20, 2015, available at https://pmc.ncbi.nlm.nih.gov/articles/PMC4516335/
2029	H. Borrie, “Factors Impacting Scalability” from “Firebird Databases as the Back-end to Enterprise Software Systems,” November 28, 2006, available at https://www.firebirdsql.org/file/documentation/papers_presentations/html/paper-fbent-impacting.html
2030	LibreTexts Engineering, “11.3: Two-tier and Three-tier Architectural Distinctions,” printed July 15, 2025, available at https://eng.libretexts.org/Courses/Delta_College/Introduction_to_Database_Systems/11%3A_Client_Server_Architecture/11.03%3A_Two-tier_and_Three-tier_Architectural_Distinctions
2031	GeeksforGeeks webpage, “Difference Between Two-Tier and Three-Tier Database Architecture,” dated July 15, 2025, available at https://www.geeksforgeeks.org/dbms/difference-between-two-tier-and-three-tier-database-architecture/
2032	Intentionally omitted
2033	“Information Consumer Technologies 2010,” Perceptions of Libraries, 2010: Context and Community
2034	Explain that Stuff webpage, “How do cellphones work?” by Chris Woodford, dated February 20, 2025, available at https://www.explainthatstuff.com/cellphones.html
2035	L. Saad, “Gallup Vault: Misjudging Cellphone Adoption,” dated February 16, 2018, available at https://news.gallup.com/vault/227810/gallup-vault-misjudging-cellphone-adoption.aspx

Exhibit	Description
2036	C. Beckwith, "RESMED VPAP III Ventilator," Ventilator Handouts, Biomedical Engineering Department Great Ormond Street Hospital for Children NHS Trust, dated October 4, 2005 (Revision 1)
2037	"Mobile Medical Applications – Guidance for Industry and Food and Drug Administration Staff," U.S. Dept. of Health and Human Services Food and Drug Administration, dated September 25, 2013

I. INTRODUCTION

Patent Owner Cleveland Medical Devices, Inc. (“Patent Owner” or “CleveMed”) respectfully requests that the Board find the Challenged Claims patentable because a POSITA would not have been motivated to modify Toge’s system to reach the claimed “remote internet site and database” that “hosted on at least one server” receives and retransmits data from the PAP, as recited in Independent Claim 1.¹

There is no dispute that Toge does not disclose a “remote internet site and database,” and Petitioner’s obviousness theory fail to demonstrate that a POSITA would have been motivated to implement one in Toge’s system. *See, e.g.*, Paper 1 (“Pet.”) at 18-21. Petitioner argues, based on Toge with Kumar, that it would have been obvious to modify Toge’s physician-side computer as a server hosting web server software where data is accessible through a web page (allegedly, the “remote internet site and database” that is “hosted on at least one server”). *See id.* at 18; Ex. 1005 (“Chatterjee”) at ¶ 70. But Kumar does not disclose implementing a web server on a doctor’s computer, and there is no independent motivation to make the proposed

¹ The Petition challenges Claims 1-5, 7-8, 10-13, 15-18, and 20-31 (the “Challenged Claims”) of U.S. Patent No. 11,786,680 (Ex. 1001, the “’680 Patent”) based on Toge (Ex. 1044) and Kumar (Ex. 1008).

modification. Petitioner, thus resorts to hindsight, taking known elements, rearranging them to reach the claimed invention, and inventing a *post-hoc* rationale for the combination.

Petitioner also fails to demonstrate that the prior art discloses a patient's cell phone with the downloadable software claim features of Independent Claim 1. Petitioner does not dispute that Toge does not disclose these features, and its alleged reason for why a POSITA would have been motivated to add downloadable specialized software to a patient's cell phone, *i.e.* to view treatment data, does not provide a motivation because Toge has no such problem. Toge discloses an LCD display that allows a patient to view their treatment data, as Petitioner's own expert admits. Ex. 1003 ("Kirkness") at ¶ 181.

Accordingly, for these reasons and those that follow, the Challenged Claims are patentable over Toge taken alone or in view of Kumar.

II. OVERVIEW OF THE '680 PATENT AND ASSERTED ART

A. The '680 Patent

The '680 Patent discloses an integrated diagnosis and treatment device for patients suffering from sleep apnea and other sleep disorders. '680 Patent at Abstract. The device monitors a patient's breathing metrics and the device's usage data while simultaneously providing a sleep-disorder treatment, such as applying

continuous positive airway pressure or a pharmaceutical intervention. *See id.* at Abstract, 12:63-13:4, 35:12-36:2; Ex. 2015 (“Goodrich Decl.”) at ¶¶ 30-31.

