

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

RESMED CORP.,
Petitioner,

v.

CLEVELAND MEDICAL DEVICES, INC.,
Patent Owner.

Case IPR2025-00159
U.S. Patent No. 11,375,921

PATENT OWNER'S RESPONSE

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PATENT OWNER'S EXHIBIT LIST

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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

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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_Data_base_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	G. Huston, “Anatomy: A Look Inside Network Address Translators,” The Internet Protocol Journal, Vol. 7, No. 3, September 2004

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 combine Toge and Kumar to reach a “remote internet site” that receives patient data from a positive air pressure (“PAP”) device, let alone a remote internet site with the specific characteristics recited in Independent Claims 1, 7, and 12.¹

There is no dispute that Toge fails to expressly disclose a “remote internet site,” and Petitioner’s obviousness theories fail to demonstrate that a POSITA would have been motivated to implement one in Toge’s system. *See, e.g.*, Paper 1 (“Pet.”) at 15, 48-50. Petitioner argues, based on Toge alone or Toge in view of Kumar, that it would have been obvious to modify Toge’s ***physician-side computer*** to host a web server that makes a patient’s data accessible through a web page (allegedly, the “remote internet site”). *See* Pet. at 15, 48-50; Ex. 1005 (“Chatterjee”) at ¶ 146. But Kumar does not disclose implementing a web server on a doctor’s computer, and there is no independent motivation to make the proposed modification. Petitioner,

¹ The Petition challenges Claims 1, 2, 4, 5, 7-9, 11-14, and 16 (the “Challenged Claims”) of U.S. Patent No. 11,375,921 (Ex. 1001, the “’921 Patent”) based on Toge (Ex. 1044) and Kumar (Ex. 1008).

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 several other features of the Independent Claims. For example, Independent Claim 1 requires a PDA or cell phone to receive data from the PAP device and retransmit that data to the remote internet site, and Independent Claim 12 requires that patient data be transmitted to the PDA/cell phone and remote internet site independently. See '921 Patent at Claims 1, 12. But in Petitioner's proposed combination, the web server on the doctor's computer would transmit data to other client devices (like the doctor's mobile phone) instead of the doctor's mobile phone receiving patient data from the PAP device independently, let alone transmitting patient data to the web server in the first instance. Also, Independent Claim 7 requires that the remote internet site retransmit patient data to the PDA/cell phone. See *id.* at Claim 7. But the web server in Petitioner's combination does not "retransmit," *i.e.* to receive and send, instead it receives and stores the data until there is a request.

Ground 2 fails for the same reasons that Ground 1 fails. Although Petitioner introduces an additional reference (Ex. 1051, "Kisner") in Ground 2, that reference is not used for the "remote internet site" term. See Pet. at 67-68. Therefore, it does not resolve any of Ground 1's deficiencies.

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

II. OVERVIEW OF THE '921 PATENT AND ASSERTED ART

A. The '921 Patent

The '921 Patent discloses an integrated diagnosis and treatment device for patients suffering from sleep apnea and other sleep disorders. '921 Patent at Abstract, 1:14-18. 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. *Id.* at 3:61-4:50; Ex. 2015 ("Goodrich Decl.") at ¶¶ 30-32.

In a preferred embodiment, the '921 Patent discloses a PAP device with internal airflow sensors that monitor the patient's airflow. '921 Patent at 2:56-3:18, 6:10-7:43. An exemplary embodiment of the PAP device, shown below, includes a pressure generator, a blower, a hose, a mask or nasal cannula, a flow sensor, and a pressure sensor for measuring breathing metrics (for example, respiratory airflow), and processor(s) for collecting and processing breathing metrics:

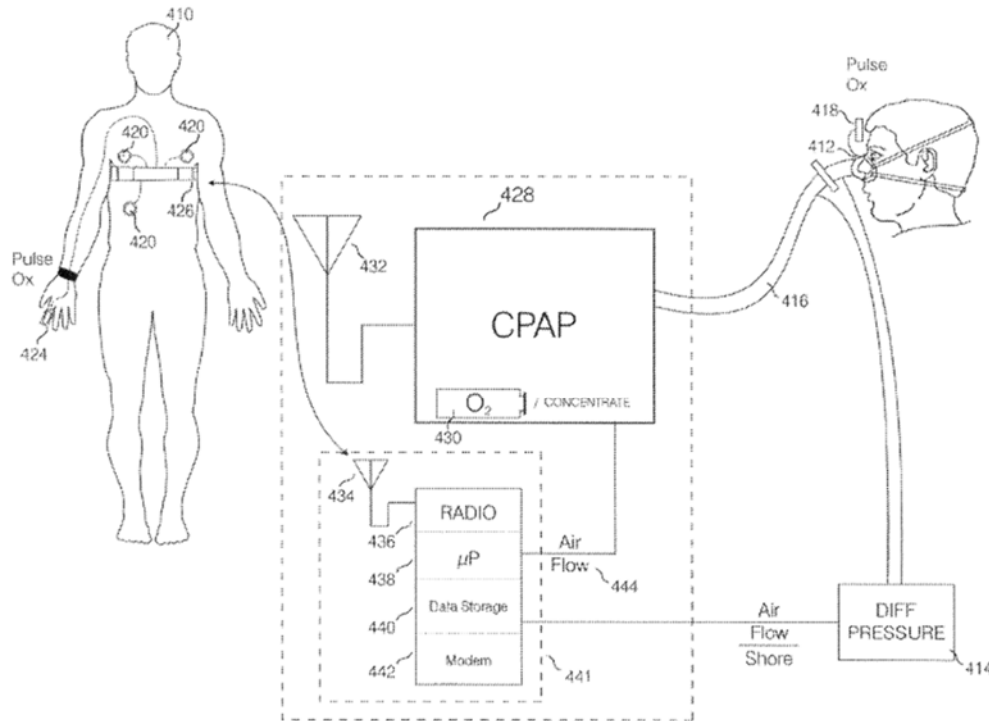


Fig. 8

'921 Patent at FIG. 8; *see also id.* at 2:56-3:18, 22:60-23:41, FIG. 7. 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 23:12-17; *see also id.* at 8:26-30, 18:60-19:7.

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 transmitted to a remote internet site and retransmitted to a computer for display. *Id.* at 19:35-41 (“[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 18:60-19:45. The calculated

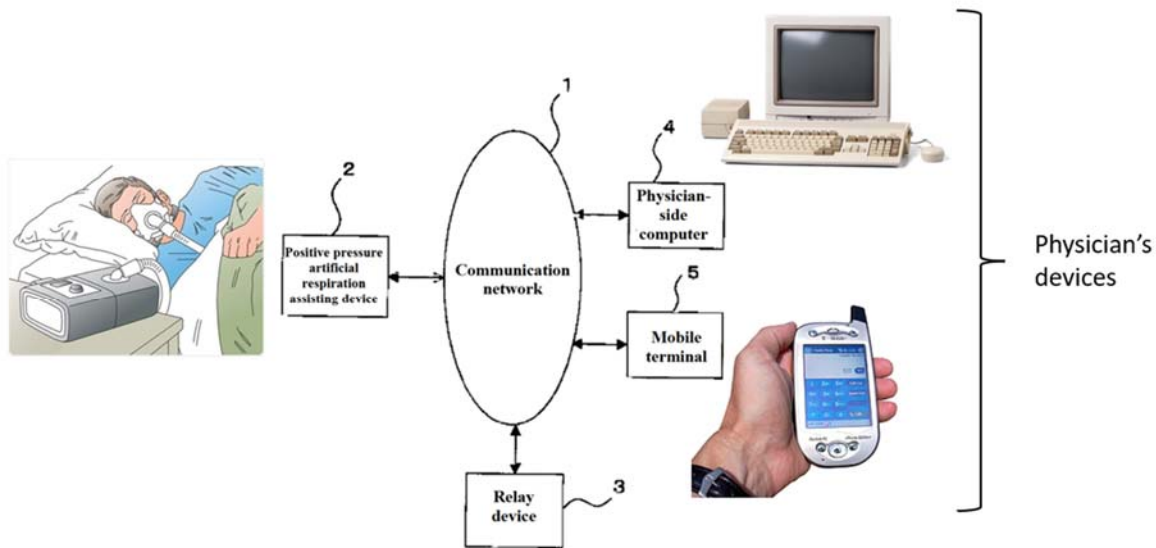
index may also be fed back to the PAP device and used to adjust the patient's treatment in real time. *See id.* at 3:54-4:6, 22:1-12.

B. Toge

Rather than sending data to a “remote internet site,” as disclosed and claimed in the '921 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 ¶¶ 33-35.

