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UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

SAN FRANCISCO DIVISION

B.S.D. CROWN, LTD.,

Plaintiff,

v.

AMAZON.COM, INC.,
AMAZON WEB SERVICES, INC. and
AMAZON.COM SERVICES, LLC,

Defendants.

Case No. 3:24-CV-03503-JD

DEFENDANTS' RESPONSIVE CLAIM CONSTRUCTION BRIEF

Date: May 29, 2025
Time: 11:00 a.m.
Location: Courtroom 11, 19th Floor
Judge: Hon. James Donato

AMAZON-1048
Amazon.com, Inc. v. B.S.D. Crown, Ltd.
IPR2025-00057

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I. INTRODUCTION

U.S. Patent No. 8,934,887 (the "'887 patent") is directed to emulating a mobile device at a server. BSD[1] attempts to use claim construction to ignore the obvious focus of the claims and broaden the patent to essentially any form of off-loading processing from a computer to a server. By arguing emulating should be read out of the claims, BSD ignores that it elected claims "drawn to a method of emulating a mobile device at a remote server" and declined to proceed with claims that were not, trying now to recapture through claim construction the claims that it did not pursue. It also attempts to erase "mobile device" from the term "mobile device operating system," ignoring that the patent contrasts a "mobile device operating system" from a "normal" operating system. BSD argues that even Windows *Server* is a "mobile device operating system" because it can technically run on certain laptops. BSD's positions are wholly divorced from what the claims cover and what the specification supports, and its attempts should be rejected.

BSD further asks the Court to construe several terms that do not require construction, muddying the water rather than providing clarity. The Court should not construe terms where no construction is needed, particularly where BSD's proposals are confusing and unsupported by the specification.

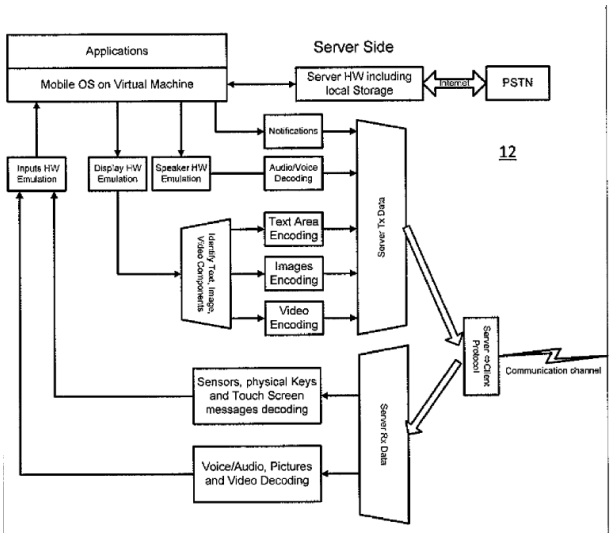
II. OVERVIEW OF THE ASSERTED PATENT

The '887 patent is directed to the concept of emulating a mobile device by processing mobile device hardware and software at a remote server. *See*, *e.g.*, '887 patent at 3:12-67. Emulation is a specific concept referring to the imitation (or duplication) of one device or computer program by another. *See*, *e.g.* Dkt. 54-1 at 307 (A Dictionary of Computing, 6th ed.) (defining emulation as "the imitation of all or part of one computer system by another system").

Consistent with this, the '887 patent describes a "mobile device 10 configured to [mirror][2] to the server 12 all or a portion of information input to the mobile device 10." *Id*. at 4:53-55. Figure 5 is illustrative:

[1] BSD was previously named Emblaze, Ltd. and is, to Amazon's knowledge, the '887 patent's original assignee. *See* Dkt. 54-1 at 300; Dkt. 1 at 2. References to "BSD," "Plaintiff" or "patentee" herein therefore also refer to Emblaze, Ltd. when it was operating under that name.

[2] The specification states "minor," which appears to be a typographical error. *See*, *e.g.*, *id.* at 4:61 (discussing "mirroring" input information to the server).



The patent explains that the remote server "executes a mobile (OS)" such as "Google's Android or Microsoft's Windows Phone Mobile." *Id.* at 8:7-9. The specification distinguishes the "mobile OS" (or "mobile device OS") from standard operating systems or server operating systems at the time of the '887 patent. *See*, *e.g.*, 8:13 (noting that the "mobile device OS" can run on server through virtual machine over "Linux OS"), 12:44-45 (noting that "mobile OS" runs "on top of a normal OS of the server.") The server receives "input information… from the mobile device" and then "executes the mobile device operating system" to "process[] the input information received from the mobile device and produces user interface information including information for producing a display, audio and other feedback." *Id.* at 5:35-38. This user interface information is then streamed to the mobile device where it can be played by the user. *Id.* at 4:66-5:8.

III. ARGUMENT

A. Term 1: "a method for emulating a mobile device at a server"[3] (Claims 11, 20)

BSD's Proposed Construction	Amazon's Proposed Construction
Preamble is not limiting	Preamble is limiting / "A method for a server to imitate, i.e. act as if it is, a mobile device."

1. The preamble is limiting.

The preamble of claims 11 and 20 of the '887 patent is limiting because it is a critical concept that gives life, meaning, and vitality to the claims. BSD relied on the preamble to

[3] Terms are identified herein as listed in the Parties' Amended Joint Claim Construction and Prehearing Statement (ECF No. 54) ("Amended JCCPS").

distinguish prior art in the specification itself, and both BSD and the patent examiner treated the preamble language as being part of the scope of the invention during prosecution. BSD now ignores this as it attempts to recapture claims that it elected not to pursue.

a. The specification is clear that the claimed invention requires emulation.