In a preferred embodiment, the '680 Patent discloses a positive airway pressure (“PAP”) device with internal airflow sensors that monitor the patient’s airflow. '680 Patent at 53:64-54:29. An exemplary embodiment of the PAP device, shown below, includes a pressure generator, a blower, a hose, a mask or nasal cannula, an airflow sensor, and a pressure sensor for measuring breathing metrics (for example, respiratory airflow), and processor(s) for collecting and processing breathing metrics:

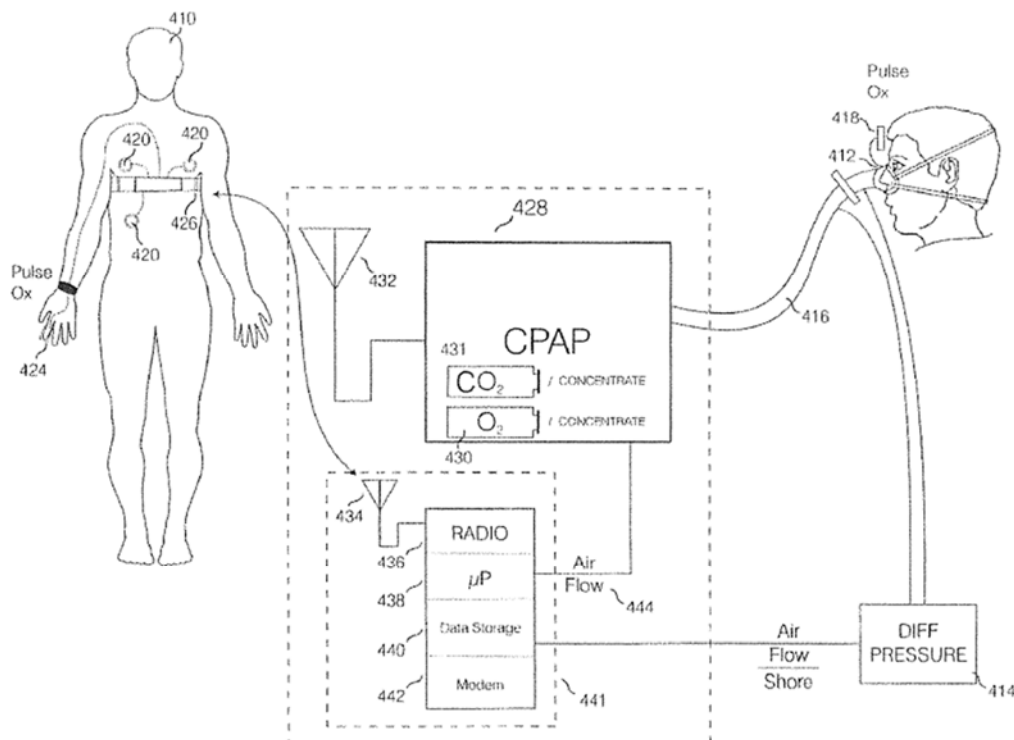


Fig. 8

Id. at FIG. 8. While treatment is ongoing, the PAP device also collects usage data and breathing metrics and passes that data to the processor for calculation of the PAP usage and severity of a patient's sleep disorder symptoms. *Id.* at 53:64-54:29.

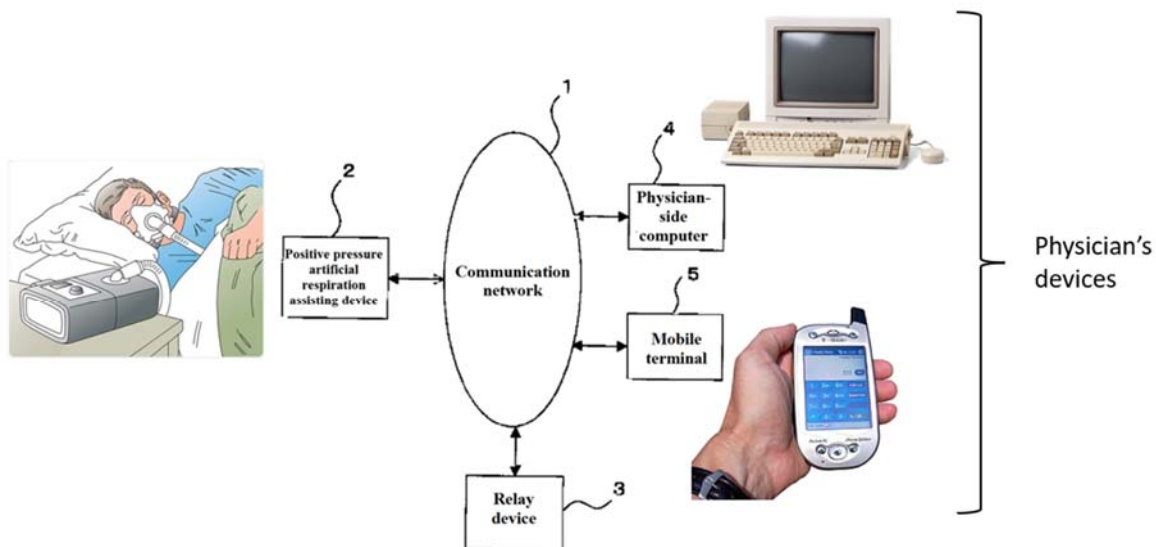
After the severity and usage data are collected and calculated, that data (and/or the index of treatment efficacy calculated based on that data) is transferred to a remote internet site and downloadable on a computer for display. *Id.* at 50:55-60 (“[A] PDA, computer or cell phone, which receives the physiological data transmission, optionally re-processes the information, and re-transmits the information . . . to a remote site for analysis.”); *id.* at 50:28-65. That computer may be a PC, PDA, cell phone, or any other suitable computer with a processor and display capabilities. *Id.* at 50:28-65. The calculated index may also be fed back to the PAP device and used to adjust the patient's treatment in real time. *See id.* at 53:64-54:29.