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* Toge 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:

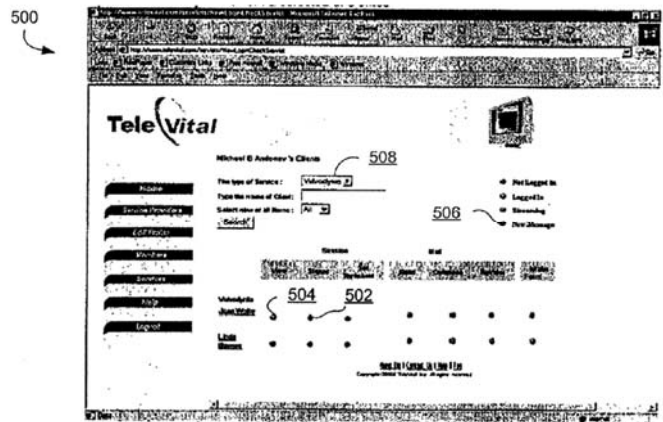
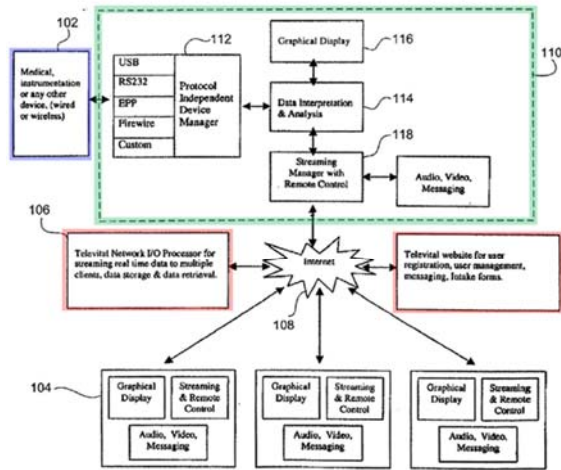


Goodrich Decl. at ¶ 35 (citing Toge at Fig. 1 (annotated)). In Toge's system infrastructure, the PAP device pushes treatment data to physician-side computer and mobile device without any request.

Toge does not disclose a remote internet site expressly or inherently.

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:



Pet. at 10 (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 ¶ 36.

III. LEVEL OF ORDINARY SKILL IN THE ART

Patent Owner applies Petitioner’s proposed definition of a POSITA in 2005, which is one 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 12-13; Goodrich Decl. at ¶¶ 37-39.

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 TAKEN ALONE OR IN VIEW OF KUMAR AND BURTON

A. Toge Taken Alone or in View of Kumar Does Not Render Obvious a “Remote Internet Site”

Toge does not expressly or inherently disclose a “remote internet site,”² Petitioner argues that the claims are obvious over Toge alone or in view of Kumar. Both arguments suffer from the same flaw, namely that no POSITA would have

² Petitioner consistently identifies a web server accessible via a web page as the alleged “remote internet site.” *See* Pet. at 50, 52, 54, 56, 60, 65; Chatterjee at ¶ 66; Ex. 2018 (“Chatterjee Tr.”) at 22:20-23:1 (identifying “Apache web server” as web server software that is run on a server).

modified Toge's physician-side computer to include a web server that hosts patient data for other devices to access. The record is devoid of any teaching or suggestion that a doctor's computer should act 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. Goodrich Decl. at ¶¶ 48-52.

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

A person of ordinary skill in the art would have understood that if data can be transmitted through the Internet to and from the physician-side computer, ***the physician-side computer could be implemented as a web server.***

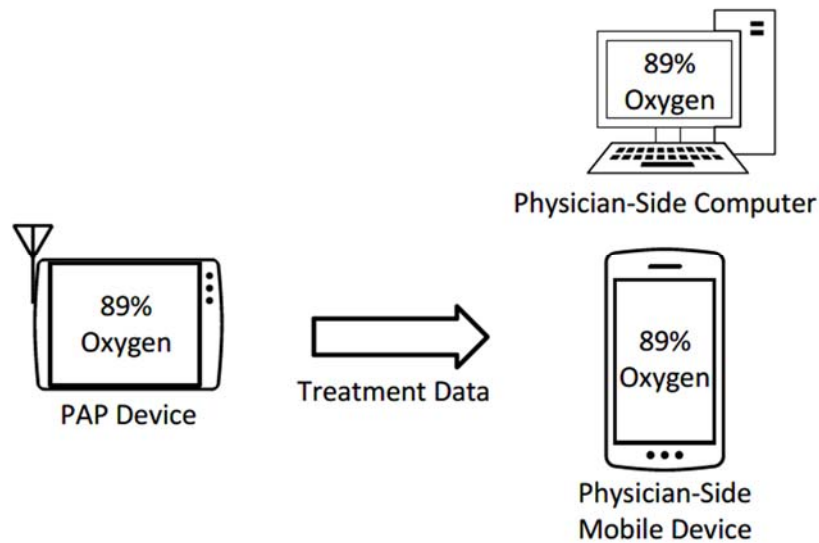
Chatterjee at ¶ 146 (emphasis added); *see also id.* at ¶ 147 ("Alternative [sic], a person of ordinary skill in the art would have been motivated and found it obvious to implementing the physician-side computer of Toge [as a web server] to using [sic] the implementation detail taught by Kumar."), ¶ 76; Pet. at 15; Goodrich Decl. at ¶ 42.

