Nos. 2022-1600, 2022-1709

United States Court of Appeals for the Federal Circuit

MIRROR WORLDS TECHNOLOGIES, LLC,

Plaintiff-Appellant

v.

META PLATFORMS, INC.,

Defendant-Cross-Appellant

Appeals from the United States District Court for the Southern District of New York in No. 1:17-cv-03473-JGK, Judge John G. Koeltl.

NON-CONFIDENTIAL RESPONSE AND REPLY BRIEF OF PLAINTIFF-APPELLANT MIRROR WORLDS TECHNOLOGIES, LLC

May 26, 2023

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UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT

CERTIFICATE OF INTEREST

Case Number 2022-1600, 2022-1709

Short Case Caption Mirror Worlds Technologies, LLC v. Meta Platforms, Inc.

Filing Party/Entity Appellant and Cross-Appellee Mirror Worlds Technologies, LLC

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INTRODUCTION

As this Court previously recognized, Mirror Worlds "identified the accused 'systems,' described (with evidentiary support) how those systems work, and established, based on that description, that the accused systems met the 'every data unit' requirement and hence are 'main streams.'" *Mirror Worlds Technologies, LLC v. Facebook, Inc.*, 800 Fed. Appx. 901, 910 (Fed. Cir. 2020) ("Mirror Worlds I").

Facebook, however, contends on this second attempt that summary judgment is proper mainly because it has now supplemented the record with a declaration from a Timeline engineer. But Facebook's supplementation does not somehow render Mirror Worlds' "evidentiary support[,] ... establish[ing] ... that the accused systems met the 'every data unit' requirement[,]" nonexistent. *See id.* Moreover, Facebook's declaration is completely unsupported by any corroborating evidence, was generated after the close of discovery and purely for summary judgment purposes, and is inconsistent with Facebook's own internal, technical documents, source code, experts, and deposition testimony. On summary judgment, Facebook's declaration is entitled to no weight, and even if considered, at best, merely confirms the existence of genuine disputes of material fact.

When the evidence presented by Mirror Worlds, including Facebook's own technical documents, deposition testimony, source code, and admissions from its own experts, is viewed in Mirror Worlds' favor, with all reasonable inferences drawn

in Mirror Worlds' favor as well, as it must be for present purposes, summary judgment was, once again, improperly granted by the district court.

In response on appeal, Facebook largely ignores the errors identified by Mirror Worlds and talks past the arguments raised by Mirror Worlds. Facebook makes no attempt to defend the district court's erroneous determination that Mirror Worlds presented no evidence that expressly referred to the TimelineDB. Facebook does not defend the district court for failing to consider all the evidence presented by Mirror Worlds, ignoring several documents that, especially when viewed in Mirror Worlds' favor, would support a reasonable juror to conclude that the TimelineDB is a main stream.

As for claim construction, Facebook does not dispute that the district court failed to consider the full record in determining whether a "data unit" encompasses queries. And, like the district court, Facebook ignores critical evidence in the intrinsic record distinguishing queries from data units. Facebook also ignores the full intrinsic record from the prior CBM proceedings, arguing for a clear and unmistakable disavowal based on those proceedings, yet failing to even address the numerous statements by the patentees inconsistent with that supposed disavowal – statements expressly explaining that data units are of user interest. For the term "main collection," Facebook attempts to transform this combination of two ordinary terms into a "coined" term, but in doing so overlooks the actual claim language that

uses the term exactly as any layperson or POSITA would understand to describe a collection of documents that are stored by the computer system.

Ultimately, with respect to Mirror Worlds' appeal, Facebook's response simply highlights the genuine material factual disputes and numerous grounds that preclude summary judgment of noninfringement. Unfortunately, the district court again made several critical errors, in failing to evaluate the complete record under the proper standard for summary judgment and, similarly, for failing to consider the entire record for claim construction, necessitating reversal of its order on non-infringement.

Facebook's cross-appeal based on § 101 fares no better. Facebook mischaracterizes the claimed inventions stripped from the actual claim language and actual inventions. The challenged claims are expressly, on their face, and as described in their titles, and specifications, directed to a "document stream operating system" – an "invention [that] is a new model and system for managing personal electronic information which uses a time-ordered stream as a storage model and stream filters to organize, locate, summarize and monitor incoming information." Appx67; Appx75 (3:62-65). And in the challenged claims themselves, the inventors expressly claimed the specific manner in which this improved computer operating system works. Each claim describes the characteristics and operations of the improved system, not merely some vague and abstract intended result, and thereby

distinguished and touted the inventive system over alternative systems that "suffer[ed] from ... disadvantages[, such as] ... file[s] must be 'named' when created and often a location in which to store the file must be indicated resulting in unneeded overhead; ... users are required to store new information in fixed categories, that is directories or subdirectories, which are often an inadequate organizing device; ... archiving is not automatic; ... little support for 'reminding' functions are provided; ... accessibility and compatibility across data platforms is not provided and ... the historical context of a document is lost because no tracking of where, why and how a document evolves is performed." Appx74 (1:41-59). Facebook has failed to establish that any of the challenged claims are clearly and convincingly ineligible under § 101 and thus, the district court's § 101 determination should be affirmed.

SUMMARY OF THE ARGUMENT

Mirror Worlds' appeal and Facebook's cross-appeal raise issues on (1) the proper application of the summary judgment standard to the evidence presented by the non-movant, Mirror Worlds, to determine whether the Timeline backend system contains the claimed "main stream" of data units; (2) the proper interpretation of the claim terms "data unit" and "main collection," and specifically whether a "data unit" excludes queries and information not of direct user interest, and whether "main collection" in the '439 patent has the same meaning as "main stream" in the '227 and '538 patents; (3) whether Mirror Worlds established a genuine dispute as to

whether News Feed and Timeline include "glance views" as claimed in the '439 and '538 patents; and (4) whether the challenged patent claims are eligible under § 101.

First, Mirror Worlds presented evidence establishing a genuine dispute of whether the TimelineDB is a "main stream" because it is inclusive of every data unit received or generated by the Timeline backend system. Mirror Worlds presented evidence that expressly referenced the TimelineDB, and disclosed that "Timeline data is persisted in TimelineDB," and "TimelineDB eventually has all the data." Appx14273; Appx14275. The district court, however, failed to consider this and other evidence, and incorrectly concluded that Mirror Worlds failed to present evidence expressly addressing the TimelineDB. In response on appeal, Facebook does not dispute that those errors occurred. It simply argues for its different reading of the evidence, albeit in piecemeal, which is beside the point and improper on summary judgment. Nor does the declaration from Facebook's Timeline engineer resolve the disputes. That declaration was unsupported, uncorroborated, self-serving, generated after the close of fact discovery and purely for purposes of summary judgment, and inconsistent with Facebook's operative technical documents, source code and deposition testimony. The declaration should have been deemed irrelevant, especially when compared to the evidence presented by Mirror Worlds when viewed in Mirror Worlds' favor and with all reasonable inferences drawn in its favor as well.

Second, the district court's claim construction of "data unit" was flawed. It erred in holding that a "data unit" encompasses information in a search query, and failed to even consider the intrinsic record on this issue. *See* Appx40. The patent claims specifically distinguish between "search criteria" and "data unit." Appx89 (2:24-35); *see also* Appx112 (16:20-63); Appx137-138 (16:20-17:47). The specifications also explain that the "main stream," which includes every data unit, is not affected by the creation or destruction of the results of a search, which necessarily means a search query is not a data unit. Appx75 (4:47-61). And Facebook's own claim construction expert agreed that queries did not have to be stored in the "main stream." Appx14215. In response, Facebook simply ignores the intrinsic evidence distinguishing between "search criteria" and "data unit," and does not deny that the district court similarly failed to consider the full record. And because Facebook also did not dispute that the relevant information it asserted was received but not stored in the TimelineDB and Multifeed Leaves were queries (from TAO, UDB and coefficient for the Timeline backend system, and coefficient and Ego for Multifeed), summary judgment based on such information was precluded.

The district court's construction of "data unit" was also incorrect because all data units must be of "direct user interest." The district court's rejection of this condition was primarily based on an erroneous finding of prosecution disclaimer in post-issuance CBM proceedings applying the broadest reasonable interpretation

standard, and not the *Phillips* standard. And while Facebook argues the district court's conclusion was correct, its response on appeal fails to even address the complete record in those proceedings. Facebook simply ignores the numerous statements in the CBM proceedings that "data units" are "for the user," and are "created by a user application for the user, i.e., it is an item of information of interest to the user class." Appx2012; Appx2017-2018. Because the CBM record includes express statements that a "data unit" is "information of interest to the user," and the like, there can be no finding of a clear and unmistakable disclaimer of a user interest requirement for "data units." Indeed, nowhere in the CBM proceedings did the patentees clearly and unmistakably assert that a *Phillips* claim construction of "data unit" was not limited to information of direct user interest. Without any user interest qualification, the district court's overly broad construction, extending to any and all information a computer may receive or generate, no matter the relevance to the user (*e.g.*, system files and files purely for the internal operations of the system), undermined the goal of the invention to manage personal data, and act as a diary of a person's electronic life. Appx74 (2:49-58); Appx75 (3:61-62, 4:6-8, 4:26-28); Appx1498. Under a proper construction of "data units" that excludes information not of "direct user interest," Mirror Worlds presented evidence establishing a genuine dispute of material fact as to whether any of the information Facebook alleged were not stored in the accused "main streams" were "data units" (from TAO,

UDB and coefficient for the Timeline backend system, and coefficient, Ego and Adfinder for Multifeed).

