

NOTE: This disposition is nonprecedential.

**United States Court of Appeals
for the Federal Circuit**

REALTIME DATA LLC, DBA IXO,
Plaintiff-Appellant

v.

ARRAY NETWORKS INC., NIMBUS DATA, INC.,
Defendants

**FORTINET, INC., REDUXIO SYSTEMS, INC.,
QUEST SOFTWARE, INC., CTERA NETWORKS,
LTD., ARYAKA NETWORKS, INC., OPEN TEXT,
INC., MONGODB INC., EGNYTE, INC., PANZURA,
INC.,**
Defendants-Appellees

2021-2251

Appeal from the United States District Court for the
District of Delaware in No. 1:17-cv-00800-CFC, Chief
Judge Colm F. Connolly.

REALTIME DATA LLC, DBA IXO,
Plaintiff-Appellant

v.

SPECTRA LOGIC CORPORATION,
Defendant-Appellee

2021-2291

Appeal from the United States District Court for the District of Delaware in No. 1:17-cv-00925-CFC, Chief Judge Colm F. Connolly.

Decided: August 2, 2023

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Before NEWMAN, REYNA, and TARANTO, *Circuit Judges*.

Opinion for the court filed by *Circuit Judge* REYNA.

Dissenting opinion filed by *Circuit Judge* NEWMAN.

REYNA, *Circuit Judge*.

This case returns to us for the second time. Appellant Realtime sued several companies, including some of the Appellees, in the District of Delaware for infringing various combinations of five patents related to methods and

systems for data compression. Some of the Appellees moved to dismiss under Federal Rule of Civil Procedure 12(b)(6) for, among other things, failure to state a claim, arguing that the claims of the patents were patent ineligible under 35 U.S.C. § 101. The district court held a hearing and orally announced that all of the claims from the five patents were invalid under § 101. On appeal, this court vacated and remanded for the district court to provide a more detailed § 101 analysis. *Realtime Data LLC v. Reduxio Systems, Inc.*, 831 F. App'x 492 (Fed. Cir. 2020) (“*Realtime I*”).

On remand, the district court issued a written opinion that found that the claims from all eight asserted patents (by then, Realtime had asserted three more patents and had added more parties) were invalid under § 101 because the claims were directed to an abstract idea. *Realtime Data LLC v. Array Networks Inc.*, 537 F. Supp. 3d 591 (D. Del. 2021) (“*Realtime II*”). The court dismissed Realtime’s complaints but allowed Realtime to amend them, which it did—adding material and dropping a patent. On renewed motions to dismiss, the district court reaffirmed its prior analysis and dismissed the amended complaints—this time, without leave to amend. *Realtime Data LLC v. Array Networks Inc.*, 556 F. Supp. 3d 424 (D. Del. 2021) (“*Realtime III*”).

Realtime appeals. For the reasons below, we affirm.

BACKGROUND

A. The Asserted Patents

The seven patents at issue here are U.S. Patent Nos. 9,054,728 ('728 patent), 8,933,825 ('825 patent), 8,717,203 ('203 patent), 9,116,908 ('908 patent), 7,415,530 ('530 patent), 10,019,458 ('458 patent), and 9,667,751 ('751 patent). All generally relate to methods and systems for digital data compression. Appellant’s Br. 15. The seven patents can be broken into three families. *Id.*

The family 1 patents. The '728, '825, and '203 patents are in the same family, share a specification, and are titled "Data Compression Systems and Methods."¹ The patents address issues with lossless data compression techniques, including the "fundamental problem" of their "content sensitive behavior" or "data dependency," which "implies that the compression ratio achieved is highly contingent upon the content of the data being compressed." '728 patent at 2:29–35. Another issue with lossless data compression techniques is that "there are significant variations in the compression ratio obtained when using a single lossless data compression technique for data streams having different data content and data size." *Id.* at 2:41–45. According to the patents, although "conventional content dependent techniques," which typically rely on file type descriptors appended to file names, for example, ".doc" or ".txt," may be used to address these problems, those content dependent techniques had "[f]undamental limitations." *Id.* at 2:65–3:19; *see also* Appellant's Br. 17.