1. Toge Does Not Expressly or Inherently Disclose a "Remote Internet Site"

To the extent that the Board determined that Toge expressly or inherently discloses the claimed "remote internet site" in the Institution Decision, CleveMed respectfully notes that Petitioner did not raise that argument in the Petition, and there

is no express or inherent disclosure of a remote internet site in Toge. *Compare* Paper 10 (“DI”) at 35 (finding that “Petitioner has adequately demonstrated for purposes of institution that Toge **discloses** these claim limitations [the ‘remote internet site’].”) *with* Pet. at 49 (alleging that “it would have been **obvious** to a POSITA to utilize a ‘remote internet site’” in Toge) (emphases added). It is the “the petitioner’s petition” that “guide[s] the life of the litigation,” and Petitioner did not argue or produce evidence that Toge expressly or inherently discloses a remote internet site. *SAS Inst., Inc. v. Iancu*, 584 U.S. 357, 366 (2018); Pet. at 49 (citing Chatterjee at ¶ 146).

Instead of disclosing a “remote internet site,” 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 ¶ 43.



Goodrich Decl. at ¶ 43 (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], [0054]; Ex. 2001 at 25.

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 ¶ 44 (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.3, *infra*.

In view of the foregoing, Toge does not disclose a “remote internet site,” which Petitioner does not dispute. Goodrich Decl. at ¶ 45.

2. Petitioner’s Argument That a POSITA Would Have Found It Obvious to Modify Toge’s Physician-Side Computer into a Web Server Based on Toge Taken Alone Fails as a Matter of Law

Because Toge does not disclose a “remote internet site,” Petitioner argues that it would have been obvious to implement Toge’s physician-side computer as a web server. Pet. at 49 (citing Chatterjee at ¶ 146). This obviousness theory fails as a matter of law because it is founded upon conclusory assertions of what would have been obvious and what could have been done, absent is any articulated rationale. *In re Van Os*, 844 F.3d 1359, 1361 (Fed. Cir. 2017) (“Absent some articulated rationale, a finding that a combination of prior art would have been ‘common sense’ or ‘intuitive’ is no different than merely stating the combination ‘would have been obvious.’ Such a conclusory assertion with no explanation is inadequate to support a finding that there would have been a motivation to combine.”).

Specifically, Petitioner and its experts allege that simply because Toge’s physician-side computer “*could*” be implemented as a web server that means it “*would have been obvious*” to do so. Pet. at 49 (citing Chatterjee at ¶ 146 (alleging

that “the physician-side computer **could** be implemented as a web server”)); Ex. 1003 (“Kirkness”) at ¶ 214 (alleging that “**it would have been obvious** . . . to utilize a ‘remote internet site’ to receive the data . . . on the physician side devices of Toge”) (emphases added). These conclusory allegations are inadequate to support a finding that a POSITA would have been motivated to modify Toge’s physician-side computer into a web server.

Petitioner fails to provide any specificity as to why a POSITA would have been motivated to make the modification proposed based on Toge taken alone. See *In re Nuvasive, Inc.*, 842 F.3d 1376, 1381-82 (Fed. Cir. 2016) (expressing that “[t]he need for specificity pervades [our] authority” and cannot be dispensed with) (citations omitted). Nor could Petitioner have done so. Just because Toge discloses various devices that can communicate over the Internet does not mean that a POSITA would have used a “remote internet site” in Toge’s architecture at all, let alone using such a site “on the **physician side devices of Toge**,” as Petitioner suggests. See § V.A.1, *supra*; Borkholder Decl. at ¶¶ 44-50. Aside from the conclusory assertions that it was technically possible to run a web server on a client device, Petitioner provides no reasoning whatsoever as to **why** a POSITA would have done so. And for the reasons that follow, no POSITA would have implemented a web server on a client device, as Petitioner’s obviousness case demands. See § V.A.3, *infra*; Borkholder Decl. at ¶¶ 44-50; Goodrich Decl. at ¶ 44.

For at least the foregoing reasons, Petitioner's allegations that it "would have been obvious" to implement Toge's physician-side computer as a web server and that a POSITA "could" have done so fails as a matter of law.

3. 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 ¶¶ 46-60.

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, 91, 146-147, 168; Ex. 2020 at 4 (a client device presents the data and a server hosts and transfers the data); Goodrich Decl. at ¶ 47.

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 ¶ 48.

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 ¶ 49 (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 ¶ 49 (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 ¶ 50.