Third, the district court erred in construing the term "main collection" in the '439 patent as the same as "main stream" in the '227 and '538 patents. The '439 patent claims use the term "main collection" in a plain and ordinary manner, and without many of the conditions required of the "main stream" in the '227 and '538 patents. Appx137-138 (16:20-17:47). Critically, the '439 patent claims specify that the "main collection" need only include "some" documents, in contrast to the "every data unit" requirement of a "main stream." Appx137 (16:29-30). The district court also failed to consider that only in a dependent claim does the "main collection" take the specific form of a "stream." Appx30-34; Appx139 (20:43-46).

Fourth, Mirror Worlds presented evidence establishing a genuine dispute of whether the accused systems meet the "glance view" limitations of the '538 and '439 patents. The district court failed to consider all the evidence presented by Mirror Worlds, including expert testimony and Facebook source code. Appx63; Appx12265. Thus, the district court erroneously failed to recognize a genuine issue of material fact precluding summary judgment.

Finally, Facebook's cross-appeal of the district court's judgment that the asserted claims are patent-eligible under § 101 is without merit. The district court correctly applied this Court's precedent and relied on prior decisions affirming the

eligibility of Mirror Worlds' patents to conclude the claims are directed to specific, non-abstract improvements in computer functionality. More specifically, the claims "improve upon traditional computer operating systems by storing and retrieving data in a more efficient way." Appx19. Facebook's assertion that the claims are "organizing information in a time-ordered manner" improperly oversimplifies the claims and ignores key claim limitations directed to the patents' claimed advances over conventional computer systems which used, *inter alia*, hierarchical file structures. Further, the intrinsic and extrinsic evidence clearly demonstrates that the patents' utilization of a main stream and substreams was not well-understood, routine, or conventional at the time of the invention. Indeed, Facebook does not dispute this point, and instead focused its arguments on individual limitations not directed to the claimed advances. This is insufficient to meet its burden to show ineligibility by clear and convincing evidence. This Court should affirm the district court's judgment that the claims are eligible under § 101.

REPLY ARGUMENT

I. Mirror Worlds Met Its Burden By Presenting Evidence That The Accused Timeline Backend System Includes A "Main Stream"[1]

Evidence in the record, viewed in the light most favorable to Mirror Worlds and with all reasonable inferences drawn in Mirror Worlds' favor, establishes at least

[1] Mirror Worlds contends that summary judgment was improper as to the accused Timeline backend system even under the district court's claim constructions.

a genuine dispute as to whether the TimelineDB stores every data unit received or generated by the Timeline backend system. Facebook attacks the evidence presented by Mirror Worlds, arguing the evidence is not specifically about the TimelineDB or that Mirror Worlds' characterization of the evidence is out of context. Not only is Facebook wrong about what the evidence shows, but its attempt to recast Mirror Worlds' evidence fails to adhere to the standard of review on summary judgment. That Facebook has its own interpretation of the evidence is irrelevant. The evidence is "constru[ed] ... in the light most favorable to the nonmovant ... [with] all reasonable inferences in that party's favor." *Kuebel v. Black & Decker Inc.*, 643 F.3d 352, 358 (2d Cir. 2011). That Facebook relies on an unsupported declaration from its engineer, which it calls unequivocal, is irrelevant. When set against Mirror Worlds' evidence, the declaration, at best, just confirms that whether the TimelineDB is a main stream is disputed. But when there is a genuine dispute of material fact, "summary judgment will not lie." *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 252, 249 (1986).

Appx14273 specifically refers to the TimelineDB, is specifically about "Storage" in the Timeline backend system, and expressly states "Timeline data is persisted in TimelineDB." Construed in a light most favorable to Mirror Worlds and

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Resolution of the claim construction issues in Mirror Worlds' favor, however, presents independent, alternative bases for reversal as to the accused Timeline backend system, and the sole basis for reversal for the accused Multifeed system.

with all reasonable inferences drawn in Mirror Worlds' favor, a reasonable juror could conclude "Timeline data," means all data for Timeline, and "persisted in TimelineDB," means all data for the Timeline backend system is stored, *i.e.*, persisted, in the TimelineDB. Facebook is simply wrong when it claims Appx14273 "discuss[es] certain read and write paths for 'Timeline' as a whole." Red Brief at 44 ("RB44"). Absent that mischaracterization, Facebook has no response to Appx14273. Nor does it deny that the district court made no mention of Appx14273, or that the court's rationale for dismissing Mirror Worlds' evidence as "actually refer[ring] to 'Timeline' (the backend system writ large), not the TimelineDB," Appx50, is inconsistent with what Appx14273 actually says.

Appx14275 also specifically refers to the TimelineDB, specifically addresses how data is "writ[ten]," *i.e.*, stored, in the TimelineDB, and expressly states that "TimelineDB eventually has all the data." Facebook attempts to dismiss this evidence as merely "discuss[ing] that when a 'first write' is made against UDB (user database), the system will attempt to ensure that all of that same data is also written into TimelineDB." RB44. But a reasonable juror could conclude "all the data" means all the data received or generated by the Timeline backend system, and the reference to UDB is irrelevant and simply means the same data stored in the TimelineDB is also stored elsewhere. *See* Appx14274 ("Timeline stores action data in both UDB timeline table ... and TimelineDB. This means we need to write the same data into

two DB tiers."); *see also* Appx14291 ("Write path[.] When you perform an action (eg, uploading a photo) we: Write to UDB ... Write to TimelineDB"). And here again, Facebook does not deny that the district court overlooked Appx14275, and that the court's rationale is inconsistent with the fact that Appx14275 does actually refer to the TimelineDB.

Appx14291 also expressly refers to TimelineDB and explains that the "Write path," *i.e.*, how data is written or stored in Timeline, is such that "[w]hen you preform an action (eg, uploading a photo) we: ... Write to TimelineDB." Facebook again attempts to dismiss this evidence as explaining only a relationship between the TimelineDB and another database, UDB. RB45. But again, construed in a light most favorable to Mirror Worlds and with all reasonable inferences drawn in Mirror Worlds' favor, a reasonable juror could conclude that the references to UDB are irrelevant and that Appx14291 supports the conclusion that all data is written, *i.e.*, stored, in the TimelineDB. And here again, Facebook does not deny that the district court ignored Appx14291, and that the court's rationale is inconsistent with the express reference to the TimelineDB in Appx14291.

Appx15241-15256 is a presentation about the "Timeline Infrastructure," and specifically the "Timeline Backend" system. Appx15241-15242. Portions of the presentation specifically refer to the "TimelineDB," explain that activities are "persist[ed]" in the TimelineDB, and more generally, explain that Timeline

"involved backfilling ... minutiae, new friendships, photos, life events," and is a "[t]ime-ordered index for all time" of "User Data at [Facebook]." Appx15244-15246. A reasonable juror could conclude that Appx15241-15256, especially in view of the other evidence presented by Mirror Worlds, supports a conclusion that all data received or generated by the Timeline backend system are stored in the TimelineDB. *See In re Dana Corp.*, 574 F.3d 129, 152 (2d Cir. 2009) ("the district court may not properly consider the record in piecemeal fashion, giving credence to innocent explanations for individual strands of evidence; rather, it must 'review all of the evidence in the record'"). Facebook argues that "Mirror Worlds misleadingly cobbles together quotes about the basic concept of a 'timeline' and cherry-picks figures relating to the RocksDB." RB45. But that is incorrect – Appx15246 specifically depicts and references the TimelineDB, and the portion relied upon by Mirror Worlds relates to the TimelineDB, not the RocksDB. Appx15246; Blue Brief at 32 ("BB32"). Moreover, Facebook's argument improperly relies on its reading of the evidence instead of how a reasonable juror could understand the evidence when read in Mirror Worlds' favor.

Appx14554-14555 is another Facebook document that specifically addresses the "Timeline Backend," and explains that the "backend system ... persists all actions by users." Facebook argues the evidence merely "discusses 'Timeline' writ large, not TimelineDB specifically." RB46. But that is incorrect. The evidence is

specifically about the "Timeline Backend," not Timeline writ large, which also includes the Frontend and other systems. *See* Appx14281. Facebook's argument is also irrelevant. The absence of a specific reference to TimelineDB does not matter. The document is about the backend, other documents show that the TimelineDB in the backend stores Timeline data, and a reasonable juror could conclude that the reference to the "backend system ... persist[ing] all actions by users" supports the conclusion that the TimelineDB stores all data units received or generated by the Timeline backend system.

Appx14532 describes Timeline as having "everything relating to you," and as a "central place to look back at past posts, photos, and interactions with friends (like a diary or a scrapbook)." Facebook argues that Mirror Worlds "mistakenly cite[s] Appx14532 ... , which describes 'UX Research (*e.g.*, user research) about having a timeline." RB46. But Mirror Worlds did not mistakenly cite Appx14532, and Facebook's point is irrelevant. The document is relevant because of its description of Timeline, which could further support a reasonable juror's conclusion, especially in view of all the other evidence presented by Mirror Worlds, that the TimelineDB stores all data units received or generated by the Timeline backend system, even without an express reference to the TimelineDB, and even though the document includes discussion about user research.