A preamble limits the invention if it recites essential structure or steps, or if it is "necessary to give life, meaning, and vitality to the claim." *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305 (Fed. Cir. 1999) (cleaned up). This question is "resolved only on review of the entire[] . . . patent to gain an understanding of what the inventors actually invented and intended to encompass by the claim." *Corning Glass Works v. Sumitomo Elec. U.S.A., Inc.*, 868 F.2d 1251, 1257 (Fed. Cir. 1989). For example, in *Corning Glass*, the specification made clear the invention related to an optical waveguide—mentioned only in the preamble—as opposed to optical fibers more generally. Given the specification, the Federal Circuit concluded that "[t]o read the claim in light of the specification indiscriminately to cover all types of optical fibers [by construing the preamble as non-limiting] would be divorced from reality." *Id.*

As in *Corning Glass*, the '887 specification consistently shows that the claimed invention pertains to emulating a mobile device at a server—not the more general concept of "off-load[ing] computationally intensive tasks from a user's mobile device onto a server." Op. Br. at 4. The specification is replete with references to and discussion of emulating, just some of which follow as examples:

- "The server executes a mobile device operating system (OS) . . . on *emulated mobile device HW*." '887 patent at 4:66-5:2.
- "The server *emulates mobile device HW* and executes or runs a mobile device OS and applications on the emulated HW . . . [t]hat is, the server executes an OS and one or more applications on *emulated mobile device HW*." *Id.* at 5:29-34.
- "The server processes the mirrored information and mirrors the *emulated user interface information* . . . back to the mobile device. The mobile device produces the display, speaker audio, and/or a HW action . . . based on the *mirrored emulated user interface information*." *Id.* at 6:63-7:3.
- "The server. . . processes the input information by the *emulated HW* . . . [t]he server thus *emulates a user experience*." *Id.* at 8:15-23.
- "The server decodes the audio/video data . . . by the *emulated HW and OS at the server*." *Id.* at 11:21-23.

- "The mobile OS and *emulated mobile device HW* run on top of a normal OS of the server." *Id.* at 12:44-45.

These examples—among many others in the specification—are not mere exemplary embodiments. The specification consistently underscores emulating a mobile device as a fundamental characteristic of the claimed invention. *See Poly-Am., L.P. v. GSE Lining Tech., Inc.*, 383 F.3d 1303, 1310 (Fed. Cir. 2004) (preamble limiting where specification was "replete with references" to preamble language to describe invention and preferred embodiments). Looking to the entire patent for an understanding of what the inventor "actually invented and intended to encompass in the claim," the preamble of claims 11 and 20 is an integral part of the claimed invention. *Id.*

BSD also used the concept of "emulating a mobile device" to distinguish the claimed invention from prior art. *See In re Cruciferous Sprout Litig.*, 301 F.3d 1343, 1347 (Fed. Cir. 2002) ("[c]lear reliance on the preamble during prosecution to distinguish the claimed invention from the prior art may indicate that the preamble is a claim limitation because the preamble is used to define the claimed invention."). U.S. Application No. 2011/0252071 (the '071 application") is cited as prior art on the face of the '887 patent and recites challenges arising from the rise of mobile devices in the workplace and the benefits of processing data on servers instead of on mobile devices (Dkt. 54-1 at 342; *see also id.* at 353 (disclosing "outsourc[ing] heavy image processing and computer vision tasks to [the server]."). BSD affirmatively distinguished the '071 application on the basis that it *"is unrelated to emulation of a mobile device OS at a server*." '887 patent at 2:9-11 (emphasis added). That is almost identical to the language of the preamble ("A method for emulating a mobile device at a server"). Despite having relied on this language to distinguish prior art, BSD now seeks to excise it from the claims by arguing that the preamble of claims 11 and 20 is not limiting. It should not be permitted to do so.

b. BSD attempts to recapture subject matter that it elected not to pursue.

Critically, BSD's insistence that the "emulating" preamble is non-limiting also seeks to recapture otherwise similar "method for operating" claims, which it elected not to pursue during prosecution.

During prosecution, the patent examiner issued a restriction requirement, finding that the originally applied for claims (which totaled 47, compared to the 28 claims that ultimately issued) covered multiple alleged inventions. The examiner described them as falling into five groups:

- claims "drawn to data retrieval from a remote server based on user request";
- claims "drawn to remote programing control of a mobile device by a server";
- claims "drawn to receiving and integrating, by a mobile device, of a plurality of data streams comprising diverse data types from a remote server";
- claims "drawn to programing a mobile device to operate in different modes"; and
- claims "drawn to a method of emulating a mobile device at a remote server."

Dkt. 54-1 at 186. All of the claims in the first four groups began with the preamble "a method for operating a mobile device." *Id.* at 275-279. Additionally, the examiner emphasized that the utility of the fifth group included "emulating and executing functions of a mobile device by a remote server." *Id.* at 187.

BSD was given the option to respond by arguing "that the inventions are not patentably distinct." *Id.* at 189. That is, if BSD believed the claims in the fifth "emulating" group did not actually relate to "emulating," their utility did not include "emulating and executing functions of a mobile device by a remote server," and/or they were not a separate invention from the categories that did not recite "emulating," it could have so argued. BSD did not elect that route—rather, it elected to prosecute *only* the "emulating" claims, which now make up the claims of the asserted patent. Vestigial references to the previous "method for operating a mobile device" claims remain in the Summary section of the patent. *See* '887 patent at 2:25-3:12.