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, also 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 ¶ 51; *see also* § V.A.3.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 83:6-19 (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 ¶ 52.

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 ¶ 53.

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. *See*

Goodrich Decl. at ¶¶ 54-60; *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”).

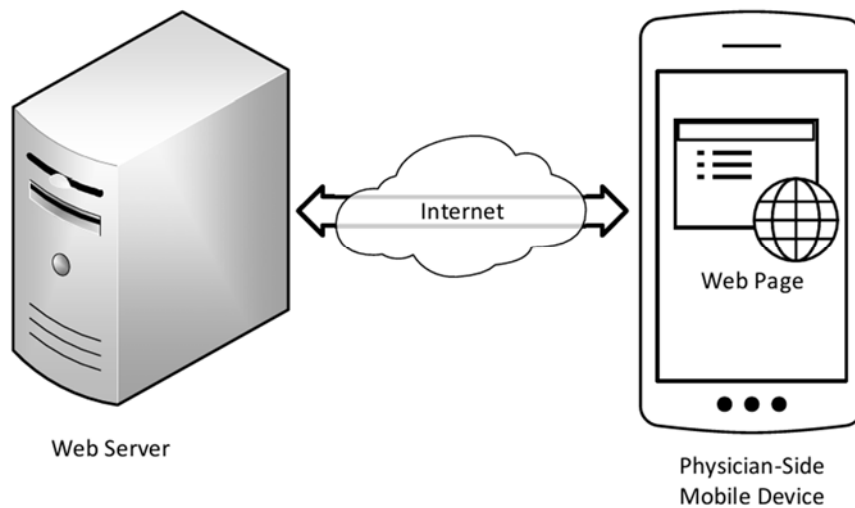
The purpose of Toge’s system is to push “necessary” or “crucial” data to physician-side devices so that physicians can monitor their patients and take emergency action when needed. See Toge at Abstract, ¶¶ [0001]-[0006], [0046], [0047], [0054], [0057]. For instance, Toge explains that by setting a threshold (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

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

without having to manually 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 also interfere with Toge's purpose. Borkholder Decl. at ¶¶ 44-50. Particularly, this change introduces a two-tier client/server architecture where the web server stores patient data and sends it to clients in response to client HTTP requests. Pet. at 16 (in the proposed modification, "the physician or provider can access the data" through web pages "as opposed to downloading specialized software"); Chatterjee at ¶ 87; Chatterjee Tr. at 26:11-27:5; Kirkness at ¶ 136; Kirkness Tr. at 98:19-99:4.⁴ The two-tier model of the Toge-Kumar combination is reproduced below:

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



Goodrich Decl. at ¶ 56; see also Chatterjee at ¶¶ 32-34 (explaining how a web server stores the Internet's data and provides the data to clients when requested by HTTP), ¶ 146 (alleging that "the physician-side computer could be implemented as a web server" that "host[s] data"), ¶ 168 (explaining how the physician-side mobile device would request the data hosted on the server); 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 ¶¶ 56-57.

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 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." DI at 36.

First, Petitioner's "advances in mobile computing" and "general market trend" benefits (Pet. at 16-17) 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 ¶ 58.

Second, Petitioner's "convenience and efficiency" benefit (Pet. at 15-16) 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 "collect[] data accessible anywhere." *Id.* at 16; 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 ¶ 58.

Lastly, Petitioner's "allow[ing] anyone with an Internet browser to access . . . data" benefit (Pet. at 16) 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 ¶ 59 (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 16) 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 ¶ 60.

B. Toge in View of Kumar Does Not Render Obvious the Software Limitations in the Independent Claims

Because Toge taken alone or in view of Kumar does not teach the “remote internet site,” it also fails to reach the claimed invention's software limitations, all of which require the “remote internet site” receiving data related to the subject's treatment. See '921 Patent at Claim Limitations 1[c.i], 7[c.i], 12[c.i]. Additionally, even if Toge's system was modified, whether based on Toge alone or with Kumar, the modified system would not arrive at the independent claims and their dependents. Goodrich Decl. at ¶ 61.

1. Toge Taken Alone or in View of Kumar Does Not Disclose Cell Phone/PDA Software Adapted to Receive from the PAP Device and Retransmit to the Remote Internet Site Data (Independent Claim 1)

Toge's modified system does not meet Independent Claim 1 because Toge's web server would not receive data retransmitted from the physician-side mobile device (a client device), as Petitioner's argument requires. See '921 Patent at Claim 1 (reciting that “the software is further adapted to retransmit a data related to the subject's treatment and the treatment efficacy received by the software from the first

radio frequency wireless transceiver of the PAP device, in whole or part, to the remote internet site”); Pet. at 55-56; Goodrich Decl. at ¶ 62.