Additional evidence from Mirror Worlds' technical expert, Dr. Eric Koskinen, also explained that the TimelineDB stores every data unit received or generated by the Timeline backend system. Appx13304; Appx13306; *see also* Appx13286-13310. Facebook argues that Dr. Koskinen's testimony is conclusory and unsupported. RB46. But Dr. Koskinen's testimony was based on the evidence addressed above, additional Facebook documents, testimony from Facebook witnesses, and Facebook source code. Appx13286-13310. His testimony was not unsupported or conclusory. Facebook also attempts to dismiss Dr. Koskinen's testimony by arguing he fails to "address[] all the other information ... received by the Aggregator, not in the TimelineDB." RB47. But Facebook's argument assumes its own conclusion – that there is other information not stored in the TimelineDB. Dr. Koskinen's testimony is that there is no such other information, which he based on Facebook's own documents and source code, including, for example, a Facebook document explaining that the "backend system ... persists all actions by users," Appx13305, and the fact that neither the source code nor any other Facebook document makes mention of any Timeline-related data that is not stored in the TimelineDB.

The summary judgment declaration from Facebook's engineer cannot trump the evidence presented by Mirror Worlds. Indeed, on summary judgment, the declaration could be ignored completely. *Crawford v. Franklin Credit Mgmt. Corp.*,

758 F.3d 473, 486 (2d Cir. 2014) ("The court must disregard all evidence favorable to the moving party that the jury is not required to believe.... [A]s the jury would not be required to believe [the movant's] version of the events, the court properly disregarded her version in deciding her motion." (internal quotation marks omitted)); *In re Dana Corp.*, 574 F.3d at 156 (witness testimony is, "of course, subject to credibility assessments by a factfinder, which would not be required to believe the [testimony]").

The declaration was self-serving, generated after the close of discovery, and purely for purposes of summary judgment. Especially when the evidence presented by Mirror Worlds (from Facebook's own operative technical documents, source code, and deposition testimony) is viewed in Mirror Worlds' favor with all reasonable inferences drawn in its favor, the declaration should have been rejected outright. *Ethicon Endo-Surgery, Inc. v. Covidien, Inc.*, 796 F.3d 1313, 1326 (Fed. Cir. 2015) (reversing summary judgment because, *inter alia*, "self-serving testimony from [movant's employee] ... witnesses ... does not negate the evidence in the record ... supporting" possible infringement); *see also AFG Indus., Inc. v. Cardinal IG Co.*, 375 F.3d 1367, 1371 (Fed. Cir. 2004) ("a trial court cannot reach a conclusive finding of noninfringement if the record shows some evidence supporting a finding of noninfringement and some evidence to the contrary").

And a reasonable juror certainly could have rejected the declarant's testimony. It was completely conclusory, citing and referring to no Facebook documents, source code, or any corroborating evidence. In fact, there is no evidence in the record, but for the declaration,[2] that makes any reference to the supposed information received by the Timeline backend system but not stored in the TimelineDB. None of the documents presented by Mirror Worlds refers to any such information, and Facebook has identified none.[3] In response on appeal, Facebook argues that the absence of corroborating evidence is simply "attorney argument" and "speculation" by Mirror Worlds that is irrelevant. RB54-55. But Facebook does not dispute that

[2] Although Facebook's response also cites to its technical expert's report (Dr. Balakrishnan), RB44, Facebook does not respond to the fact that his opinions are irrelevant and offer no independent support for Facebook's arguments on summary judgment. As Mirror Worlds explained in its opening brief, the cited opinions from Dr. Balakrishnan relate to the irrelevant issue of data needed to visually render Timeline, simply quote from Mr. Tang's unsupported declaration, or say nothing about TAO, UDB or coefficient data being sent to the Timeline backend system and not stored in the TimelineDB. BB40-41.

[3] Facebook cites the Timeline declaration and Dr. Balakrishnan's report, addressed *supra,* and additional Facebook documents. RB16. None of the additional Facebook documents refer to the information from TAO, UDB and coefficient that Facebook contends is sent to the Timeline backend system. Moreover, at least a few of the documents were never relied upon by Facebook in its summary judgment motion, and thus should not even be considered on appeal. *Compare* RB16 (citing Appx15247, Appx2330, Appx3035) *with* Appx7460-7461, Appx7465, Appx18000-18002; *see also In re Cygnus Telecommunications Tech., LLC, Pat. Litig.*, 536 F.3d 1343, 1353 (Fed. Cir. 2008) ("we will not consider any part of the record that was not presented to or cited to the district judge ... , even if that evidence can be found somewhere in the voluminous materials that are part of the record on appeal").

Mirror Worlds presented Facebook documents, source code and witness testimony that make no reference to any information from TAO, UDB or coefficient received by the Timeline backend system. BB38-39. The absence of any such references in the evidence is not attorney argument or speculation – it is simply a fact based on the record. And the district court erred in not viewing that evidence in favor of Mirror Worlds, and instead weighing the evidence to improperly conclude that "just because it's not there [(*i.e.,* shown in the document)] doesn't mean it doesn't exist." Appx52.[4]

Facebook's response underscores its improper application of the summary judgment standard. It attempts to dismiss Mirror World's evidence in piecemeal fashion, which is improper. It espouses its reading of the evidence over a reading most favorable to Mirror Worlds, which is improper. It treats its witness declaration, an unsupported and uncorroborated document, as dispositive, which is improper. And it continues to assert that the district court was correct, even though Facebook does not dispute, and has no response to, *inter alia*, the fact that the court was wrong in concluding that none of Mirror Worlds' evidence actually refers to the TimelineDB. Under the proper standard for summary judgment, Facebook's motion

[4] The prominence of the declaration in the district court's analysis, and its statements that the declaration was "unequivocal" and "clear," also suggests that the court improperly applied the summary judgment standard. *See Liberty Lobby*, 477 U.S. at 255 ("Credibility determinations, [and] the weighing of the evidence ... are jury functions, not those of a judge.").

should have been denied. Just as this Court previously held, Mirror Worlds "identified the accused 'systems,' described (with evidentiary support) how those systems work, and established, based on that description, that the accused systems met the 'every data unit' requirement and hence are 'main streams.'" *Mirror Worlds I*, 800 Fed. Appx. at 910.

II. Summary Judgment Was Improper Under A Proper Construction Of The Term "Data Unit" That Excludes Queries

Summary judgment was also improper because a POSITA would understand that a query is not a "data unit," and it is undisputed that the information Facebook contends is not stored in the accused main streams are, if anything, parts of a query.[5]

As addressed in Mirror Worlds' opening brief, the intrinsic record distinguishes between a data unit and a query. BB41-44. The claims expressly refer to, and differentiate between, "search criteria" and "data units," and explain that data units are identified based on search criteria, *i.e.*, queries. Appx89 (2:23-35); Appx112 (16:20-63); Appx137-138 (16:20-17:47). The specification further describes the use of a "search query" to "create[] a substream ... [of] documents that

[5] Facebook does not dispute that the supposed TAO, UDB and coefficient information in the context of the Timeline backend system, and coefficient and Ego information in the context of the Multifeed system, is part of a query, if anything. Instead, Facebook simply repeats its argument that the information is not stored in the TimelineDB or Leaves, which is a different and separate issue, which Mirror Worlds addressed in its opening brief and *supra* Section I. RB37-38, RB48-49, RB51-53; BB31-41.

are relevant to the search query." Appx75 (4:49-56); Appx76 (6:61-64). And importantly, because a substream can be "created and destroyed ... without affecting the main stream," the query that creates the substream necessarily cannot be a data unit because it otherwise would be stored in the main stream and thus affect the main stream. Appx75 (4:59-61). If data units includes queries as the district court and Facebook contend, then the creation of a substream would affect the main stream since the query that creates the substream would be stored in the main stream. The specification, however, expressly explains that substreams are created "without affecting the main stream." *Id.*

Facebook's response largely talks past the arguments raised by Mirror Worlds. Facebook completely ignores the distinction between "search criteria" and "data unit" in the claims. Facebook also fails to address the specification's disclosure that queries are used to identify data units, as opposed to being data units themselves, or that a query to create a substream does not affect the main stream, meaning that the query necessarily is not stored in the main stream.

Instead of directly addressing the evidence presented by Mirror Worlds, Facebook tries to sidestep the evidence by arguing that Mirror Worlds never sought to exclude queries in its proposed construction of the term "data unit." RB36. But Facebook overlooks the fact that this district court's particular practice was to wait to address claim construction until summary judgment, to focus the truly material

claim construction disputes, Appx1063-1064, and that Mirror Worlds specifically raised the query issue during summary judgment and during the prior appeal. Appx12257-12258; Appx3401. Indeed, this Court expressly acknowledged in the first appeal that "query criteria ... raise questions about, among other things, whether this information comes within the relevant claim terms, *e.g.*, 'data units,' under a proper construction." *Mirror Worlds I*, 800 Fed. Appx. at 910.

Facebook also attempts to sidestep the intrinsic evidence demonstrating that queries are not data units by arguing there is "no subject matter or format limitation" in the term "data unit." RB35-36. But Facebook's argument misses the point. By way of example, just because a container may take any shape and hold anything does not mean a horse is a container. So to, the specification's broad description of a data unit as "textual data, video data, audio data and/or multimedia data," or as including "pictures, correspondence, bills, movies, voice mail and software programs," Appx75 (3:23-24, 4:16-18), does not mean that a query is a data unit. That a data unit may "*contain* any type of data," does not mean that anything qualifies as a data unit. Appx75 (4:16-18) (emphasis added).