To avoid problems associated with data dependency and to improve efficacy, the patents describe "a system for data compression that looks beyond the file type descriptor, to the underlying data, to complete the desired compression." *Realtime I*, 831 F. App'x at 493–94 (citing '728 patent at 3:59–5:11). The system uses a combination of content-independent and content-dependent data compression and decompression. *See* '728 patent at Abstract, 1:34–37, 3:59–62, 6:24–27.

The '728 patent includes 25 claims.² Claim 25 recites:

¹ Because these patents share a specification, when appropriate, we will refer to the '728 patent specification for all three.

² The district court implicitly treated a single claim from each asserted patent as representative. *See, e.g.*,

25. A computer implemented method comprising:
 - analyzing, using a processor, data within a data block to identify one or more parameters or attributes of the data within the data block;
 - determining, using the processor, whether to output the data block in a received form or in a compressed form; and
 - outputting, using the processor, the data block in the received form or the compressed form based on the determination,
- wherein the outputting the data block in the compressed form comprises determining whether to compress the data block with content dependent data compression based on the one or more

Realtime II, 537 F. Supp. 3d at 599–602 (reproducing a single claim from each patent). It also at times did so expressly. See *id.* at 606 (“I adopt claim 18 as representative of the [']825 patent for the purposes of § 101 subject-matter eligibility.”); *id.* at 613–14 (“agree[ing]” that claim 9 of the ’458 patent and claim 1 of the ’751 patent were representative). Appellees assert that the claims that the district court reproduced are representative. Realtime does not meaningfully argue that, for eligibility purposes, there is any distinctive significance between the claims that the district court and the Appellees treat as representative and the other claims in the respective patents. We thus treat those claims as representative. See *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1365 (Fed. Cir. 2018) (claims may be treated as “representative” if a patentee makes no “meaningful argument for the distinctive significance of any claim limitations not found in the representative claim”).

parameters or attributes of the data within the data block or to compress the data block with a single data compression encoder; and

wherein the analyzing of the data within the data block to identify the one or more parameters or attributes of the data excludes analyzing based only on a descriptor that is indicative of the one or more parameters or attributes of the data within the data block.

Id. at claim 25.

The '825 patent includes 30 claims. Claim 18 recites:

18. A method comprising:

associating at least one encoder to each one of a plurality of parameters or attributes of data;

analyzing data within a data block to determine whether a parameter or attribute of the data within the data block is identified for the data block;

wherein the analyzing of the data within the data block to identify a parameter or attribute of the data excludes analyzing based only on a descriptor that is indicative of the parameter or attribute of the data within the data block;

identifying a first parameter or attribute of the data of the data block;

compressing, if the first parameter or attribute of the data is the same as one of the plurality of parameter or attributes of the data, the data block with the at least

one encoder associated with the one of the plurality of parameters or attributes of the data that is the same as the first parameter or attribute of the data to provide a compressed data block; and

compressing, if the first parameter or attribute of the data is not the same as one of the plurality of parameters or attributes of the data, the data block with a default encoder to provide the compressed data block.

'825 patent at claim 18.

The '203 patent includes 30 claims. Claim 14 recites:

14. A system for decompressing, one or more compressed data blocks included in one or more data packets using a data decompression engine, the one or more data packets being transmitted in sequence from a source that is internal or external to the data decompression engine, wherein a data packet from among the one or more data packets comprises a header containing control information followed by one or more compressed data blocks of the data packet the system comprising:

a data decompression processor configured to analyze the data packet to identify one or more recognizable data tokens associated with the data packet, the one or more recognizable data identifying a selected encoder used to compress one or more data blocks to provide the one or more compressed data blocks, the encoder being selected based on content of the one or more data blocks on which a compression algorithm was applied;

one or more decompression decoders configured to decompress a compressed data block from among the one or more compressed data blocks associated with the data packet based on the one or more recognizable data tokens; wherein:

the one or more decompression decoders are further configured to decompress the compressed data block utilizing content dependent data decompression to provide a first decompressed data block when the one or more recognizable data tokens indicate that the data block was encoded utilizing content dependent data compression; and

the one or more decompression decoders are further configured to decompress the compressed data block utilizing content independent data decompression to provide a second decompressed data block when the one or more recognizable data tokens indicate that the data block was encoded utilizing content independent data compression; and

an output interface, coupled to the data decompression engine, configured to output a decompressed data packet including the first or the second decompressed data block.

'203 patent at claim 14.