Petitioner's argument that it would have been obvious "to implement the Toge system in such a way that the software [of the physician's mobile phone] is adapted [to] retransmit [] data related to the subject's treatment . . . received by the software from the . . . PAP device" is entirely conclusory. Pet. at 55 (citing Kirkness at ¶ 225; Chatterjee at ¶¶ 156-159). Toge does not teach a mobile phone receiving patient data from a PAP device and retransmitting it to a remote internet site, and Petitioner does not suggest that they do. Pet. at 55; Goodrich Decl. at ¶ 63. This is nothing more than saying that the claim is obvious because it's obvious, which is facially insufficient to sustain an obviousness challenged. *See In re Van Os*, 844 F.3d at 1361.

Moreover, the correct inquiry concerns how Toge's system elements would operate when modified based on the teachings in the art, not how those elements operate in Toge's unmodified system where there is no remote internet site. *See Wireless Protocol Innovations, Inc. v. TCT Mobile, Inc.*, 771 F. App'x 1012, 1016,

1017-18 (Fed. Cir. 2019) (reversing the Board's decision because the asserted references were insufficient to prove obviousness as "the combination does not disclose every limitation required by [the] claim[]"). Accordingly, Petitioner's arguments about what Toge's physician-side computer and mobile device "can" do in their unmodified forms is not the proper inquiry. See Pet. at 55 (discussing what the "physician-side computer 4 of Toge can" do when operating in its unaltered form); DI at 38-39 (crediting Petitioner's reference to "mobiliz[ation]" of the physician's mobile device in Toge's unmodified system).

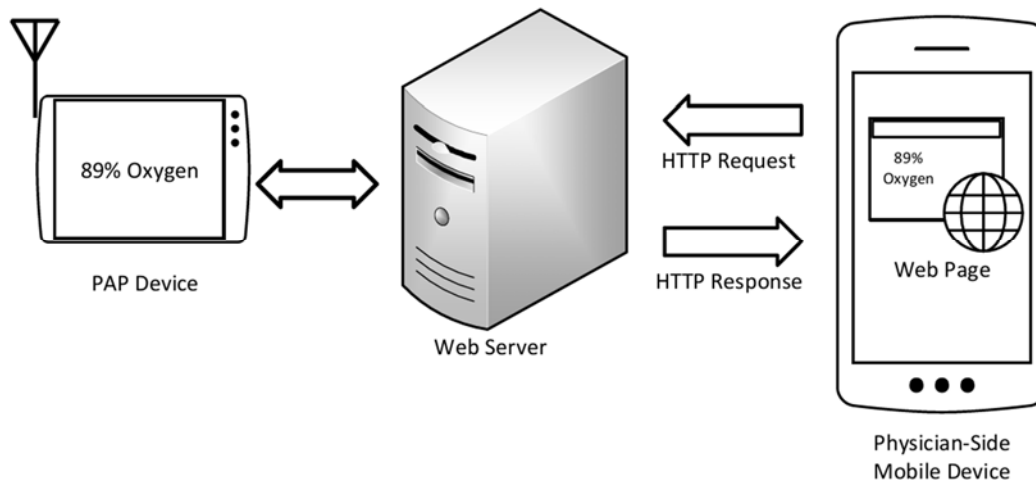
Once Toge's physician-side computer is implemented as a web server, the entire system architecture changes from one where the necessary client devices (i.e., the physician's computer and mobile phone) receive data directly from the PAP device to one where client devices request data from the web server. See Pet. at 15-16 (in its proposed modification, Toge's physician-side computer operates as a web server where data is accessible through web pages so there is no need to have to "download[] specialized software" on devices); Chatterjee at ¶ 146 (describing the same modification for Toge taken alone), ¶ 87 (stating that 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 "I believe not requiring specific software . . . would be understood by one of ordinary skill to be benefits to the combined system"); Kirkness at ¶ 136 (stating that "physicians and

providers can access the data through an Internet browser” and as such “need not download particular software”); Goodrich Decl. at ¶ 64.

Accordingly, because (1) the web server in Petitioner's combined system would continue to receive the treatment data from the PAP device, (2) the mobile device in such a client/server system would request patient data from the web server, and (3) the mobile device in such a client/server system would not continue to receive patient data directly from the PAP device, it certainly would not have been obvious retransmit patient data from the physician's mobile phone to a remote internet site. See Kirkness at ¶ 100 (describing how in a web-based application, data is transmitted from a medical device to a web server and then to a physician device upon request); Goodrich Decl. at ¶ 64.