Facebook's assertion that its own expert did not really mean it, when he admitted that "[s]toring search queries is not required to have a main stream," is untethered to the facts. Appx14215 (129:14-16, 128:4-15); RB37. According to Facebook, queries did not need to be stored in a specific prior art reference (Lewak)

"because, for Lewak, Mr. Gray did not need to show search queries were stored in the 'main stream' if they were not 'received' or 'generated' by the 'computer system.'" RB37. The problem with this explanation is that Mr. Gray admitted the queries in Lewak *are received* by the computer system: "[Q.] [Y]ou agree that *the computer system in Lewak is receiving search queries; right*? [A.] *It is* -- There are -- The users can create search queries, yes." Appx14215 (128:8-13) (emphasis added). And yet, for those received queries, Mr. Gray, a proffered POSITA and Facebook's own claim construction expert, agreed that "[s]toring search queries is not required to have a main stream." Appx14215 (129:14-16, 128:4-15).

Facebook also ignores the fact that the district court failed to consider the full record in reaching its claim construction. It does not dispute that the district court did not consider the intrinsic evidence relevant to whether a query is a data unit or how a POSITA would understand the term in light of Mr. Gray's testimony, and simply rejected Mirror Worlds' arguments because it had already concluded that a "data unit" is any "item of information." The failure to consider the full record was error. *See E.I. du Pont de Nemours & Co. v. Unifrax I LLC*, 921 F.3d 1060, 1069 (Fed. Cir. 2019) ("We must consider whether the context of the entire patents and other intrinsic evidence supports such an interpretation.").

Because Facebook does not dispute that the information from TAO, UDB and coefficient supposedly received by the Timeline backend system, or that information

from Ego and coefficient supposedly received by Multifeed, are merely parts of a query, summary judgment should have been denied as to that information under a proper construction of "data unit" that excludes queries.

III. Summary Judgment Was Improper Under A Proper Construction Of The Term "Data Unit" That Requires The Information Be Of "Direct User Interest"

Summary judgment was also improper because a "data unit" must be an item of information that is of direct user interest, and with that proper understanding, none of the information Facebook contends is not stored in the main streams falls within the scope of the term "data unit."

A. Information Must Be Of "Direct User Interest" To Be A "Data Unit"

The district court also incorrectly construed the term "data unit" as not limited to information of "direct user interest." As Mirror Worlds explained in its opening brief, the specification, prosecution history (including through reexamination and CBM proceedings) confirms that a "data unit" must be of interest to the user, as opposed to, for example, data or code for the internal operations of a computer itself. BB48-55.

In response, Facebook again largely talks past the arguments raised by Mirror Worlds. It repeats the breadth of the term "data unit" but fails to address the patentees' numerous statements nevertheless limiting that admittedly broad scope. It argues the patentees expressly disavowed any user interest requirement during

CBM proceedings, yet fails to address the numerous statements by the patentees in those very proceedings that, for example, data units "are created by a user application for user consumption, i.e., it is an item of information of direct interest to the user class." Appx2023. It seeks to recast the invention from a "new model and system for managing personal electronic information," Appx75 (3:61-62), a "diary of a person or an entity's electronic life," *id.* (4:6-8), to an unworkable main stream of anything and everything in a computer system, whether it be source code, system files, or even non-human-readable or machine-language data.

Facebook's approach overlooks that "*[u]ltimately, the interpretation to be given a term can only be determined and confirmed with a full understanding of what the inventors actually invented and intended to envelop with the claim*. The construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction. A claim construction is persuasive, not because it follows a certain rule, but because it *defines terms in the context of the whole patent*." *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1248, 1250 (Fed. Cir. 1998) (emphasis added).

Contrary to Facebook's response, the intrinsic record confirms that data units must be of direct user interest. Facebook argues the patentees' statements broadly describing data units as being able to "contain any type of data including but not limited to pictures, correspondence, bills, movies, voice mail and software

programs," means that data units need not be of interest to users. RB28 (citing Appx75 (4:16-18)). That a data unit can "contain" any type of data, however, does not mean that any type of data is a data unit. The specification, for instance, distinguishes between a document (data unit) and the document's metadata, which may include information such as the "owner, date, access permission and keywords." Appx106 (3:61-67, 4:1-5); Appx131 (3:1-2, 4:1-3). In other words, the document is a data unit, but its metadata is not, despite the fact that metadata is data.

Moreover, the numerous statements in the specification about "personal document streams," a "new model and system for managing personal electronic information," and the like, are not simply statements of "high-level purported 'goals of the invention'" that Facebook suggests have no bearing on the term data unit. RB29. When the specification states that an "object of the present invention is to provide an operating system in which personal data is widely accessible anywhere," Appx74 (2:49-51), it is referring to "personal data" as the data units in the streams. Likewise, when the specification states that "in accordance with the present invention users can access their personal document stream from any available platform," *id.* (2:56-58), it is describing the data units in the stream as "personal document[s]." In the "context of the whole patent," *Renishaw PLC*, 158 F.3d at 1250, data units were meant to be of interest to the user, the collection of which

formed a stream of personal documents that functioned as a "diary of a person or an entity's electronic life." Appx75 (4:6-8).

Nor did the patentees intend that data units be of direct user interest only when they form a substream, as Facebook suggests. RB34-35 (citing Appx1498, Appx1503-1504). Facebook misleadingly suggests that a statement in an office action response by the patentees to "substreams, in contrast," was meant to draw a contrast between data units, in general and supposedly not of direct user interest, and data units in a substream, which only then are of direct user interest. RB34-35. However, the full context of that response was "contrast[ing]" the fact that data units in a substream remain in the mainstream as well, whereas messages in a prior art e-mail application are removed from the application when a user stores them elsewhere in the computer system as text files. Appx1503. Facebook is also simply incorrect in asserting that "Applicants ... reconfirm[ed] that not every 'data unit' is of interest/significance to the user." RB34. The patentees stated the exact opposite: "*all the data units ... are of significance to the user*." Appx1498 (emphasis added); *see also* Appx1497 ("applicants have amended the claims to recite the stream of documents (data units) of significance to the user (in the broadest sense)"; "stream of documents (in the broadest sense) that are of significance to the user and which thus determine the events of direct user interest").

The patentees also did not clearly and unmistakably disavow that data units are of direct user interest in the prior CBM proceedings. While it is true that Mirror Worlds argued against a "direct user interest in the user's timeline" limitation, those statements were in the context of CBM proceedings applying the broadest reasonable interpretation, which the patentees expressly distinguished from the *Phillips* standard applied by Federal courts. BB53; Appx2014. Moreover, even in that context, Mirror Worlds explained the data units are "an item of information of direct interest to the user class," and "the specification makes clear that a data unit is ... of direct user interest." Appx2023-2024; BB53-54; *see also* Appx2012 ("the meaning of 'data unit'/'document,' as used in the patent, is clear to a person of ordinary skill in the art ... given that (1) the specification explicitly states what the term 'document' encompasses, and (2) these statements mirror the definition of 'document' in dictionaries and treatises at the time of the invention—i.e., *any item of information created by a user application that is for the user* (e.g., picture, text file, video, etc.)" (emphasis added)); Appx2017-2018 ("whether something is a 'data unit,' or 'document' ... turns on whether it is an item of information for users generally"); Appx2013 ("'A document can be described as a unit of recorded information structured for human consumption.'").

Indeed, rather than clearly and unmistakably disavow any limit on the term "data unit," the patentee confirmed that data units are "*for users ... in contrast with,*

for example, data for the internal operations of the computer itself, e.g., the executable code responsible for converting keyboard strokes into the words on this page." Appx2018 (emphasis added). In other words, the patentee made clear during the CBM proceedings that not all data constitutes a data unit – rather, only those meant for users are "data units." Because the patentees never clearly and unmistakably disavowed a user interest requirement under the *Phillips* standard, and expressly and repeatedly explained that, even under the broadest reasonable interpretation, data units are of user interest, there is no basis to find disavowal based on the CBM proceedings.[6]

In sum, the district court erred in construing the term "data unit" so broadly as to include information that is not of direct user interest. In doing so, the court lost sight of "what the inventors actually invented and intended to envelop with the claim[s]," and transformed the "new model and system for managing personal electronic information ... us[ing] a time-ordered stream as a storage model ... [and] filter[] to organize, locate, summarize and monitor incoming information," into an unworkable system of everything and anything in a computer system, even, for

[6] Facebook's reliance on *Aylus Networks v. Apple*, 856 F.3d 1353 (Fed. Cir. 2017) is misplaced. RB31-32. The dispute is not whether disavowal may occur in CBM proceedings, but rather whether a clear and unmistakable disclaimer occurred here.

example, system files and other files meant only for the internal operations of a computer. *Renishaw PLC*, 158 F.3d at 1248; Appx75 (3:62-65).[7]

B. The Information Facebook Contends Is Not Stored In the Main Streams Is Not Of "Direct User Interest"

Under a proper construction of "data unit" that limits its scope to data that is of direct user interest, summary judgment should have been denied because Mirror Worlds established a genuine dispute of material fact as to whether the information Facebook contends is received but not stored in the main streams are of direct user interest.