The family 2 patents. The '908, '530, and '458 patents are in the same family, share a specification, and are titled "System and Methods for Accelerated Data Storage and

Retrieval.”³ These patents are directed to “[s]ystems and methods for providing accelerated data storage and retrieval utilizing lossless data compression and decompression.” ’908 patent at Abstract; *see also id.* at 1:15–18, 2:58–60, 4:42–44. The patents describe certain drawbacks found in prior art systems, including that “high performance disk interface standards . . . offer only the promise of higher data transfer rates through intermediate data buffering in random access memory” and do not address the “fundamental problem” with physical media limitations, *id.* at 2:34–42; and that “[f]aster disk access data rates are only achieved by the high[-]cost solution of simultaneously accessing multiple disk drives with a technique known . . . as data striping,” *id.* at 2:42–45.

The patents purport to overcome these issues by using a “data storage accelerator,” which “operates to increase the effective data storage rate of” a “data storage device” or “memory device.” *Id.* at 5:35–47; *see also id.* at 3:25–33. The specification explains that “the data storage accelerator . . . employs . . . any conventional data compression method suitable for compressing data at a rate necessary for obtaining accelerated data storage.” *Id.* at 16:49–54; *see also id.* at 11:31–36. “[T]he data compression ratio of the data storage accelerator . . . may be adjusted by applying a different type of encoding process such as employing a single encoder, multiple parallel or sequential encoders, or any combination thereof.” *Id.* at 10:6–10. The specification further explains that “[d]ata compression is performed by an encoder module . . . which may comprise a set of encoders . . . [that] may include any number . . . of those lossless encoding techniques currently well known within the art.” *Id.* at 11:66–12:5. In a preferred embodiment, “the

³ Because these patents share a specification, when appropriate, we will refer to the ’908 patent specification for all three.

encoding techniques are based upon their ability to effectively encode different types of input data.” *Id.* at 12:5–7. This, the specification explains, is meant “to eliminate the complexity and additional processing overhead associated with multiplexing concurrent encoding techniques.” *Id.* at 12:31–33. A “compression type descriptor,” moreover, can be appended to the encoded data block output “so as to indicate the type of compression format of the encoded data block.” *Id.* at 12:40–67.

The ’908 patent includes 30 claims. Claim 1 recites:

1. A system comprising:

a memory device; and

a data accelerator configured to compress:

(i) a first data block with a first compression technique to provide a first compressed data block; and (ii) a second data block with a second compression technique, different from the first compression technique, to provide a second compressed data block;

wherein the compressed first and second data blocks are stored on the memory device, and the compression and storage occurs faster than the first and second data blocks are able to be stored on the memory device in uncompressed form.

Id. at claim 1.

The ’530 patent includes 26 claims. Claim 1 recites:

1. A system comprising:

a memory device; and

a data accelerator, wherein said data accelerator is coupled to said memory device, a data stream is received by said

data accelerator in received form, said data stream includes a first data block and a second data block, said data stream is compressed by said data accelerator to provide a compressed data stream by compressing said first data block with a first compression technique and said second data block with a second compression technique, said first and second compression techniques are different, said compressed data stream is stored on said memory device, said compression and storage occurs faster than said data stream is able to be stored on said memory device in said received form, a first data descriptor is stored on said memory device indicative of said first compression technique, and said first descriptor is utilized to decompress the portion of said compressed data stream associated with said first data block.

'530 patent at claim 1.

The '458 patent includes 22 claims. Claim 9 recites:

9. A method for accelerating data storage comprising:

analyzing a first data block to determine a parameter of the first data block;

applying a first encoder associated with the determined parameter of the first data block to create a first encoded, data block wherein the first encoder utilizes a lossless dictionary compression technique;

analyzing a second data block to determine a parameter of the second data block;

applying a second encoder associated with the determined parameter of the second data block to create a second encoded data block, wherein the second encoder utilizes a lossless compression technique different than the lossless dictionary compression technique; and

storing the first and second encoded data blocks on a memory device, wherein encoding and storage of the first encoded data block occur faster than the first data block is able to be stored on the memory device in unencoded form.

'458 patent at claim 9.