Petitioner's next argument, that it would have been obvious to store patient data in a web server “along with the care provider's comments/analysis with regarding to such received ‘data’ to the browser-based engine,” is not facially related to the proposed combination, which requires patient data to be **retransmitted** from the mobile phone to the web server. Pet. at 56. In Kumar's system, client devices receive data **from** the centralized web server. Kumar at ¶¶ [0011], [0018], [0081], [0086]. Any of the “care provider's comments/analysis” sent from the mobile device to the web server would not be or involve **retransmissions** of data from the PAP

device to the web server under any reasonable interpretation of the term since that data came from the web server in the first place.



Goodrich Decl. at ¶ 65. Thus, even assuming that a POSITA would have motivation to store patient data and the care provider's comments on the web server, that does not imply that the system would or should be designed such that the mobile phone receive data from the PAP device and retransmits it to the web server.

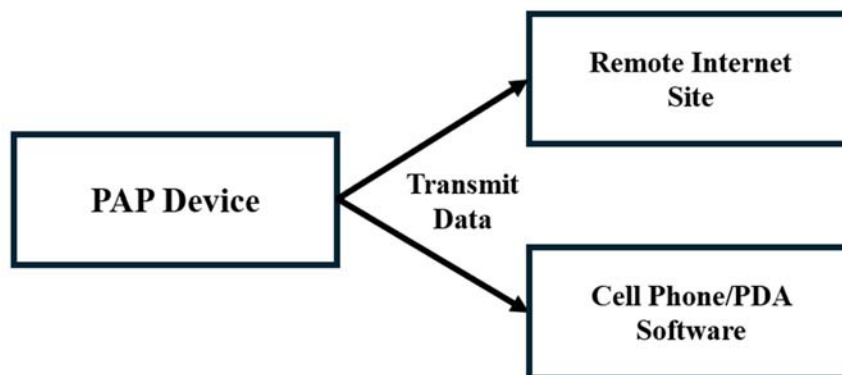
Given the foregoing, Petitioner's allegation that a "POSITA would have been motivated and found it obvious to retransmit the 'data related to the subject's treatment and the treatment's efficacy' received from the PAP device, along with the care provider's comments/analysis" is inapt. Pet. at 56. When operating as only the web server, any treatment data part of the comments/analysis is received by the client from the server upon request, not from "software from the first radio frequency wireless transceiver of the PAP device" and "retransmit[ed]" to the server as in the

manner required by the Challenged Claim. '921 Patent at Claim 1; Goodrich Decl. at ¶ 66.

For at least the foregoing reasons, Toge's system as modified does not disclose the software limitation of Claim 1. Goodrich Decl. at ¶ 67.

2. Toge Taken Alone or in View of Kumar Does Not Disclose Cell Phone/PDA Software and Remote Internet Site Independently Receiving Data (Independent Claim 12)

Toge's modified system does not meet Independent Claim 12 because the physician's mobile device's receipt of data is ***dependent on*** the web server. Independent Claim 12 requires that "both the software and the remote internet site ***independently receive***, in whole or part, the data related to the subject's treatment and the treatment's efficacy generated by the PAP device." '921 Patent at Claim 12 (emphasis added); Goodrich Decl. at ¶ 68.



As a preliminary matter, like its argument for Claim 1's software limitation, Petitioner's argument here is based on what the physician-side computer can do in Toge's unmodified system. Pet. at 59-60; § V.B.1, *supra*. This is not the proper

inquiry because Toge's unmodified system does not include a "remote internet site," accordingly it does not disclose "both the software and the remote internet site independently receiv[ing]" treatment data. '921 Patent at Claim 1; Goodrich Decl. at ¶ 69.

In Toge's modified system, there is no independent transfer of data because the now web server—implemented based on Kumar's implementation details—manages the transmission of data upon a client accessing a web page through the Internet. See Chatterjee at ¶ 147 (stating that Toge's physician-side computer would be implemented as a web server "using the implementation detail[s] taught by Kumar"); Kumar at ¶ [0081] (disclosing that "[p]referably, the *engine manages transmission of the data* from the patient-side device to the provider-side device" when the provider-side device accesses a web page) (emphasis added), ¶ [0011] (same), ¶ [0015] ("Preferably, the communications are provided via a browser-based interface."); Goodrich Decl. at ¶ 70.

Kumar does not describe any other way to transfer data over the Internet besides through the web server where data is accessible through web pages. See § V.B.1, *supra* (discussing how in the modification there is no "specialized software" to access data, as the data is accessed via web pages); Chatterjee at ¶ 171 (discussing that the client devices would "access the data through the Internet"). In all embodiments, the "entire system runs in the context of an Internet browser" as

the web server hosts the browser-based engine (web server software) where data is accessed through web pages by clients. See Kumar at ¶ [0086]; see also *id.* at ¶ [0067], Figs. 1, 1A, 2-9, 22-23, 26-27, 31-40 (Kumar's embodiment figures depicting web pages that client devices access and request data from); Goodrich Decl. at ¶ 71.