For Timeline, Facebook derides Mirror Worlds' evidence as dependent on a statement from Facebook's summary judgment brief and a single paragraph from Facebook's engineer's declaration. RB55. The relevant statement from Facebook's summary judgment brief, however, acknowledges that the information from TAO and UDB is merely used for "sorting and ranking." Appx7460. It does not matter

[7] Although Facebook also argues a "direct user interest" requirement would render the term "data unit" indefinite, RB32-33, it does not defend the defects in the district court's analysis as Mirror Words identified in its opening brief, BB55 (n.8). In any event, the "direct user interest" requirement is not indefinite. As the intrinsic record explains, the "user" is not a "particular user," but rather a "'user' in the generic sense, i.e., a member of the class of users or end users rather than to a particular user that happens to be using a computer at that moment." Appx2016; *see also* Appx2017-2020; Appx1650; Appx1676-1678; Appx2044-2045 ("[W]e agree with Patent Owner that, in context, the term 'direct user interest' in the district court's construction most probably generically refers to a class of users and not the particular user who happens to be using the computer at a given moment.").

that the statement was taken from Facebook's brief, the same admission is contained in Facebook's engineer's declaration. Appx8157 (¶10) ("This information [(from TAO and UDB)] is used by the Timeline Aggregator in the *ranking and sorting* processes." (emphasis added)). Nor does Facebook deny that the coefficient data is similarly used in the "ranking" process. Appx7459-7460; Appx8158 (¶12).

Nevertheless, Facebook argues that the information from TAO, UDB and coefficient are "clearly of direct user interest." RB56. But nothing Facebook cites actually supports its conclusion – it just confirms the data is used for ranking and sorting purposes. And, in another example of failing to address Mirror Worlds' evidence, Facebook has no response to the specification's explanation that data similarly used for sorting, *i.e.*, metadata, are not "data units." BB56; *see also* Appx106 (3:61-67, 4:1-5); Appx131 (3:1-2, 4:1-3).

For the Multifeed system, Facebook does not specifically address Mirror Worlds' arguments regarding coefficient data, *see* RB56, but for the same reasons discussed in the context of the Timeline backend system, Mirror Worlds presented evidence that such ranking information is not of direct user interest. As for data from AdFinder and Ego, Facebook does not dispute, as its engineer explained, that such data is considered "non-organic" within Facebook, and non-organic data, in contrast, is not "generated, either from your friends, people you follow, or friends of friends or pages of sort of entities .... So connected content and some 'connected sources.'"

Appx14740 (41:19-25). Nor does Facebook address its own expert's admission that "[t]he ad itself is not personalized." Appx14073 (19724-25).

At a minimum, viewed in a light most favorable to Mirror Worlds, the evidence established a genuine dispute of whether the information relied upon by Facebook is of direct user interest and comes within the scope of the term "data unit." Thus, summary judgment should have been denied on this ground in the alternative.

IV. "Main Collection" In The '439 Patent Does Not Have The Same Meaning As "Main Stream" From The '227 And '538 Patents

The district court also erred in construing the term "main collection" in the '439 patent as having the same meaning as "main stream" in the '227 and '538 patents, and because Facebook did not move for summary judgment on any other construction of "main collection," summary judgment should have been denied.

Although Facebook argues that "main collection" is a "coined term," it fails to confront the claim language itself, which uses the term in a plain and ordinary manner, and points to no evidence that the patentees acted as lexicographers to define the term in some other manner. As Mirror Worlds addressed in its opening brief, beyond even the plain meaning of the term on its face, the claim language confirms the plain meaning of the term. BB57-58. For example, claim 1 explains that documents will be provided to or generated by the computer system, the computer system will "store at least some of the documents," and "generate and store

representations" of the documents "thereby forming a main collection of document representations." Appx137 (16:20-35). The main collection is thus a collection of representations of at least some of the documents stored by the computer system. The scope of the term is further delineated when contrasted to the "sub-collection of document representations related to a respective sub-collection of documents provided to the computer system" that results from a search of the main collection. Appx138 (17:2-5).

Rather than "coin" the term "main collection" to mean the same thing as "main stream," the patentees expressly distinguished the two. Independent claim 19, like claim 1, places no limit on the form of the main collection, beyond the requirement that it be a collection of documents, in claim 19, and of document representations, in claim 1. But in dependent claim 20, the patentees expressly claimed that the "main collection ... is in the form of a stream," and further specified the characteristics of that embodiment, namely that it "compris[e] a time-ordered collection of documents that functions as a diary of a person or an entity's electronic live." Appx139 (20:43-46). Facebook's only response is that claim differentiation is merely an "analytic tool," but in this case, that analytic tool is consistent with what is already plain from the independent claims themselves – "main collection" simply refers to the collection of documents representations (claim 1) of the documents stored in the computer system.

Because "main collection" is not a "coined term," Facebook's reliance on *Indacon v. Facebook*, 824 F.3d 1352 (Fed. Cir. 2016), and similar cases, is misplaced. This is not an instance where a disputed claim term lacks a plain meaning. Rather, "the ordinary meaning of [the] claim language as understood by a person of skill in the art ... [is] readily apparent ... , and claim construction ... involves little more than the application of the widely accepted meaning of commonly understood words." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005).

Under a plain and ordinary meaning of "main collection," summary judgment should have been denied as to the '439 patent. Facebook raised no argument that the accused systems did not infringe under the plain and ordinary meaning of the term.

V. Mirror Worlds Established A Genuine Dispute Of Whether The Accused Systems Provide A "Glance View" As Required By The '439 And '538 Patents

Summary judgment of the '439 and '538 patents based on the "glance view" limitations was improper because the district court failed to consider all the evidence presented by Mirror Worlds. In particular, the district court overlooked testimony from Mirror Worlds' expert explaining that a contextual-dialog component is rendered on a user's screen when a user "hovers" over certain images. Appx13326 (¶178); *see also* Appx13329-13330 (¶183); Appx13332 (¶188); Appx13400 (¶365); Appx13403 (¶370). Dr. Koskinen relied on this contextual-dialog component as the "glance view" of the claims of the '439 and '538 patents.

In response, Facebook does not deny that the district court failed to consider Dr. Koskinen's testimony. RB57-58. Instead, Facebook simply disagrees that the contextual-dialog component presents "an abbreviated version of the document and [is] indicative of content thereof." *Id*. But based on Facebook's own source code, Dr. Koskinen explained that the contextual-dialog component "contain[s] a SOURCE CODE [redacted] component and displays it ... when hovering over a[n] ... image." Appx13326 (¶178). When viewed in Mirror Worlds' favor, Dr. Koskinen's testimony, and source code relevant to the "glance view" limitation, raised a genuine issue of material fact that should have precluded summary judgment. *Bynoe v. Target Corp.*, 548 Fed. Appx. 709, 711–12 (2d Cir. 2013) (vacating summary judgment where the "District Court ... appears to have either missed the point of [the expert's] findings and conclusions, or failed to view them in the light most favorable to the plaintiff").

ARGUMENT IN RESPONSE TO CROSS-APPEAL

I. Standard for Determining Patent Eligibility Under § 101

Section 101 defines patent-eligible subject matter as "any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof." 35 U.S.C. § 101. To determine patent eligibility under § 101, courts conduct the two-step analysis set forth by the Supreme Court in *Alice Corp. Pty. v. CLS Bank Int'l*, 573 U.S. 208, 216 (2014). The court must determine "(1)

whether the claim, as a whole, is 'directed to' patent-ineligible matter – here, an abstract idea – and (2) if so, whether the elements of the claim, considered individually or as an ordered combination 'transform the nature of the claim' into a patent-eligible application." *Ancora Techs., Inc. v. HTC Am., Inc.*, 908 F.3d 1343, 1347 (Fed. Cir. 2018).

This Court has emphasized the importance of the first step of the § 101 analysis, explaining that *Alice* "plainly contemplates that the first step of the inquiry is a meaningful one." *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1334 (Fed. Cir. 2016). "The 'directed to' inquiry, therefore, cannot simply ask whether the claims involve a patent-ineligible concept, because essentially every routinely patent-eligible claim involving physical products and actions involves a law of nature and/or natural phenomenon." *Id.* at 1335. Rather, the "directed to" inquiry requires consideration of the claims "in light of the specification" to determine whether "their character as a whole is directed to excluded subject matter." *Id.*

In determining whether patent claims are directed to an abstract idea, courts must examine the patent's "claimed advance." *Ancora*, 908 F.3d at 1347. "In cases involving software innovations, this inquiry often turns on whether the claims focus on 'the specific asserted improvement in computer capabilities … or, instead, on a process that qualifies as an 'abstract idea' for which computers are invoked merely as a tool.'" *Id.* (citing *Enfish*, 822 F.3d at 1335–36). This Court has repeatedly held

that claims focused on improvements in computer technology "pass muster under *Alice* step one," explaining that both hardware and software can make such non-abstract improvements. *Id.*

If the claims are not directed to an abstract idea, the inquiry ends and the claims are patent eligible under § 101. *Id.* at 1349. Otherwise, the second step of the *Alice* analysis calls for the court to determine whether the "patent in practice amounts to significantly more than a patent upon the [abstract idea] itself.'" *Alice*, 134 S. Ct. at 2355. Inventions that "improve[] an existing technological process" or "solve[] a technological problem in 'conventional industry practice'" are patent eligible. *Id*. at 2358. Importantly, a defendant cannot prevail at the second step by simply showing that each individual claim element was "known in the art" or conventional. *BASCOM Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1349 (Fed. Cir. 2016). Even where individual elements are conventional technologies, the specific arrangement of conventional technologies can also form the inventive concept. *Id.* at 1350. Indeed, as noted by this Court, "[t]he genius of invention is often a combination of known elements which in hindsight seems preordained." *McGinley v. Franklin Sports, Inc.*, 262 F.3d 1339, 1351 (Fed. Cir. 2001).