B. Toge

Rather than sending data to a “remote internet site,” as disclosed and claimed in the '680 Patent, Toge discloses transmitting data directly to physician-side devices to carry out its objective of physicians (or other medical professionals) receiving necessary or crucial treatment data that requires medical intervention. *See, e.g.,* Toge at Abstract, ¶¶ [0039], [0047], [0054]; Goodrich Decl. at ¶¶ 32-34.

In Toge's system, physicians set threshold values that, when met, trigger the PAP device to push treatment data to the physician-side computer/mobile device so that physicians can take emergency measures. *See id.* at ¶¶ [0039], [0047], [0061]. For example, if a patient's oxygen saturation falls below 90%, the physician-side devices are pushed this "crucial data" from the PAP device (*id.* at ¶ [0054]) where, in turn, the physician can increase the prescription pressure. *See id.* at ¶ [0047].

Toge's system includes a PAP device, a relay device (incorporated in the PAP device or at a nurse station), a physician-side computer, and a mobile device, as depicted below:



Goodrich Decl. at ¶ 34 (citing Toge at Fig. 1) (annotated). In Toge's system infrastructure, the PAP device pushes treatment data to physician-side computer and mobile device without any request.

Toge's system does not include, nor provide for, a web server where the data is accessible through a web page upon request since this would interfere with Toge's objective of pushing data to the patient where no request is needed.

C. Kumar

Kumar discloses transmitting data to a web server, which hosts a browser-based engine that manages the transmission of data to client devices. As the figures reproduced below show, treatment data is sent from a patient-side device 102 (blue, below) to its central server 106 (red, below) where the browser-based engine accesses database servers and facilitates the transfer to a medical professional's device once the device has accessed the web page (e.g., TeleVital) and requested the treatment data:

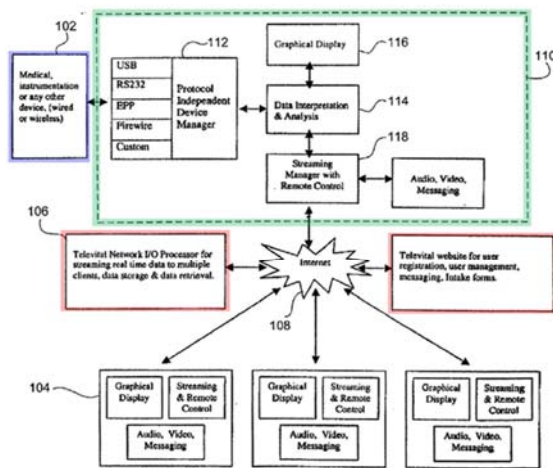


Fig. 1A

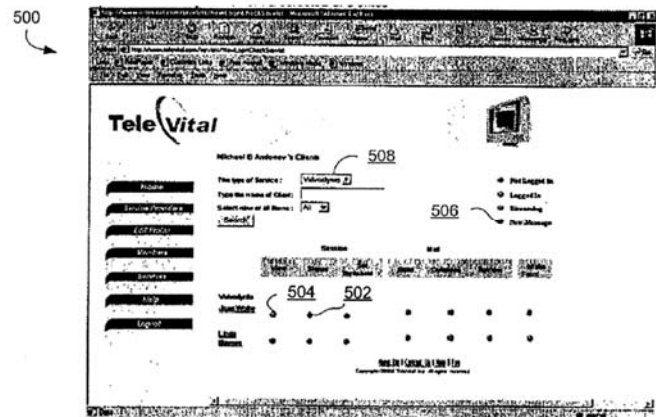


Fig. 5

Pet. at 14 (citing Ex. 1008, FIG. 1A (annotated)); Kumar at FIG. 5; *see also* Kumar at ¶ [0067] (“[T]he system includes one or more patient-side devices 102 for

collecting data from a patient/client, one or more provider-side devices 104, and an engine implemented on a central server 106.”), ¶¶ [0078]-[0083], [0091]-[0092]; Goodrich Decl. at ¶ 35.