BSD argues in its brief that the preamble "is not essential to achieving the invention's objective of off-loading the intensive processing onto a server." Op. Br. at 5. It describes that the patent permits "a mobile device to act as an input/output interface for a user," while "actual processing, storage and network interfaces are performed by a remote server." *Id.* at 1. And it continues that the patent teaches methods "where a mobile device operating system ('OS') executed at a server receives input information from at least one mobile device, processes the information to produce a stream of user interface information, and sends the stream of user interface information to the mobile device(s). The stream of user interface information is then used at the mobile device

to reproduce audio, display, and hardware action." *Id.*

But this broader concept of "off-loading" processing to a server without requiring emulation is *precisely what BSD elected not to pursue during prosecution*. For example, original claim 14, which BSD elected not to pursue, included the steps BSD now uses to describe its invention:

- receiving, by a mobile device, input information;
- sending the input information to a server;
- receiving a plurality of separate data streams from the server, each of said plurality of separate data streams comprising a different type of data;
- integrating the data from each of the separate streams together; and
- producing a display, audio, and hardware action from the integrated data.

Id. at 277-278; *see also id.* at 275 (original claim 1, which BSD also elected not to pursue).

In fact, BSD's own brief confirms that it is trying to recapture the subject matter it elected not to pursue during prosecution. It refers to eight embodiments disclosed in the specification and notes that "four of [them] make no reference to emulation." Op. Br. at 7 (citing 2:25-3:67.) But those four embodiments—aside from slight formatting or verb changes—are *verbatim reproductions of claims BSD elected not to pursue* during prosecution after the patent examiner found they related to "another invention" with "divergent subject matter" from the issued claims. *Id.* at 188. For example, the below comparison shows the language of the embodiment discussed at 2:25-36, which BSD cites in its brief as purportedly relevant to construing the granted claims, to the language of original claim 1, which—again—BSD elected *not to pursue*:

Non-Emulating Embodiment Cited by BSD	***Unelected Original Claim 1***[4]
[A] method for operating a mobile device comprises	A method for operating a mobile device, the method comprising:
executing, by a mobile device, a basic software (SW) protocol or operating system (OS) to receive input information from one or more hardware (HW) components of the mobile device, establish a network connection to a server, and send the input information to the server over the network connection without performing more detailed processing of the	executing, by a mobile device, a basic software (SW) protocol or operating system (OS) to receive input information from one or more hardware (HW) components of the mobile device, establish a network connection to a server, and send the input information to the server over the network connection without performing more detailed processing of the

[4] Dkt. 54-1 at 275 (original claim language); *see also* 177 (listing claims 1, 9, 14, and 19, as well as their dependent claims, as non-elected); 186-187 (examiner's restriction requirement).

Non-Emulating Embodiment Cited by BSD	*Unelected Original Claim 1*[4]
input information by the mobile device.	input information by the mobile device;
The mobile device receives at least one data stream from the server.	receiving, by the mobile device, at least one data stream from the server; and
The mobile device produces at least one of a display, audio and a HW action by a HW component of the mobile device from the at least one data stream.	producing, by the mobile device, at least one of a display, audio and a HW action by a HW component of the mobile device from the at least one data stream.

The same is true of the other three "method for operating" embodiments that BSD cites. The embodiment at 2:37-46 recites original claim 9. (*Compare* '887 patent 2:37-46 *with* Dkt. 54-1 at 276-77.) The embodiment at 2:47-57 recites original claim 14, down to the typo "each the separate streams together," omitting the word "of." (*Compare* '887 patent 2:47-57 *with* Dkt. 54-1 at 277-78.) And the embodiment at 2:58-3:11 recites original claim 19. (*Compare* '887 patent 2:58-3:11 *with* Dkt. 54-1 at 279-80.) These embodiments correspond to the independent claims that BSD elected not to pursue based on the Examiner's finding that they related to "another invention" with "divergent subject-matter" to the issued claims (Dkt. 54-1 at 177, 180, 186-88).

Subsequent prosecution activity further reinforces this understanding of the scope of the issued claims. The patent examiner issued a nonfinal rejection, citing a prior art reference that "discloses a method of emulation [of] functions of a mobile device at a server." *Id*. at 145. BSD's response confirmed its agreement that the remaining invention pertained to emulation: "[A]pplicants' claimed invention provides multiple data streams (e.g., audio, video, compressed text, voice and/or sensors) arriving from a single mobile device *emulation*." *Id*. at 122 (emphasis added).

BSD attempts to recapture the scope of broader claims it elected not to pursue by erasing "emulating" from the issued claims. Its position contradicts the patent examiner's description of the claims (which BSD did not contest) and its own discussion of the invention in the prosecution history, ignores its use of the "emulating" preamble language to distinguish prior art, and glosses over the consistent and extensive importance of "emulating" throughout the specification. BSD should not be allowed to recapture the subject matter of claims it elected not to pursue by ignoring the preamble to claims 11 and 20.

c. BSD's arguments are disconnected from the specification and its own conduct during prosecution.

BSD's arguments to the contrary are unavailing.