II. Mirror Worlds' Patents Have Been Found To Be Patent-Eligible By Multiple Judges In Multiple Forums, Including The PTAB

The eligibility of Mirror Worlds' patents has been challenged multiple times in multiple forums, and each time has resulted in the same conclusion: the claims

are patent-eligible under § 101. First, in *Mirror Worlds Technologies, LLC v. Apple Inc.*, No. 6:13-CV-419, 2015 WL 6750306 (E.D. Tex. July 7, 2015), not long after the Supreme Court issued its decision in *Alice*, the Eastern District of Texas ("EDTX") considered the eligibility of the '227 patent on a motion for judgment on the pleadings. And while at *Alice* step one, the EDTX court found the claims were directed to the abstract idea of "organizing data units on a computer" (a finding which relied on a simplified characterization of the claims that was later rejected by the PTAB and the district court in this case), the court recognized that the purpose of the claims was to address certain problems with conventional operating systems. *Id.* at *7–8.

Then at *Alice* step two, the EDTX court reiterated that "the abstract idea in question is necessarily directed to improving computer technology," and found that the "invention seeks to improve how computer operating systems organize data units, primarily by improving the 'conventional operating systems [that] require the user to invent pointless names for files and to construct organizational hierarchies that quickly become obsolete.'" *Id.* at *9. The court further explained that the problems addressed by the claims are "specific to the field of computer operating systems," and the "claimed solution 'purports to improve the functioning of the computer itself.'" *Id.* In other words, claim 13 of the '227 patent is eligible under § 101 because it is "rooted in computer technology in order to overcome a problem

specifically arising in the realm of computers." *Id.* (citing *DDR Holdings*, 773 F.3d at 1257). For this reason, the EDTX court rejected the defendants' attempts to analogize the claims to a court's docketing system or a day planner as "misplaced because it presumes that the claimed invention can be separated from a computer environment." *Id.* And because the defendants failed to provide "any evidence that claimed computer functions (using persistent mainstreams and substreams) were 'well-understood, routine, conventional activities' previously known to the industry at the time of filing," they failed to meet their burden to prove ineligibility. *Id.* at *10.

About a year later in May 2016, the PTAB considered the eligibility of the '227 claims in a decision denying institution of a covered business method patent review (CBM2016-00019). Appx12388-12410. The PTAB squarely rejected the petitioner's argument that the challenged claims were "directed to the abstract idea of organizing items of information, i.e., 'data units,' in chronological order." Appx12400. The PTAB explained that the claimed invention solves "a number of problems … that did not exist in the pre-computer world," the claims are "directed to the way in which computers name, organize, and retrieve electronic documents and purported to distinguish the way in which conventional computers had done so," and that "the specification demonstrates that the '227 patent addresses a problem that 'arose specifically in the realm of computer operating systems.'" Appx12402-

12403. Accordingly, the PTAB rejected the petitioner's attempts to analogize the claims to "individuals with photographic memories and activities performed by court docket clerks." Appx12403. Relying heavily on this Court's decision in *Enfish*, the PTAB concluded that "the challenged '227 patent claims do not recite an abstract idea" because they are "directed to an 'improvement in computer functionality.'" Appx12403-12404.

At step two, the PTAB agreed with the EDTX that "the claims are not directed generically to organizing and storing data, but instead to the particular use of streams and substreams." Appx12404. The PTAB further explained the "claims do not recite a generic computer system and, like those claims upheld in *DDR Holdings*, are 'rooted' in non-abstract computer technology." *Id.* Because the claims are "directed to improving computer functionality by improving the functionality of computer operating systems," the PTAB determined that they are patent eligible under § 101. Appx12404-12405.

Then in March 2022, the district court in this case again considered the eligibility of the '227 patent, in addition to the related '538 and '439 patents which incorporate the '227 specification, on Facebook's motion for summary judgment. The district court rejected Facebook's argument that the claims are "directed to the abstract idea of organizing information in a time-ordered manner," and found that the claims are more analogous to those upheld by this Court in *Enfish* because they

are "aimed at improving the storage and retrieval of data on a computer." Appx15; Appx18. The district court explained that the "patents teach that conventional operating systems were cumbersome, difficult to navigate, and carried several disadvantages," such as users having to store new information in fixed categories, archiving not being automatic, and the historical context of a document getting lost "because no tracking of where, why and how a document evolves [was] performed." Appx18 (citing Appx74 (1:42-52)). And because "the claimed invention stores all data units in a time-ordered main stream, the user is not required to store documents in a pre-imposed directory structure, documents are automatically archived, and the user can see how a document has evolved over time." Appx19. The district court also noted that the "claimed operating system also allows the user to avoid the 'unneeded overhead' of naming a file and choosing a storage location whenever a file is created." *Id.* Accordingly, because the asserted claims "seek to improve upon traditional computer operating systems by storing and retrieving data in a more efficient way," they are "directed to improving computer functionality" and not abstract. *Id.*

The district court went on to explain that Facebook's cited cases are inapposite because they involved claims that use a "computer as a tool to collect and analyze data for some purpose other than improving computer functionality," whereas the asserted claims in this case are "directed to improving how computers 'carry out one

of their basic functions of storage and retrieval of data.'" Appx20-21. The district court also rejected Facebook's oversimplification of the claims, explaining that while "storing and organizing information is a human problem that exists independent of computers," "the asserted claims are directed to a *specific improvement* in the way that *computers* store and retrieve data," and the "patents articulate, and attempt to overcome, challenges created by traditional prior art operating systems that are specific to the computer context." Appx21 (emphases added). Because the district court determined that the claims are directed to a non-abstract improvement in computer functionality, it declined to reach *Alice* step two and held the claims eligible under § 101.

Facebook now takes the position that the EDTX court, PTAB, and district court in this case were all wrong, and that the patents are directed to ineligible subject matter. But as explained below, Facebook is incorrect. And while it is true that the prior EDTX and PTAB decisions are not "binding precedent," RB67, the district court properly relied on these decisions as persuasive authority. Further, Facebook's reliance on the EDTX court's finding that the claims are directed to an abstract idea at step one should be given little weight given that this decision issued prior to this Court's guidance in *Enfish*, which clarified that courts must "ask whether the claims are directed to an improvement to computer functionality versus being directed to an abstract idea, *even at the first step* of the *Alice* analysis." 822 F.3d at 1335

(emphasis added). Had the EDTX had the benefit of this decision in analyzing step one, it almost certainly would have determined that the '227 claims are not abstract given its findings that the claims are "necessarily directed to improving computer technology." *Mirror Worlds*, 2015 WL 6750306, at *9. And regardless, the EDTX court found the claims eligible under step two. *Id.* at *9-10.

III. The District Court Correctly Determined That The Claims Are Patent-Eligible Under § 101

Contrary to Facebook's assertions, the district court correctly concluded the asserted claims are not directed to an abstract idea, but rather are directed to specific non-abstract improvements in computer functionality. Facebook's assertion the claims are "organizing information in a time-ordered manner" improperly oversimplifies the claims and ignores key claim limitations directed to advancements over conventional computer systems. Facebook's step two arguments suffer from the same defects, as Facebook improperly focuses on individual limitations that are not directed to the claimed advances. The intrinsic evidence and extrinsic evidence, including detailed expert testimony, demonstrates that the claimed methods and systems were not well-understood, routine, or conventional at the time of the inventions. Thus, the claims at issue easily pass muster under both steps of the *Alice* analysis and are eligible under § 101.

A. The Asserted Claims Are Directed To Specific, Non-Abstract Improvements In Computer Functionality

This Court has "routinely held software claims patent eligible under *Alice* step one when they are directed to improvements to the functionality of a computer or network platform itself." *Mentone Sols. LLC v. Digi Int'l Inc.*, No. 2021-1202, 2021 WL 5291802, at *3 (Fed. Cir. Nov. 15, 2021); *see also Aatrix Software, Inc. v. Green Shades Software, Inc.*, 882 F.3d 1121, 1127-28 (Fed. Cir. 2018) (inventions "directed to improvements in the functioning and operation of the computer are patent eligible"). And here, there can be no reasonable dispute that the asserted claims are directed to specific improvements in computer functionality.

As set forth in the patent specifications (and as previously recognized by the EDTX court and PTAB), at the time of the inventions at issue in this case, conventional computer systems treated information like paper files in an old-fashioned filing cabinet, requiring users to "invent pointless names for files and to construct organizational hierarchies that quickly become obsolete." Appx74 (1:21-40). This raised a number of technical problems specific to computer operating systems that did not exist in the pre-computer world, including: (1) requiring a file to be "named" and stored to a specific location when created, resulting in "unneeded overhead"; (2) requiring users to store new information in fixed multi-level branching tree folder systems, "which are often an inadequate storing device"; (3) non-automatic archiving; (4) lack of support for "reminding functions"; (5) lack of

compatibility and accessibility across applications and platforms; and (6) loss of the historical context of a document due to lack of "tracking where, why, and how a document evolves." Appx74 (1:41-2:5); *see also* Appx105 (1:47-58); Appx12786-12788 (¶¶839-41); Appx12401-12402; *Mirror Worlds*, 2015 WL 6750306, at *1.