III. LEVEL OF ORDINARY SKILL IN THE ART

Patent Owner applies Petitioner's proposed definition of a POSITA in 2005, as someone having “a bachelor's degree in mechanical engineering, electrical engineering, computer science, biomedical engineering, or a similar technical field, with at least two years of relevant product design experience working with diagnostic sensor systems and network data systems, such as networked PAP machines. Additional experience could substitute for less education, and additional education could likewise substitute for less experience.” Pet. at 17; Goodrich Decl. at ¶¶ 36-38.

IV. CLAIM CONSTRUCTION

No express construction is necessary for the Board to resolve the instant dispute and affirm patentability. 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))).

**V. GROUND 1: THE CHALLENGED CLAIMS ARE PATENTABLE
OVER TOGE IN VIEW OF KUMAR AND BURTON**

**A. Toge in View of Kumar Does Not Render Obvious a “Remote
Internet Site and a Database” That is “Hosted on At Least One
Server”**

Toge does not disclose a “remote internet site and database” that is “hosted on at least one server”² rather it discloses physician-side computer and physician-side mobile device that directly receive data from a PAP device. The record is devoid of any teaching or suggestion that a doctor’s computer should act as a web server hosting sensitive patient data, and POSITAs were well aware of the risks of such an implementation in terms of data security and system performance. See Goodrich Decl. at ¶¶ 46-49.

Yet that is what Petitioner and its experts argue is “obvious” in view of the teachings of Kumar:

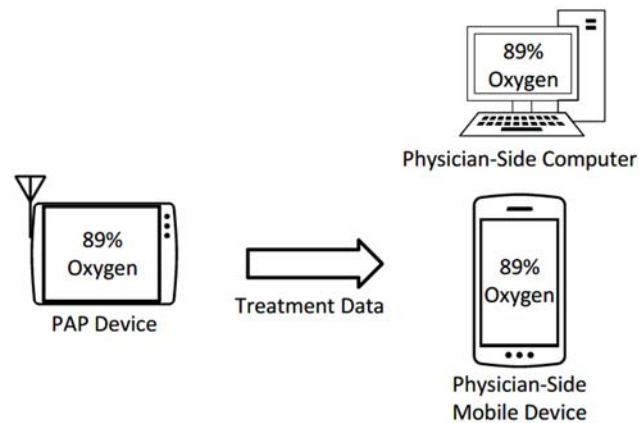
² Petitioner consistently identifies a web server accessible via a web page as the alleged “remote internet site and database” on “at least one server.” See Pet. at 18-19, 22, 26, 29-31, 45-46; Chatterjee at ¶ 64; Ex. 2018 (“Chatterjee Tr.”) at 22:20-23:1 (identifying “Apache web server” as web server software that is run on a server).

[A] POSITA would have improved the physician-side computer of Toge by implementing it with the browser-based engine accessible through web pages as taught by Kumar.

Pet. at 18; *see also* Chatterjee at ¶ 86 (“[m]odifying the physician-side computer to be a web server to allow others to access the data transmitted”), ¶¶ 70, 89; Goodrich Decl. at ¶ 41.

1. Toge Does Not Expressly or Inherently Disclose a “Remote Internet Site and a Database” That is “Hosted on At Least One Server”

Instead of disclosing a “remote internet site and database” on “at least one server,” which Petitioner identifies as a web server where data is accessible through a web page request, Toge’s system includes a relay device that pushes patient data to the doctor’s computer and mobile device without request. *See* n.2, *supra*; Toge at ¶¶ [0050]-[0054]; Ex. 2001 at 25-26 (describing that in a push protocol, the “receiver[] *passively accept[s]* whatever the sender[] push[es]to them”) (emphasis added). The physician’s devices, therefore, automatically receive “necessary” and “crucial” treatment data (e.g., oxygen saturation of 89%) so that they can take emergency measures. *See* Toge at ¶¶ [0019], [0047], [0054]; Goodrich Decl. at ¶ 42.



Goodrich Decl. at ¶ 42 (providing a rendition of Toge's Figure 1 where the relay device is incorporated within the PAP device such that treatment data is transferred directly to the physician-side devices as in one embodiment) (citing Toge at Fig. 1, ¶¶ [0060]-[0061]). Even in the embodiment where the relay device is separate from the PAP device, this “necessary” or “crucial” treatment data is still pushed to the physician-side devices. Toge at ¶ [0016].