First, BSD's argument that claims 11 and 20 "do not require emulation" and "only *dependent* claims associated with 1 and 11 even relate to emulation" (Op. Br. at 4) is circular. Its argument is only true if the preamble is not limiting. If the preamble is limiting, as Amazon argues, then *every* claim relates to emulation, because, as discussed above, every claim that BSD elected to maintain during prosecution includes that language.

Second, BSD's argument that claim differentiation would render claims 2 and 12 superfluous ignores the specification and claim language. Dependent claims 2 and 12 require emulating mobile device *hardware* at a server. The independent claims refer more broadly to "emulating a mobile device at a server." The specification acknowledges that mobile devices consist of both hardware and software. *See, e.g.*, '887 patent at 6:23-25 ("The mobile device 10 comprises HW and SW including an input/output interface toward the user[.]"). Extrinsic evidence also makes clear that emulation is not necessarily limited to *hardware* emulation. *See, e.g.*, Dkt. 54-1 at 307 (A Dictionary of Computing, Sixth Ed.) ("Emulation is thus the imitation of all or part of one computer system by another system. It may be achieved by software, microprogram, or hardware. A particular emulation could be used as a replacement for all or part of the system being emulated[.]"); *id.* at 311 (Newton's Telecom Dictionary 26th ed.) (noting that emulators "allow[] programs written for one computer or terminal to run on another and discussing "'emulator' software which would allow software written for Windows to successfully run on a computer running the Linux operating system."). The independent claims thus broadly require "emulating a mobile device," without specifying as to hardware or software. Dependent claims 2 and 12 specifically require emulating mobile device hardware.

2. "A method for emulating a mobile device at a server," should be construed as "a method for a server to imitate, i.e. act as if it is, a mobile device."

Although the term "emulating" is not defined in the specification, Amazon submits that the

Court should construe "emulating" because it possesses a specific meaning in the art. *See*, *e.g.*, *Multiform Desiccants, Inc. v. Medzam, Ltd.*, 133 F.3d 1473, 1477 (Fed. Cir. 1998) (claims are construed as an aid to the decision-maker, by restating the claims in non-technical terms); *see also* Dkt. 54-1 at 312 (technical dictionary stating that emulator "is not a common term."). The claims, specification, and extrinsic evidence support that "emulate" in this context means to imitate, i.e. for a device to act as if it is another device.

Guided by the preamble, the claims describe a server acting as if it were the mobile device. For example, the server receives input information from a mobile device. It processes, using a mobile device operating system (which the specification explains runs "on top of a normal OS of the server," '887 patent at 12:44-45), the input information to produce a stream of user interface information. And it sends the stream of user interface information for the mobile device to reproduce at least one of a display, audio, and hardware action.

The specification repeatedly uses the verb "mirror" when explaining the emulation process. For example, it discloses that "the mobile device may mirror input information . . . to the server." '887 patent at 4:60-63. It continues that "[t]he server emulates mobile device HW . . . to process[] the input information received from the mobile device (i.e., the mirrored input)." *Id*. at 5:29-32. It explains that the server "processes the mirrored information and mirrors the emulated user interface information . . . back to the mobile device," and that the mobile device produces actions "based on the mirrored emulated user interface information." *Id*. at 6:63-7:3.

Dictionary definitions are consistent with this view. Newton's Telecom Dictionary, 26th Expanded and Updated Edition (2011), for example, defines an emulator as "A device or computer program which can act as if it is a different device or program, that is *Emulate (i.e. pretend to be)* another device." Dkt. 54-1 at 312. (emphasis added). The same dictionary defines "emulate," in turn, as "[t]o duplicate one system or network element with another. For instance, *to imitate a computer or computer operating system* by a combination of hardware and software that allows programs written for one computer or terminal to run on another." *Id.* at 311 (emphasis added). A Dictionary of Computing, 6th Edition (2008) similarly defines "emulation" as "The exact execution on a given computer of a program written for a different computer, accepting the identical data and

producing the identical results. *Emulation is thus the imitation of all or part of one computer system by another system*." *Id.* at 307 (emphasis added).

Amazon therefore requests that the Court find both that the preamble is limiting, and that it should be construed as "a method for a server to imitate, i.e. act as if it is, a mobile device."

B. Term 2: "a mobile device operating system (OS)" (Claims 11, 15, 20)

BSD's Proposed Construction	Amazon's Proposed Construction
"an operating system capable of running on a mobile device"	"an operating system that is specifically designed to be run on a mobile device (e.g., Google Android, Windows Phone or Mobile, Nokia Symbian, Apple iOS)."

BSD's proposed construction of "mobile device operating system (OS)" should be rejected because it is an attempt to remove the "mobile device" focus of the claims and is inconsistent with the specification. Its proposal would define "mobile device operating system" to include general-purpose and server-focused operating systems simply because they are "capable" of running on a laptop, despite the specification explicitly distinguishing the "mobile device OS" from a "normal OS" and emphasizing that the mobile device OS runs "on top of" a normal OS of a server. '887 patent at 12:44-45. BSD gives the game away when it cites to its infringement contentions and admits that, under its view, even Windows and Windows *Server* should qualify as "mobile device operating systems." Op. Br. at 10.[5] In other words, BSD is attempting to rewrite the claims from an invention relating to "emulating a mobile device at a server" to simply off-loading processing from a computer to a server running *any* operating system. Such an expansion is not supported by anything in the prosecution history or specification.