The claimed inventions are expressly directed to solving each of these computer-specific problems by providing a novel document stream operating system in which documents are stored in one or more chronologically ordered streams. Appx74 (2:12-61); Appx75 (3:62-4:30). For example, the claimed inventions took the unconventional approach of "selecting a time stamp to identify each data unit," and "associating each data unit with at least one chronological indicator having the respective timestamp." *See, e.g.*, Appx81 (claim 13). This provided a way to identify information that does not depend on a user providing a precise name for a file. Rather than using conventional multi-level branching folders, the claims use a main stream and substreams to allow users to organize, retrieve, and archive data units without requiring a name or location. *See, e.g.*, *id.*; Appx12788-12795 (¶¶842-55). Substreams filter the main stream to identify a subset of data units, enabling a user to search a subset of data units (filtered by key word or other parameters) without having to navigate a multi-level folder structure. Appx12794 (¶852).

The '538 and '439 patents further made search more efficient by enabling users to view content at a glance using automatically-generated icons for data types

without having to open the document. *See, e.g.*, Appx112 (claim 1); Appx137 (claim 1); Appx13280 (¶61). In addition, the claimed inventions solved computer-specific "data archiving" problems by "organiz[ing] each data unit" and "generating a main stream of data units," where the main stream is adapted "for organizing each data unit received by or generated by the computer system." Appx81 (claims 13, 23).

It is thus clear from the faces of the patents themselves that the challenged claims are directed to specific, non-abstract improvements in conventional computer technology and thus fall squarely within the category of claims that this Court has found patent-eligible under *Alice* step one. For example, in *Enfish*, this Court held that claims to a self-referential table for a computer database that "functions differently than conventional database structures" and achieves "benefits over conventional databases, such as increased flexibility, faster search times, and smaller memory requirements" were directed to improvements in computer functionality and not abstract. *Enfish*, 822 F.3d at 1337; *see also Uniloc USA, Inc. v. LG Elecs. USA, Inc.*, 957 F.3d 1303, 1307 (Fed. Cir. 2020) (claims directed to the reduction of latency in communication systems found to be a patent-eligible improvement to computer functionality); *Koninklijke KPN N.V. v. Gemalto M2M GmbH*, 942 F.3d 1143, 1150 (Fed. Cir. 2019) (claims "patent-eligible because they are directed to a non-abstract improvement in an existing technological process (i.e., error checking in data transmissions)").

The district court properly analyzed the claims in accordance with this Court's precedent, noting that "*Enfish* made clear that the court may ask whether the asserted claims are directed to improving computer functionality at *Alice* step one." Appx17. And that is precisely what the district court did here – it analyzed the patents' claimed advances and correctly determined that the "claims asserted here are also aimed at improving the storage and retrieval of data on a computer." Appx18. The district court, citing to specific portions of the specification as well as the prior EDTX and PTAB decisions, further explained that the patents are directed to solving the identified problems in conventional operating systems "by storing documents … in time-ordered streams." Appx18-19. This allows users to store documents without a pre-imposed directory structure, provides automatic archiving, and allows the users to see how a document has evolved over time as well as avoid the "unneeded overhead" associated with conventional systems that require file names. Appx19 (citing Appx74 (1:42-44, 2:20-24)). Against this backdrop, the district court correctly concluded that the "asserted claims seek to improve upon traditional computer operating systems by storing and retrieving data in a more efficient way" and thus are directed to non-abstract improvements in computer functionality. Appx19.

The district court also considered each of Facebook's arguments and its cited cases, and determined they were inapplicable. Appx20-21. The district court rejected

Facebook's oversimplification of the claims as "directed at using computers to solve a human problem of storing and organizing information," explaining that "the asserted claims are directed to a specific improvement in the way that computers store and retrieve data; the patents articulate, and attempt to overcome, challenges created by traditional prior art operating systems that are specific to the computer context." Appx21 (citing *DDR Holdings*, 773 F.3d at 1257-59). The district court also noted that "Facebook fails to distinguish *Enfish* in a meaningful way or to explain why the prior decisions holding the '227 patent patent-eligible under § 101 are mistaken," Appx22, which is critical given that it was Facebook's burden to demonstrate ineligibility by clear and convincing evidence. Facebook failed to meet that burden, and the district court properly denied its motion for summary judgment under § 101.

B. Claim 13 Of The '227 Patent Is Not Representative Of All Asserted Claims

Mirror Worlds disputes Facebook's assertion that claim 13 of the '227 patent is representative of all asserted claims. While the district court correctly concluded that all asserted claims are "directed to improving the way in which computers store and retrieve data," it also noted that claim 1 of the '439 patent and claim 1 of the '538 patent recite an additional "glance view" limitation that is not found in the '227 patent. Appx22-23 (n.6). And while this additional limitation does not change the ultimate conclusion that "all the asserted claims are directed to improving computer

functionality," *id.*, the three asserted patents are nonetheless directed to separate and distinct inventions and should be analyzed in light of their particular claim limitations, particularly with respect to step two of the *Alice* analysis. *See CosmoKey Sols. GmbH & Co. KG v. Duo Sec. LLC*, 15 F.4th 1091, 1099 (Fed. Cir. 2021). Having determined the claims are directed to non-abstract improvements in computer functionality, the district court did not reach step two. Its conclusion that claim 13 of the '227 patent is representative therefore does not apply to this aspect of the § 101 analysis, discussed further below.

C. Facebook's Step One Arguments Are Without Merit And Should Be Rejected

1. Facebook's Assertion That The Claims Are Directed To "Organizing Information In A Time-Ordered Manner" Improperly Oversimplifies The Claims And Ignores The Claimed Advances Over Conventional Computer Systems

Facebook's assertion that the asserted claims are "directed to the abstract idea of organizing information in a time-ordered manner," RB61, is contrary to fact and law and should be rejected. This Court has repeatedly held that courts must "avoid oversimplifying the claims by looking at them generally and failing to account for the specific requirements of the claims." *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1313 (Fed. Cir. 2016); *see also TecSec, Inc. v. Adobe Inc.*, 978 F.3d 1278 (Fed. Cir. 2020) (it is legal error to "disregard elements of the claims at issue that the specification makes clear are important parts of the claimed advance

in the combination of elements"); *Realtime Data LLC v. Reduxio Sys., Inc.*, 831 F. App'x 492, 497 (Fed. Cir. 2020) (vacating judgment of ineligibility and "caution[ing] the district court away from sweeping generalizations"); *Enfish*, 822 F.3d at 1337 ("describing the claims at such a high level of abstraction and untethered from the language of the claims all but ensures that the exceptions to § 101 swallow the rule"). But that is precisely what Facebook seeks to do here. Facebook's characterization of the claims grossly oversimplifies the claims, ignores the express statements in the specification regarding the patents' claimed advances over conventional computer systems, and ignores key claim limitations directed to those advances, including but not limited to the utilization of a main stream and at least one substream (all asserted claims), as well as the automatic display of a "glance view" of a document (the '439 and '538 claims). This is clearly improper.

Indeed, Facebook's arguments have been rejected multiple times in multiple forums, including the PTAB. *See, e.g.*, Appx12400-12404 (rejecting petitioner's assertion that the '227 claims are analogous to court docketing and directed to "organizing items of information, i.e., 'data units,' in chronological order"); *Mirror Worlds*, 2015 WL 6750306, at *9-10 (rejecting defendants' argument that "people have been organizing documents chronologically since the Book of Genesis" as "misplaced because it presumes that the claimed invention can be separated from a computer environment"). This Court has also rejected similar arguments, holding it

is "not enough … to merely trace the invention to some real-world analogy." *See Data Engine Techs. LLC v. Google LLC*, 906 F.3d 999, 1011 (Fed. Cir. 2018) (rejecting attempt to analogize claims to improved methods for making "complex electronic spreadsheets" to tabbed notebooks and Post-It notes because claims addressed a "particular manner of navigating three-dimensional spreadsheets, implementing an improvement in electronic spreadsheet functionality"). The Court should reject Facebook's deficient arguments here too. When properly considering the claims as a whole and in light of the specification, it is clear that they are directed to specific improvements in computer functionality and not merely "organizing information in a time-ordered manner."

Facebook's cited cases are inapposite and do not support its position, as they all relate to claims directed to fundamental business practices or collecting, analyzing, and displaying information. RB61. For example, *Electronic Communication Technologies, LLC v. ShoppersChoice.com, LLC*, 958 F.3d 1178 (Fed. Cir. 2020), concerned claims to an automated notification system, which were directed to "nothing more than the fundamental business practice of providing advance notification of the pickup or delivery of a mobile thing." *Id.* at 1181. The Court specifically pointed out that the claims were "quite unlike the 'improvements in computer capabilities' that we have found eligible for patenting at step one," such as those in *Enfish*. *Id.* at 1182; *see also Electric Power Grp. v. Alstom S.A.,* 830 F.3d

1350, 1354 (Fed. Cir. 2016) (claims focused on "a process of gathering and analyzing information of a specified content, then displaying the results" using computers as tools instead of improving computers); *Intellectual Ventures v. Capital One*, 850 F.3d 1332, 1341 (Fed. Cir. 2017) (patents concerned collecting, displaying, and manipulating data); *SAP Am., Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1168 (Fed. Cir. 2018) (claims focused on "improved mathematical analysis").