There is no “remote internet site” in Toge's system, expressly or inherently, because patient data is pushed to the necessary client devices without traversing any such site. See Toge at ¶ [0009]. In fact, changing Toge's system to require client devices to request data from a web server—which uses a pull protocol instead of a push protocol—would have interfered with Toge's ability to push crucial treatment data to the physician-side devices. See Goodrich Decl. at ¶ 43 (citing Ex. 2002 at 2-3 (describing that “HTTP is a pull protocol” as “information can only be pulled from

a web server after a client's request")); Ex. 2016 ("Borkholder Decl.") at ¶¶ 44-50; § V.A.2, *infra*.

In view of the foregoing, Toge does not disclose a "remote internet site and a database" on "at least one server," which Petitioner does not dispute.

2. A POSITA Would Not Have Been Motivated to Implement Toge's Physician-Side Computer with a Web Server in View of Kumar

A POSITA would not have been motivated to make Toge's physician-side computer into a web server based on Kumar because: (1) Toge's physician-side computer operates as a client device and client and server would not be on the same computer; and (2) implementing the physician-side computer only as a web server, would have interfered with Toge's purpose. Goodrich Decl. at ¶¶ 44-58.

a) A POSITA Would Not Have Implemented a Web Server on Toge's Physician-Side Computer That Operates as a Client Device Because Client and Server Are on Separate Machines in a Client-Server Architecture

A POSITA would not have made Toge's physician-side computer, a client device, into a web server because clients and servers are intentionally kept separate in client/server network embodiments because of security and performance reasons. Petitioner's proposed modification introduces a client/server relationship between client devices that present data to the user (*i.e.* the physician-side computer and mobile device) and a web server that hosts and transfers data upon HTTP request.

See, e.g., Chatterjee at ¶¶ 32-36, 70, 86; Ex. 2020 at 4 (a client device presents the data and a server hosts and transfers the data); Goodrich Decl. at ¶ 45.

Petitioner's proposed combination, therefore, violates the principle that "the client and server are not on the same computer." Ex. 2003 at 5 (explaining that the client's "user [] layer" and the server's "database layer" are "located on two different machines"). Specifically, the "user layer" runs on a client machine while the "database layer" runs on a separate server machine. Ex. 2021 at 1 (describing this model as a two-tier "software architecture in which the presentation layer or user interface runs on client machine, and data layer or database [is] stored on a server"); *see also* Ex. 2022 at 4 (similar); Ex. 2023 at 2-3 (explaining that in client-server architecture, the server software "runs on a computer that is separate from the user's device"); Goodrich Decl. at ¶ 46.

Separating the user layer and database layer onto different machines is a fundamental security practice for web applications, particularly given web server vulnerabilities. *See* Goodrich Decl. at ¶ 47 (citing Ex. 2017 at 372-378 (discussing the types of web server vulnerabilities)). Because a web server introduces multiple security vulnerabilities, creating multiple tier architecture ensures multiple defenses to protect sensitive data from cybersecurity attacks. Goodrich Decl. at ¶ 47 (citing Ex. 2026, Ex. 2027).

Data security is especially critical in medical device applications because such a system contains the patients' personal, sensitive information. *See* Ex. 2028 at 9 (“hacking to cause intentional harm”); Toge at ¶ [0047] (disclosing that the physician-side devices can remotely adjust the PAP therapy). A POSITA, therefore, would not have implemented Toge's physician-side client computer as a web server in the client-server-based application given the security risks involved. Goodrich Decl. at ¶ 48.

Apart from security, performance is also critical for real-time medical systems that need to respond to patient emergencies, such as disclosed in Toge. Toge at ¶¶ [0019], [0039]-[0042], [0044], [0046]-[0047], [0055]-[0057]. For example, a POSITA would understand that implementing multiple services, such as a web server and the client software on the same machine would create contention for the CPU(s), memory, network bandwidth, and input/output resources on that machine, which would lead to decreased system performance. As shown in a whitepaper discussing “Factors Impacting Scalability,” there are “[s]everal factors must be considered when plans to upscale involve increasing the number of concurrent connections to the server” and that “[t]rying to run a database server on a system that is running competing services, such as a web server, Exchange server, domain server, etc., will risk having those other services steal resources (RAM and CPU time) from the database server, denying Superserver even the 2 Gb that it is capable

of using or limiting the number of connections to Classic, and slowing down database response time.” Ex. 2029 at 1, 3. A POSITA, therefore, would not have implemented Toge’s physician-side client computer as a web server given the performance reductions that would have ensued. Goodrich Decl. at ¶ 49; *see also* § V.A.2.b, *infra*.