If "mobile device operating system" means any operating system capable of running on a laptop, "mobile device operating system" simply means "operating system." That defies logic and common sense, norms of claim construction, and the specification. This term should not be

[5]BSD argues that Amazon's construction is guided by infringement concerns. Op. Br. at 10. But BSD—not Amazon—improperly attempts to construe the claims in reference to the accused products. BSD foreshadows its expected expert testimony on infringement and even cites its infringement contentions, because it wants a construction that covers Windows, Windows Server, and Linux Ubuntu Server, none of which is mentioned in the specification. This is improper. *See SRI Intern. v. Matsushita Elec. Corp. of Am.*, 775 F.2d 1107, 1118 (Fed. Cir. 1985) ("It is only after the claims have been construed without reference to the accused device that the claims, as so construed, are applied to the accused device to determine infringement.").

construed to effectively remove the "mobile device" limiter entirely. *See, e.g.*, *Bicon, Inc. v. Straumann Co.*, 441 F.3d 945, 950 (Fed. Cir. 2006) (stating that "claims are interpreted with an eye toward giving effect to all terms in the claim"); *Aspex Eyewear, Inc. v. Marchon Eyewear, Inc.*, 672 F.3d 1335, 1348 (Fed. Cir. 2012) (rejecting construction that "effectively reads [a term] out of the limitation.")

When articulating the problem the invention attempts to solve, the '887 patent describes the challenges arising from operating systems specifically designed for mobile devices. The specification describes that "[m]obile device manufacturers address different market segments by designing and manufacturing many mobile device variants, each with different HW capabilities and accompanying OS and applications *tailored to the HW capabilities*." *Id.* at 1:48-52 (emphasis added).[6] That is, operating systems *tailored to* the capabilities of a mobile device. This "wide variety of devices," according to the patent, caused confusion and burden on manufacturers. *Id.* at 1:52-54. The alleged invention attempts to solve this problem by emulating a mobile device operating system at a server to "decouple[] mobile device HW capabilities" from performance and allow upgrading functionality and applications "without the need to change the HW or the local SW of the mobile device." *Id.* at 2:19-24. Consistent with this, the '887 patent states that "the mobile OS . . . *run[s] on top of a normal OS* of the server." '887 patent at 12:44-45 (emphasis added).

BSD also ignores that *every example* of a mobile device operating system in the specification (all of which are included in Amazon's proposed construction) is specifically designed for—or "tailored to"—mobile devices: Google Android, Windows Mobile, Nokia Symbian, and Apple iOS. *See, e.g.*, *id.* at 4:66-67 ("That is, the server 12 executes a mobile device operating system (e.g., Google Android 4.1 or Windows Phone 8)"); *id.* at 8:7-9 ("The server 12 executes the mobile OS (e.g., Google's Android or Microsoft's Windows Mobile Phone)"); *id.* at 9:11-15 ("For example, the server 12 may emulate mobile device hardware for a first mobile device manufactured by Samsung and executing Google's Android OS, and emulate mobile device hardware for a second

[6] Notably, BSD quotes this same sentence when arguing its construction is consistent with the specification but *omits* the portion of the sentence stating that mobile device operating systems and applications were "tailored to" mobile devices' hardware capabilities. Op. Br. at 11.

device manufactured by Nokia and executing Google's Android OS."); *id.* at 1:38-42 ("Another trend in mobile device technology is the frequent change in OS versions (e.g., Google's Android OS has versions 2.x, 3.x, 4.x . . .) and the different types of OS's (e.g., Google's Android, Microsoft's Windows Mobile, Nokia's Symbian and Apple's iOS)"). There is not *one* example or embodiment in the specification contemplating a general-purpose operating system as falling within the meaning of "mobile device operating system." While these are merely "examples," the Court can and should take into account when literally every example supports Amazon's construction, and not a single one supports BSD's. *See, e.g.*, *Durel Corp. v. Osram Sylvania Inc.*, 256 F.3d 1298, 1304, (Fed. Cir. 2001) (construing language to require "metal cations and oxygen" and noting that definition was "supported by the examples that immediately follow in the specification, all of which are binary compounds containing only metal cations and oxygen.").

BSD also argues that Amazon is excluding laptops. Not so. It is possible that laptops are less relevant to the purported solution of the '887 patent (reinforced by the fact that "laptop" is only mentioned once in the background, in contrast with repeated discussion of phones and tablets), because they do not share many of the challenges the specification itself lays out. But an operating system specifically designed for a laptop would meet Amazon's construction. The fact that BSD has no such examples does not justify expanding "mobile device OS" to mean "normal OS" in contradiction to the disclosure of the patent itself. BSD's focus on an edge case and advancement of a construction that is not driven by the specification underscores that it is not guided by the intrinsic evidence, but rather by the result it wants to reach.

As with "emulating," BSD's construction attempts to expand the scope of its claims through claim construction to well more than the patent discloses. Here, it does so by essentially rewriting "mobile device operating system" to be *any* "operating system." The Court should reject this effort and enter Amazon's proposed construction, which is the only one consistent with the specification.

C. Terms 3-6

BSD's proposals for the remaining terms add complexity and confusion. It seeks to expand simple, 3-word phrases into complex, 45+ word constructions. It swaps one word for another that appears nowhere in the specification. It proposes constructions that directly contradict the

specification and read out embodiments. Not every term in a patent need be construed, and the majority of the remaining terms here need no construction. *O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co., Ltd.*, 521 F.3d 1351, 1362 (Fed. Cir. 2008). With the exception of explaining what it means for one stream to have a "quality of service different from another," which Amazon contends is an unintuitive phrase for which a construction could help the factfinder, Amazon asks that the Court find the remaining terms, terms 3-6, should be read under plain and ordinary meaning.