In contrast, the claims at issue here *are* directed to improvements in computer functionality, as they provide improved methods and systems for storing and retrieving data without the "unneeded overhead" associated with conventional systems that required the use of filenames. Facebook's attempt to reduce the claims to merely organizing information chronologically on a computer ignores that the claims achieve this in a particular way, including the application of timestamps across all data units and the use of a mainstream and at least one substream. *See, e.g.*, Appx12402-12403 (rejecting argument that the '227 claims "merely recite[] the use of a general purpose computer to perform an abstract process [of] organizing information in chronological order without claiming any technological improvement to the computer itself," and finding the claims were instead like those in *Enfish* because they address problems that "arose specifically in the realm of computer operating systems").

2. Facebook's Assertion That The Claims Are Merely Directed To End Results Improperly Ignores The Claim Language

Facebook's additional step one arguments are likewise without merit and should be rejected. First, Facebook argues that the claims are merely directed to an end-result without specifying how to accomplish it. RB62. A review of the claim language at issue, however, demonstrates that the claims set forth specific and unconventional methods for improving computer systems. For example, claim 13 of the '227 patent recites the steps of "generating a main stream of data units and at least one substream, the main stream for receiving each data unit received by or generated by the computer system, and each substream for containing data units only from the main stream; receiving data units from other computer systems; generating data units in the computer system; selecting a timestamp to identify each data unit; associating each data unit with at least one chronological indicator having the respective timestamp; including each data unit according to the timestamp in the respective chronological indicator in at least the main stream; and maintaining at least the main stream and the substreams as persistent streams." Appx81. This is not results-based functional language. *See Mentone*, 2021 WL 5291802, at *5.

Likewise, claim 1 of the '538 patent and claim 1 of the '439 patents recite highly specific methods for operating a computer system using, *inter alia*, a main stream and substreams or main collection and subcollections, and providing a glance view of a displayed document. Appx112; Appx137-138. The only way to conclude

that the claims recite only results would be to ignore the claim language, which is improper. *McRO*, 837 F.3d at 1313.

3. Facebook's Attempt To Separate The Claimed Solutions From The Computer Environment Are Contrary To The Patents, Which Make Clear That The Claimed Solutions Are Aimed At Improving Conventional Computer Systems

Facebook next argues that the claims are not directed to improving functionality because they "use computers only as generic tools to solve a *human* problem of storing and organizing information." RB64. In making this argument, Facebook selectively relies on out-of-context statements from the deposition of inventor Eric Freeman regarding their general approach to creating a new electronic document system that departs from conventional systems that were based on traditional paper-based filing. RB64-65. But as Mr. Freeman explained in that very same line of questioning, the inventors did not purport to invent file systems or "putting time stamps on files." Appx8096 (72:6-24). Rather, as explained in the patents themselves, the claimed advance is directed to addressing the identified "disadvantages of conventional operating systems" by utilizing chronologically ordered *streams* rather than file names. Appx74 (1:41-2:61). In other words, as found by the district court, the claimed solutions are "necessarily rooted in computer technology" in order to overcome problems specifically arising in the realm of computer systems. Appx21. Other courts have likewise rejected similar attempts to separate the inventions at issue here from the computer environment. *See Mirror*

Worlds, 2015 WL 6750306, at *9; Appx12402-12403. For this reason, Facebook's attempts to distinguish this case from *Enfish* fall flat.

Facebook's assertion that the claims merely improve a user's experience, RB66-67, similarly ignores that the patents improve upon the prior art by, for example, reducing overhead, eliminating obsolete organizational hierarchies, providing compatibility across all applications and platforms, and allowing for automatic archiving. Appx74 (1:21-2:61). This makes the system more efficient. *Cf. Customedia Techs., LLC v. Dish Network Corp.*, 951 F.3d 1359, 1365 (Fed. Cir. 2020) (claims abstract because they "do not enable computers to operate more quickly or efficiently, nor do they solve any technological problem" and the "specification is silent as to any specific structural or inventive improvements in computer functionality"). The fact that these improvements also improve the user's experience does not somehow render them abstract.

D. Facebook's Step Two Arguments Are Also Without Merit And Should Be Rejected

Because the claims are directed to non-abstract improvements in computer functionality, the claims are eligible under § 101 and the Court need not consider the second step of the *Alice* analysis. But even if abstract, the claims are still eligible because they provide unconventional solutions to problems in the prior art.

1. Intrinsic And Extrinsic Evidence Confirm That The Claimed Inventions Involve Unconventional Technological Solutions

As set forth in the patents, the claimed inventions depart from conventional computer operating systems in that they organize data using chronologically-ordered streams rather than hierarchical file structures. This is reflected in the claims themselves. For example, claim 13 of the '227 recites, *inter alia*, generating a main stream of data units and at least one substream, applying a timestamp to all data units, and maintaining the main stream and substreams as "persistent streams." Appx81. Claim 1 of the '538 patent recites, *inter alia,* "automatically, without user interaction and without requiring a user to designate directory structures or other pre-imposed document categorizations structures, stor[ing] the provided documents as a time-ordered main stream of documents associated with respective automatically generated time indicators" and applying search criteria to said time-ordered main stream to "create a time-ordered substream of documents from the main time-ordered stream." Appx112 (claim 1). Claim 1 of the '439 patent is similar, except that it recites a main collection and sub-collections of documents. Appx137-138.

In addition to this intrinsic evidence, Mirror Worlds also provided detailed, well-supported expert analysis that further confirms that the patents' "revolutionary" use of time-ordered main streams and substreams was not well-understood, routine, or conventional at the time of the inventions, and that conventional operating

systems and file management solutions actually taught away from the core limitations of the asserted claims. *See* Appx12774-12795 (¶¶823-55); Appx12799-12800 (¶¶862-67). In other words, the patents fundamentally changed the normal operation of an operating system's data storage and organization, overcoming problems specifically arising in the realm of computer technology. *See id.* And though the district court in this case did not reach step two of the § 101 analysis, the EDTX court and PTAB did, both concluding that the '227 claims provide inventive concept. *Mirror Worlds*, 2015 WL 6750306, at *9-10 (finding that the "limitations here require the computer to *maintain* data units in a *persistent* mainstream of *all data units received or generated* and at least one *persistent substream*," and that there was no evidence that the "claimed computer functions (using persistent mainstreams and substreams) were 'well-understood, routine, conventional activities' previously known to the industry at the time of filing"); Appx12404-12405 (finding that "the claims are not directed generically to organizing and storing data, but instead to the particular use of streams and substreams").

In sum, both intrinsic and extrinsic evidence demonstrates that the claimed solutions to the identified problems in conventional computer systems were not well-understood, routine, or conventional at the time of the invention. Should there be any doubt, the Court should remand back to the district court to make factual findings on this issue and determine whether the claims provide an inventive concept.

2. Facebook's Assertion That The Claims Lack An Inventive Concept Is Unsupported And Contrary To The Record Evidence

Facebook's arguments for why the claims purportedly lack an inventive concept are contrary to fact and law and should be rejected. Facebook first argues that the claims are ineligible because they "can be carried out on 'any available platform.'" RB68. But this Court has expressly rejected the notion that an "invention's ability to run on a general-purpose computer dooms the claims." *Enfish*, 822 F.3d at 1338. Facebook cites no authority holding otherwise.

Facebook next argues that the "'main stream' and 'substream' provide nothing significantly more than reflections of the abstract idea for organizing information." RB68. This makes no sense. Applying time stamps across all data units, regardless of application, and generating a time-ordered main stream and substreams of said data units is not abstract. More to the point, *Facebook fails to cite a single piece of evidence or authority* that the claimed methods and systems were well-understood, routine, conventional activities at the time of the invention – because they were not, as evidenced by the intrinsic and extrinsic evidence discussed above.

In fact, Facebook does not even attempt to argue that the patents' use of a main stream and substreams rather that hierarchical files was well-understood, routine, conventional. Instead, Facebook argues that the claims lack an inventive

concept because the recited steps are in logical order, and that using timestamps and sorting by time was well-known. RB69-70 (arguing "[t]here is nothing unusual or non-conventional about this sequence"). This is beside the point. The inventive aspect of the claims is not the order in which the steps are performed. Nor did the inventors purport to invent timestamps – as Facebook freely admits. Thus, Facebook's assertions, even if true, are entirely inconsequential. *See Weisner v. Google LLC*, 51 F.4th 1073, 1085–86 (Fed. Cir. 2022) (finding claims patent eligible despite statements in the specification that the inventors did not invent a new search engine algorithm as the "claims do not per se concern searching for new information, but rather concern a new technique for prioritizing the results of the conventional search"); *Coop. Ent., Inc. v. Kollective Tech., Inc.*, 50 F.4th 127, 135 (Fed. Cir. 2022) (defendant's argument that "P2P networks and CDNs are conventional … misses the the point," as "useful improvements to computer networks are patentable regardless of whether the network is comprised of standard computing equipment").

At bottom, a review of the challenged claims makes clear that they do not merely recite the concept of organizing information in a time-ordered manner – they recite specific implementations that improve upon conventional systems. The claims are thus eligible under both step one and step two of the *Alice* analysis.

CONCLUSION

For the forgoing reasons, this Court should vacate the district court's judgment of non-infringement, and remand. This Court should also affirm the district court's judgment that the asserted claims are patent-eligible under § 101, or otherwise remand back to the district court to determine whether the claims provide an inventive concept under *Alice* step two.

Respectfully submitted,

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