Petitioner’s experts failed to appreciate these client/server web application issues. Dr. Kirkness testified that such limitations of client/server architecture were outside his field of expertise. Ex. 2019 (“Kirkness Tr.”) at 83:14-19 (testifying that he is not a “specific expert in the field” of network architecture and does not know “all of the limitations”). And Dr. Chatterjee merely testified that he believed that his proposed combination would work because “it’s not magic.” Chatterjee Tr. at 13:3-11, 18:15-19:2 (testifying that he only considered “what the combination would look like” because “[i]f you implement it that way, then you can. It’s not magic”). These are not motivations for making major deviations from standard client/server implementation architectures, they are hindsight rationalizations for combining various prior art elements into a system that resembles what CleveMed claims. Goodrich Decl. at ¶ 50.

In light of the foregoing, a POSITA would not have been motivated to implement the physician-side client computer as a web server since client and server would not operate on the same machine. Goodrich Decl. at ¶ 51.

b) Changing the Physician Side-Computer into Just a Web Server Would Have Interfered with Toge's Purpose

A POSITA also would not have changed Toge's physician-side computer into only a web server because it would have interfered with Toge's purpose which Petitioner's purported benefits do not outweigh. In such a case, this counsels strongly against obviousness. See Goodrich Decl. at ¶¶ 52-58; *Medtronic, Inc. v. Teleflex Innovations S.à.r.l.*, 69 F.4th 1341, 1349-50 (Fed. Cir. 2023) (explaining that it would have been "error for the Board to ignore evidence that a proposed modification would interfere with a reference's stated purpose" and affirming Board finding that challenged patent was non-obvious because "the destruction of [a prior art reference's] 'entire premise' 'counsel[ed] strongly against' obviousness").

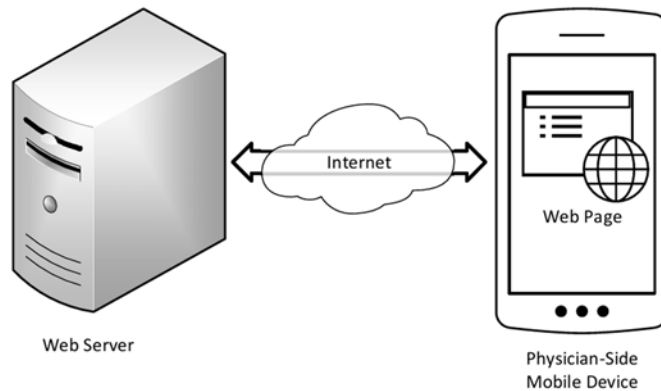
The purpose of Toge's system is to push "necessary" or "crucial" data to physician-side devices so that physicians can monitor their patients and take emergency action when needed. See Toge at Abstract, ¶¶ [0001]-[0006], [0046], [0047], [0054], [0057]. For instance, Toge explains that by setting a threshold (for example, 90% oxygen saturation), the physician-side devices are pushed "crucial data" when the threshold is met such that physicians "can take emergency measures" (adjusting the pressure of the PAP device, for example). *Id.* at ¶ [0047]; see also *id.* at ¶¶ [0039], [0054] ("[I]t becomes possible to selectively transmit only the

necessary or crucial data to the physician-side computer 4 or portable device 5.”).³ In this way, physicians can care for their patients who are in critical condition without having to log into a web page and make requests for data. Goodrich Decl. at ¶ 55.

Changing Toge's physician-side computer into a web server that transmits the data upon a client request would interfere with Toge's purpose. Borkholder Decl. at ¶¶ 44-50. Particularly, this change introduces a two-tier client/server-based application where the client presents the treatment data and the web server stores the data and transfers it upon the client accessing a web page and making an HTTP request, as shown below. Pet. at 19 (in the proposed modification, “the physician or provider can access the data” through web pages “as opposed to downloading specialized software”); Chatterjee at ¶ 81; Chatterjee Tr. at 26:11-27:5; Kirkness at ¶ 138; Kirkness Tr. at 98:19-99:4.⁴ The two-tier model of the Toge-Kumar combination is reproduced below:

³ A push protocol is where a “sender can deliver traffic **at will** to a receiver” and the “receiver[] **passively accept** whatever the sender[] pushes to them.” Ex. 2001 at 25-26 (emphases added).

⁴ In a two-tier architecture, “the **client (tier 1)** is primarily responsible for the presentation of data to the user, and the **server (tier 2)** is primarily responsible for



Goodrich Decl. at ¶ 54; *see also* Chatterjee at ¶ 86 (modifying the “physician-side computer to be a web server”), ¶¶ 32-34 (explaining how a web server stores the Internet’s data and provides the data to clients when requested by HTTP); Ex. 2021, Ex. 2024 at 2-3. Because data is pulled only upon request, Toge’s purpose of pushing, without request, “necessary” or “crucial” (Toge at ¶ [0054]) treatment data would be interfered with. Ex. 2001 at 25-26; Ex. 2002 at 2-3; Goodrich Decl. at ¶¶ 54-55.