1. Term 3: "user interface information" (Claims 11, 20, 23)

BSD's Proposed Construction	Amazon's Proposed Construction
"Data that can be used to recreate or produce a display (e.g., video and/or image), audio, text, and/or other feedback (e.g., notifications, HW action data) without any processing thereof other than the decoding and playback or reproduction of the user interface information itself by the mobile device"	Plain and ordinary meaning

For the term "user interface information," BSD asserts that "the patentee . . . acted as its own lexicographer" and that the specification "clearly provides a definition of the term." Op. Br. at 11. But BSD's proposed construction *is not that supposed definition*, as seen by comparing its proposed construction with the purported "definition" in its brief. Op. Br. at 11. Without any explanation, BSD adds, for example, "text," "and/or other feedback," "notifications," and "HW action data." Had the patentee acted as its own lexicographer, BSD would not need to add concepts to the "definition" it found in the specification. Moreover, "[n]othing in the language of [the] claims" indicates that the inventors intended to limit the ordinary and customary meaning of the term. *Evolusion Concepts, Inc. v. HOC Events, Inc.*, 22 F.4th 1361, 1366 (Fed. Cir. 2022) (cleaned up).

BSD's construction of this term also inserts confusion where there is none. It takes a simple, understandable concept – user interface information – and expands it to over 45 words with multiple parentheticals and a negative limitation with exceptions ("without any processing thereof other than …"). While the specification provides examples of types of information that may be present, it does not change the fundamental meaning of the phrase.[7] *See, e.g.*, '887 patent at 3:6-9; *id.* at 5:12-15.

[7] BSD takes issue with the possibility that "mere information 'about a 'user interface' would satisfy this limitation." Op. Br. at 12. But it does not cite anything to show an intent by the

BSD's construction should be rejected, as it provides only confusion where the plain and ordinary meaning is already clear. The Court should adopt plain and ordinary meaning for "user interface information."

2. Term 4: "to produce a stream of user interface information . . . based on a same instance of the mobile device OS" and "instance" (Claims 11, 15, 20)

BSD's Proposed Construction	Amazon's Proposed Construction
"to produce, based on the same instance of the mobile device OS, a stream of user interface information" and "occurrence"	Plain and ordinary meaning

As a continual theme throughout this dispute, BSD insists there is ambiguity where there is none. Amazon proposes that plain and ordinary meaning be applied to this claim term.

BSD's proposal for the full term simply moves a clause from the end of the claim to the beginning and modifies "a" same instance to "the" same instance. The change is depicted below as seen in claim 11, with the full claim limitation in which it appears for context:

Original Claim 11 Language	BSD's Construction
Processing, by a mobile device operating system (OS) executed at the server, the input information to produce a stream of user interface information for use in reproducing at the mobile device at least one of a display, audio and a hardware (HW) action by a HW component of the mobile device **based on a same instance of the mobile device OS**	Processing, by a mobile device operating system (OS) executed at the server, the input information to produce, **based on the same instance of the mobile device OS**, a stream of user interface information for use in reproducing at the mobile device at least one of a display, audio and a hardware (HW) action by a HW component of the mobile device

Amazon does not disagree that "same instance" relates to the step performed at the server. *See* Op. Br. at 13. But that is already clear from the claim language itself and does not require construction. In fact, BSD does not identify any dispute or lack of clarity that requires a construction. Worse, its proposed construction creates an error in its construction, by changing "a same instance" to "the same instance," which would then lack antecedent basis in claim 11.

The only justification BSD provides for its construction is that "[c]onstruing 'based on the same instance of the mobile device OS' to somehow modify the limitation that occurs at the mobile device" would be improper. Op. Br. at 13. But this is clear from the claim limitation itself, which

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inventors to limit the meaning of this term, much less to define it as the lengthy, convoluted, and highly specific term BSD proposes.

addresses processing done at the server. Amazon also has not advanced any construction, much less the construction BSD argues against.

Likewise, BSD asks the Court to redefine "instance" to mean "occurrence." Again, there is no justification for this construction. The term "occurrence" does not appear anywhere in the specification, and BSD fails to show any dispute or lack of clarity requiring such a construction. It suggests that confusion exists because "instance" can refer to an instance of an operating system or an instance of a virtual machine. Op. Br. at 14. But the claims explicitly state "same instance *of a [or the] mobile device operating system* (OS)." BSD does not explain how the factfinder could confuse that with an instance of a virtual machine. Nor does it explain why swapping "instance" to "occurrence" would rectify any such confusion.

Moreover, BSD's assertion that the Court should take the term used throughout the specification and claims and simply substitute in a "synonym" that appears nowhere in the patent lacks the backing of both case law and common sense. *See, e.g., Static Control Components, Inc. v. Lexmark Intern., Inc.*, 502 F.Supp.2d 568, 576 (E.D. Ky. 2007) ("The Counterclaim Defendants' exhortation to attach a synonym to self-defined and simple words invites a meaningless result that mocks the notion of construction"). There is no ambiguity and thus no reason to construe this term as anything other than by its plain and ordinary meaning.