Although Kumar discloses that data may be transferred “directly from one device to the other,” this does not apply to data transferred over the Internet. Kumar at ¶ [0081]. A POSITA would understand that the web server manages and configures the transfer of Internet data because the PAP and physician-side devices are behind network address translation (NAT) devices that assign public IP addresses to communications and thereby block the devices' private IP addresses from direct communication. Goodrich Decl. at ¶¶ 72-75 (citing Ex. 2032, *The Internet Protocol Journal*); Chatterjee Tr. at 33:19-34:13. Accordingly, in Toge's modified system, the transfer of data from the PAP device to the physician-side device through the Internet is **dependent upon** the web server that receives and responds to HTTP requests. See, e.g., Chatterjee at ¶¶ 32-34 (discussing how the web server stores and transmits Internet data upon receiving an HTTP request).

For at least the foregoing reasons, Toge's system as modified does not disclose “software” on a mobile device and a “remote internet site” that both

independently receive treatment data, as required by Independent Claim 12. See '921 Patent at Claim 12; Goodrich Decl. at ¶ 76.

3. Toge Taken Alone or in View of Kumar Does Not Disclose Cell Phone/PDA Software Adapted to Receive Retransmitted Data from the Remote Internet Site (Independent Claim 7)

Toge's modified system does not meet Independent Claim 7 because the web server does not "retransmit" data to the physician's mobile device. Independent Claim 7 requires that the "software is further adapted to receive, in whole or part, the data related to the subject's treatment and the treatment's efficacy generated by the PAP device that is first received by then retransmitted from the remote internet site." '921 Patent at Claim 7; Goodrich Decl. at ¶ 77.



Like for the other software limitations of Independent Claim 1 and 12, Petitioner's argument here is also based on what the physician-side devices can do in Toge's unmodified system. Pet. at 56-57 (discussing what "the physician-side computer 4 of Toge can" do when in its unmodified form); § V.B.1, *supra*. But in Toge's unmodified system, there is admittedly no "remote internet site" and as such does not disclose the claimed invention. Goodrich Decl. at ¶ 78.

In Toge's modified system, where the physician-side computer is implemented as a web server, the server does not "retransmit[]" data as claimed. The plain meaning of "retransmit," as used in the context of the '921 Patent, means receiving data and then sending the data to another device. *See* Goodrich Decl. at ¶ 79; Chatterjee Tr. at 38:9-39:2 (explaining that in the '921 Patent, "retransmit" refers to receiving and then sending data to another device); '921 Patent at 19:35-41 (describing "re-transmit" as a device that receives and then sends data to another device).

Rather than receive and send data onward, Toge's web server stores data and not until an HTTP request does it transmit the data. Goodrich Decl. at ¶ 80. As described above, a web server stores Internet data and only transmits the data to a client upon receiving an HTTP request (a pull protocol). *See* § V.A.3, *supra*; *see also* Chatterjee at ¶¶ 32-34 (Dr. Chatterjee explaining how a web server stores the Internet's data and transmits the data to clients when requested by HTTP). In this regard, Toge's web server does not receive and send that data on to another device, it "transmit[s] [the data] by itself" upon receiving a request. *See* Chatterjee Tr. at 38:9-39:2 (distinguishing "retransmit" from "transmit").

For at least the foregoing reasons, Toge's system as modified does not disclose the software limitation of Claim 7. Goodrich Decl. at ¶ 81.

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

Petitioner relies on Kisner only for claim limitation of “sensor data from the sensors is processed by the first processor using one or more of the signal processing techniques.” Pet. at 69. Accordingly, Kisner does not resolve the deficiencies of Ground 1 noted above. Therefore, Ground 2 fails for the same reasons Ground 1 fails. Goodrich Decl. at ¶ 82.

VII. CONCLUSION

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

Respectfully Submitted,

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Patent Owner's Response
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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 6,761 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.

Dated: September 16, 2025

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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:

<i>Date of service</i>	September 16, 2025
<i>Manner of service</i>	Electronic Filing and Electronic Mail (PH-ResMed-CleveMed@paulhastings.com)
<i>Documents served</i>	PATENT OWNER'S RESPONSE
<i>Persons Served</i>	Paul Hastings LLP Lisa K. Nguyen David M. Tennant Grace Wang Kamilah Alexander

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