Petitioner’s purported benefits provide nonexistent motivations and as such do not outweigh the modification’s interference. *See Henry Penny Corp. v. Frymaster LLC*, 938 F.3d 1324, 1331-32 (Fed. Cir. 2019) (explaining that, in an obviousness inquiry, “[t]he benefits, *both lost and gained*, should be weighed against

supplying data services to the client.” Ex. 2020 at 4 (emphases added); *see also* Ex. 2025 at 2.

one another”); *ASUSTeK Comput. Inc. v. LiTL LLC*, No. IPR2024-00532, Paper 20 at 21-22 (P.T.A.B. May 23, 2024) (finding that the proposed modification's modest benefit is outweighed by the drawbacks). No weight can be afforded to Petitioner's purported benefits because they are either generic, already achieved by Toge, or would have introduced technical obstacles that would have been a non-motivating factor. Since Petitioner's benefits are non-motivating, “no longer hav[ing] the ability to push information directly to physician-side client devices” **would** “obviate Petitioner's proffered motivations to combine.” Institution Decision at 35.

First, Petitioner's “general market trend” benefits (Pet. at 19) are “generic and bear[] no relation to any specific combination of prior art elements.” *ActiveVideo Networks, Inc. v. Verizon Commc'ns, Inc.*, 694 F.3d 1312, 1328 (Fed. Cir. 2012). Because these purported benefits are generic and untethered to the specific modification proposed, they do not provide motivation to arrive at the specific claimed invention. Goodrich Decl. at ¶ 56.

Second, Petitioner's “convenience and efficiency” benefit (Pet. at 18) is already achieved by Toge's system that allows data to be accessed anywhere. Particularly, Toge's physician-side mobile device allows a physician to “remotely monitor” and “[c]ollect[] data accessible anywhere.” *Id.* at 19; Toge at ¶¶ [0018]-[0019], [0061] (disclosing that mobile device 5 is “**mobilized**” to collect treatment data) (emphasis added). Kumar's web server implementation is therefore

unnecessary as Toge's system already solves for convenience and efficiency. Goodrich Decl. at ¶ 56.

Lastly, Petitioner's "allow[ing] anyone with an Internet browser" benefit (Pet. at 19) would also not have been a motivating factor because of the obstacles a POSITA would have encountered in making the proposed modification. See *Surgalign Spine Techs., Inc. v. LifeNet Health*, No. IPR2019-00569, Paper 73 at 30 (P.T.A.B. Aug. 26, 2020) (finding that "the[] potential benefits would not have motivated the proposed combinations, considering the disclosure of the references and the technical obstacles that an ordinary skilled artisan would have expected to encounter in making the proposed substitution").

As the illustration above shows, Toge's modification represents a two-tier client/server-based application. Goodrich Decl. at ¶ 57 (illustrating the two-tier client/server-based application). This architecture model can only "support a relatively small number of users, because the transaction of information is usually low, and security is not necessarily the top priority." Ex. 2030 at 1. Consequently, the model is not suitable for a web application that "allow[s] anyone . . . access" (Pet. at 19) as it would encounter a loss of performance and be exposed to security vulnerabilities. See, e.g., Ex. 2031 at 4 (describing that two-tier architecture "results in performance loss whenever the users increase rapidly" and "is less secured"); Ex.

2030 at 1 (describing that two-tier architecture is “not used for applications with large user bases due to their limited flexibility”).

In view of the foregoing, a POSITA would not have been motivated to change Toge's physician-side computer into a web server. Goodrich Decl. at ¶ 58.

B. A POSITA Would Not Have Been Motivated to Add a Patient's Cell Phone that Receives and Displays Treatment Data to Toge's System

Petitioner concedes that Toge does not disclose a patient's cell phone with the downloadable software features recited in Independent Claim 1, and it has not shown that it would have been obvious to modify Toge with Kumar to reach the claimed invention. Pet. at 30 (citing Kirkness at ¶ 172 (“Toge does not expressly disclose ‘a cell phone of a subject(s) receiving treatment’ and the features recited in limitations [1.b]-[1.b.iv], a POSITA would have been motivated and found it obvious to implement these features in view of Kumar”)). The alleged motivation for the combination purports to add functionality to Toge's system that it already has, namely features that “would have allowed the patient to view the treatment data.” Pet. at 33 (alleging that the “cell phone associated features would have allowed the patient to view the treatment data”); Borkholder Decl. at ¶¶ 51-59; Goodrich Decl. at ¶¶ 59-65.