3. Term 5: "at least one of the display, the audio and the hardware (HW) action" (Claims 11, 20)

BSD's Proposed Construction	Amazon's Proposed Construction
"at least one of each of the display, the audio **and** the hardware (HW) action"	Plain and ordinary meaning

BSD's proposed construction, which would require display, audio, ***and*** hardware action to all be included every time this term is used, is inconsistent with the specification. It would exclude many exemplary embodiments, as the specification repeatedly refers to "display and/or audio," and even has embodiments that omit hardware action entirely. The specification makes clear that, contrary to BSD's assertions, not all three data types are necessarily always included. Plain and ordinary meaning is appropriate.

The specification repeatedly refers to producing/reproducing display "and/or" audio, or display, audio "and/or" a HW action. E.g.: "the server processes the input information to produce a display and/or audio output" ('887 patent at 4:64-65); "a display and/or audio output of the virtual mobile device is thus constantly streamed to the mobile device and reproduced thereon" (*id.* at 5:24-26); "the mobile device produces a display and/or audio output" (*id.* at 5:41-42); "the mobile device produces the display, speaker audio and/or a HW action of a hardware component" (*id.* at 6:66-7:1); etc. If BSD's construction were right, every one of these would need to be "and," not "and/or." And every one of them would be excluded by BSD's reading of the claim.

BSD relies heavily on *Superguide Corp. v. DirecTV Enters., Inc.* to argue that because the claim language starts with "at least one of" and includes the word "and" in the list of items from which to choose, that means all the items in the list must be included. But many courts, including in this district, have rejected that exact argument and noted that the result in *Superguide* depended on the "particular facts" of that case. Importantly, in *Superguide*, the court emphasized that "[e]very disclosed embodiment teaches that the user must choose a value for each designated category[.]" 358 F.3d 870, 887 (Fed. Cir. 2004). As discussed above, the opposite is true here: many embodiments contemplate including an item from the list "and/or" others, not necessarily all.

The court's opinion in *Fujifilm Corp. v. Motorola Mobility LLC*, No. 12-CV-03587-WHO, 2015 WL 1265009 (N.D. Cal. Mar. 19, 2015) is especially on-point and instructive. In rejecting the exact argument BSD presses here, that court stated, "*SuperGuide* did not erect a universal rule of construction for all uses of "at least one of" in all patents, however. The *SuperGuide* court's construction of "at least one of" was based on the particular facts of the particular patent at issue there." *Id.* at *8. The court continued to note that "numerous courts have declined to follow the *SuperGuide* court's construction of "at least one of" where the facts before them called for a different understanding of the term." *Id.* And the court followed suit based on several distinguishing factors, the first of which was that, unlike in *Superguide*, the list of elements at issue were "not categories comprised of 'many possible values' that users must choose 'at least one of' for the invention's purpose to be served." *Id.* The same is true here. Display, audio, and hardware action are not values that users must choose at least one of for the invention's purpose to be served, as in

SuperGuide. To the contrary, they are types of data where the invention contemplates (repeatedly, through the use of "and/or") including less than all of them. *See also Firtiva Corp. v. Funimation Global Group, LLC*, No. 2:21-cv-00111-JRG-RSP, 2022 WL 23165, at *7-8 (E.D. Tex. Jan. 3, 2022) (declining to follow *SuperGuide* where patent provided examples in which not all categories were required); *Dealertrack, Inc. v. Huber*, No. 06–cv–02335, 2008 WL 5792509, at *7–8 (C.D. Cal. Sept. 27, 2008) (same); *Power–One, Inc. v. Artesyn Techs.*, Inc., No. 05–cv–00463, 2007 WL 896093, at *14 (E.D. Tex. Mar. 22, 2007) (distinguishing *SuperGuide* and construing "at least one of X, Y, and Z" as "a group [of X, Y and Z from which] at least one is selected").

BSD also argues that because other claim language requires a "plurality" of data types (i.e., "sending" a stream of user interface information that "comprises a plurality of different types"), that means this language must include *all* listed data types (i.e., *all* types of data must be "processed" for reproduction at the mobile device). Op. Br. at 16. But that conclusion does not logically follow. "Plurality" means more than one; it does not mean all. The claims therefore state that more than one type of data must be included in the stream of UI information. That does not necessarily require *all* data types to be processed or sent for reproduction. The specification, which repeatedly makes clear that all three data types need not be present, reinforces that. *See*, *e.g.*, '887 patent at 6:64-7:3 ("The mobile device 10 produces the display, speaker audio *and/or* a HW action of a hardware component (e.g., activates and/or controls a GPS *and/or* one or more sensors) based on the mirrored emulated user interface information.") (emphasis added).

If BSD had wanted this claim element to require display, audio, *and* hardware action data, it could easily have written it accordingly without using the language "at least one of" a listed group. It could have claimed simply, for example, "processing . . . for use in reproducing at the mobile device a display, audio and a HW action." And, in fact, it did *exactly that* in connection with another claim that it elected not to pursue. Original claim 14, one of the "method for operating" claims that BSD did not pursue, included the term "producing, by the mobile device, a display, audio and a HW action by a HW component." (Dkt. 54-1 at 278; *see also* '887 patent at 2:55-57 (similar language in specification when reciting embodiment corresponding to unelected claim 14). As this shows, when BSD wanted the claim language to require all three data types, it knew how

to so claim—and it did not use the language "at least one of" a list of those elements. The Court should reject BSD's request to construe this different claim language to mean the same thing. *See, e.g.*, *Bd. of Regents of the Univ. of Tex. Sys. v. BENQ Am. Corp.*, 533 F.3d 1362, 1371 (Fed. Cir. 2008) ("Different claim terms are presumed to have different meanings.") Amazon requests this term be given its plain and ordinary meaning.