Because Petitioner's motivation to modify Toge purports to solve a problem that Toge does not have, this motivation does not establish motivation to combine

Toge and Kumar. *Winner Int'l Royalty Corp. v. Wang*, 202 F.3d 1340, 1349 (Fed. Cir. 2000) (affirming a finding of no motivation to combine because there was no apparent problem with the existing prior art mechanism). As Petitioner acknowledges, Toge's PAP device includes a screen that allows a patient to access and review their treatment data. Pet. at 33 (admitting that a PAP device as in Toge includes "a screen suitable for displaying data to the patient").

Recognizing that its proposal would add unnecessary redundancy to Toge's system, Petitioner reasons that its modification would have allowed for the removal of the PAP screen to thereby reduce the size of the PAP device. *Id.* (citing Kirkness at ¶ 181 (alleging that with "such a modification . . . the PAP device would not need to include a screen suitable for displaying data to the patient")). However, cell phone capability in the early 2000s renders nonsensical Petitioner's replacement of the PAP screen with that of a patient's cell phone. Borkholder Decl. at ¶¶ 53-59; Goodrich Decl. at ¶¶ 60-61.

In the early 2000s, the majority of cell phones were largely only capable of voice communication and text messaging. At that time, **only two percent** of American cell phone subscribers even owned a smartphone that could receive and output data via applications downloaded on the device. Ex. 2033 at 2. The remaining cell phone subscribers had simple cell phones used largely "for voice conversations and sending short 'texts.'" Ex. 2034 at 5; Ex. 2035 at 2-3. Because

most patient's would have had cell phones not capable of downloading specialized software for receiving and displaying data, a POSITA would not have been motivated to replace the PAP display screen with a patient's cell phone, as Petitioner urges. Goodrich Decl. at ¶ 62.

Petitioner's "Motivation to Combine" section also contradicts Petitioner's assertion that a POSITA would have added a patient's cell phone with downloadable specialized software. Pet. at 33 (for the specific claim limitations, asserting that a POSITA would have added Kumar's "plug-and-play" specialized software to a patient's cell phone in Toge). In that section, Petitioner and its experts assert that a POSITA would have modified Toge's physician-side computer into a web server because it would allow client devices access to data through web pages "***as opposed to downloading specialized software.***" *Id.* at 19 (emphasis added); Chatterjee at ¶ 81 (asserting implementing web pages allows "anyone with an Internet-browser to access the data ***without downloading additional software***"); Chatterjee Tr. at 26:19-27:5 (testifying that the combination would "***not requir[e] specific software.***"); Kirkness at ¶ 138 (asserting that physicians, providers, and patients "***need not download particular software to access the data***") (emphases added).

Those assertions belie Petitioner's assertion here that a POSITA would have found it obvious to configure downloadable software on a patient's cell phone to receive and output treatment data from the PAP device. To the contrary, such

downloadable software on a patient's cell phone would not part of Petitioner's proposed modification as the data would be accessed through a web page, which does not require specialized software.⁵ Goodrich Decl. at ¶¶ 63-64.

In view of the foregoing, a POSITA would not have been motivated to add a patient's cell phone to Toge's system as in the manner required by the Challenged Claims. *Id.* at ¶ 65.

VI. GROUND 2: THE CHALLENGED CLAIMS ARE PATENTABLE OVER TOGE IN VIEW OF KUMAR, BURTON, AND KISNER

Ground 2 challenges only Dependent Claims 10, 15 and 20 and therefore does not resolve any of the issues of Toge in view of Kumar in relation to Independent Claim 1 in Ground 1. Accordingly, Ground 2 fails for the same reasons Ground 1 fails. Goodrich Decl. at ¶ 66.

VII. CONCLUSION

In view of the foregoing, the Board should hold patentable the Challenged Claims.

⁵ CleveMed does not concede that a POSITA would have been motivated to implement Toge's physician-side computer into a web server, it only references Petitioner's "Motivation to Combine" section to highlight the juxtaposition between Petitioner's two arguments.

Respectfully Submitted,

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CERTIFICATE OF COMPLIANCE WITH 37 C.F.R. § 42.24

The undersigned hereby certifies that the portions of the above-captioned **PATENT OWNER'S RESPONSE** specified in 37 C.F.R. § 42.24 has 4,636 words in compliance with the 14,000 word limit set forth in 37 C.F.R. § 42.24(b)(2). This word count was prepared using the Microsoft Word word-processing system used to prepare this paper.

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CERTIFICATION OF SERVICE

The undersigned certifies, in accordance with 37 C.F.R. § 42.6(e), and pursuant to agreement between the parties that filing with the Board through P-TACTS constitutes electronic service, if Patent Owner provides the foregoing document (excluding exhibits), service was made on the Petitioner as detailed below:

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