4. Term 6: "quality of service / quality of service different from a quality of service of another of said separate data streams"[8] (Claims 16, 24)

BSD's Proposed Construction	Amazon's Proposed Construction
Quality of Service: "characteristics of a service that bear on its ability to satisfy stated and implied needs of the user of the service" Plain and ordinary meaning	Quality of Service: Plain and ordinary meaning "Prioritizing certain data streams over others in limited bandwidth environments."

BSD's proposal is exactly the opposite of what is necessary to clarify the "quality of service" terms. Its proposal for "quality of service" contradicts the specification and renders many phrases unintelligible. And treating "quality of service different from a quality of service of another of said separate data streams" under plain and ordinary meaning alongside BSD's proposed construction renders that phrase at best a truism, and at worst nonsensical.

1. **Quality of service**

BSD jumps immediately to extrinsic evidence to propose a construction for "quality of service." Op. Br. at 18. But extrinsic evidence is secondary to intrinsic evidence and must be evaluated in the context of that intrinsic evidence. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1317 (Fed. Cir. 2005) (stating that extrinsic evidence is "less reliable" than intrinsic evidence, and that "it is unlikely to result in a reliable interpretation of patent claim scope unless considered in the context of the intrinsic evidence."). And this case is a perfect example of why that hierarchy is so important: while the ITU-T definition may make sense in the abstract, it does not make sense in the context of this patent. This patent refers to other "characteristics" that also "bear on [a service's ability] to satisfy stated and implied needs of the user" as *separate and distinct items* from "quality

[8] The Parties agree there is a typographical error and that the relevant portion should state "a quality of service different [from a] quality service of another of said separate data streams" to match the language in claim 10. Dkt. 54, Amended JCCS at 3, n.2.

of service." Quality of service is just one specific example of such a characteristic. It is not an umbrella term for all of them.

For example, the patent states, "[e]ach individual data stream has its own *characteristics*, for example, an encoding method for efficient bandwidth (BW) utilization (e.g., Lossy vs. Lossless encoding), *a quality of service (QoS)*, a bandwidth, etc." '887 patent at 8:65-9:1. Quality of service here is but one example of a "characteristic" that bears on a service's ability to satisfy a user's needs. Encoding methods are another such characteristic. Bandwidth is another such characteristic. If "quality of service" meant what BSD proposes, this list would make no sense, as QoS itself would include within it all such examples. The patent later repeats, "[e]ach stream comprises its own individual characteristics . . . encoding/decoding type, a quality of service (QoS) and a bandwidth[.]" *Id.* at 9:32-35. "Quality of service" is again *one* example of such a characteristic—not an overarching term covering the entire list of characteristics as BSD proposes.

Notably, the parties *agree* that the term should be given its plain and ordinary meaning. *See* Op. Br. at 18. BSD nevertheless asks the Court to construe the term in order to "clarify" it. *Id.* But BSD's construction is not the plain meaning of the term in the context of this patent. It contradicts how the term is used and renders many sections of the specification nonsensical if inserted. Amazon maintains that no construction is needed for this term.

2. Quality of service different from a quality of service of another of said separate data streams

By contrast, the longer term *does* need clarification, as this phrase is not intuitive. In fact, if BSD's construction of "quality of service" were imported, this term would be a truism, and the claims that use this language (7, 16, and 24) would add nothing to the independent claims. Dependent claims 7, 16, and 24 each require that at least one of the separate data streams "comprises a quality of service different from a quality of service of another of said separate streams." From the independent claim, the separate data streams are display, audio, and/or hardware. As these are different types of data, they are *always* going to have different "characteristics" that bear on their ability to satisfy needs of the user. These dependent claims would add nothing. And as BSD elsewhere agrees, that would be a disfavored result under the doctrine of claim differentiation. *See,*

e.g., Op. Br. at 3 (citing *Versa Corp. v. Ag-Bag Int'l Ltd.*, 392 F.3d 1325, 1329-30 (Fed. Cir. 2004)). Even without BSD's "characteristics" construction, absent any clarifying construction, the factfinder will not know what it means for one data stream to have a "different" quality of service and is likely to think this is always the case given that the streams are sending different types of data.

Fortunately, the specification does clarify what this claim language means—i.e., what it means for two streams to have different QoS. It states: "Each individual stream of data *may have a different QoS so that a quality of experience (QoE) is optimal even if BW is lacking*. For example, voice and sensor data streams may typically have a higher QoS level than video data streams so that a user receives high quality calls and senses minimal lag of the interface." '887 patent at 9:40-46. As the patent states, certain streams may have a higher QoS (i.e., may be prioritized) to maintain a high-quality experience when bandwidth is "lacking." *See also id.* 9:54-67 (video stream may receive "lowest level QoS" and voice may receive "higher level of QoS" with bandwidth calculated "based on a bandwidth required for the type of stream").

Amazon's proposed construction clarifies for the factfinder what it means for certain streams to have "different quality of service," and removes the potential interpretation that every stream has a different quality of service by virtue of relating to different data. Accordingly, the Court should apply plain and ordinary meaning to "quality of service" and adopt Amazon's construction of "quality of service different from a quality of service of another of said separate data streams."

IV. CONCLUSION

Amazon respectfully requests that the Court construe the disputed claim terms as proposed by Amazon above.

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