The family 3 patent. The '751 patent is titled “Data Feed Acceleration” and relates to “systems and method[s] for providing accelerated transmission of data . . . over a communication channel using data compression and de-compression to . . . effectively increase the bandwidth of the communication channel and/or reduce the latency of data transmission.” ’751 patent at 1:25–36. The specification explains that “accelerated” transmission is “a process of receiving a data stream for transmission over a communication channel, compressing the broadcast data in real-time . . . at a compression rate that increases the effective bandwidth of the communication channel, and transmitting the compressed broadcast data over the communication channel.” *Id.* at 6:28–36. The '751 patent describes drawbacks with conventional data transmission systems, including that “current methods of encryption and compression take as much or substantially more time than the actual time to transmit the uncompressed, unencrypted data.” *Id.* at 3:31–33. A “problem within the current art,” the '751 patent explains, “is the latency induced by the act of encryption, compression, decryption, and decompression.” *Id.* at 3:34–36.

The '751 patent asserts that it solves these problems with a “data compression ratio [that] is substantial and repeatable on each data packet” and that has “no packet-to-packet data dependency.” *Id.* at 7:55–66. The patent explains that compression can be “achieved” using one or more “state machines,” which “are constructed based on a priori knowledge of the structure and content of one or more given broadcast and data feeds” and which “comprise[] a set of compression tables that comprise information for encoding the next character (text, integer, etc.) or sequence of characters in the broadcast data feed, as well as pointers which point to the next state (encoding table) based on the character or character sequence.” *Id.* at 9:6–16. The patent further explains that “[g]eneral purpose computers, servers, workstations, personal digital assistants, special purpose microprocessors, dedicated hardware, or and [sic] combination thereof may be employed to implement the present invention.” *Id.* at 8:23–26.

The '751 patent includes 48 claims. Claim 1 recites:

1. A method for compressing data comprising:

analyzing content of a data block to identify a parameter, attribute, or value of the data block that excludes analyzing based solely on reading a descriptor;

selecting an encoder associated with the identified parameter, attribute, or value;

compressing data in the data block with the selected encoder to produce a compressed data block, wherein the compressing includes utilizing a state machine; and

storing the compressed data block;

wherein the time of the compressing the data block and the storing the compressed

data block is less than the time of storing the data block in uncompressed form.

Id. at claim 1.

B. Procedural History

Realtime filed suit alleging infringement of various combinations of the claims of the '728, '203, '908, '530, and '751 patents against Appellees Fortinet and Reduxio in November 2017, against Appellee Panzura in August 2018, and against Appellee Aryaka in December 2018. *Realtime I*, 831 F. App'x at 494. Fortinet, Reduxio, Panzura, and Aryaka moved to dismiss for failure to state a claim in 2019. *Id.* at 494–95. They argued, among other things, that the claims from those five patents were patent ineligible under 35 U.S.C. § 101. *Id.* at 495.

In 2019, the district court issued an oral ruling from the bench dismissing those five patents for lack of subject matter eligibility under § 101. *Id.* On appeal, this court vacated and remanded, finding that the district court had provided too cursory a ruling to allow for meaningful appellate review. *Id.* at 496–98. For example, we explained that the district court failed to consider the claims as a whole; to “seriously consider[]” claims beyond claim 25 of the '751 patent; or to carefully consider the “directed to” question. *Id.*

Following remand, the district court issued a May 4, 2021 written opinion, in which it found that the seven patents at issue here (and another patent that Realtime later dropped) invalid for claiming patent-ineligible subject matter. *Realtime II*, 537 F. Supp. 3d at 599.⁴ In doing so, the

⁴ By this time, Realtime had sued additional parties and added additional patents, and some of the new parties had also filed motions to dismiss. *Realtime II*, 537 F. Supp. 3d at 599.

district court first rejected Realtime’s argument that the court could not rule on a motion to dismiss because there were factual assertions that prevented disposal at the pleading stage. *Id.* at 604–05. The court found, for instance, that the “patents themselves explain that the technologies and methods used in the claimed analyses were well-known and routine.” *Id.* at 605. The court also found that the 42 paragraphs in one of Realtime’s complaints, which Realtime argued contained relevant factual assertions, merely recited legal conclusions, quotations from the patents, and conclusory allegations. *Id.* None, it found, identify an inventive feature that is distinct from one of the claimed abstract ideas. *Id.*

The district court next analyzed the specific patents. *Id.* at 605–616. The court considered whether it was appropriate to use representative claims (concluding that it was) and applied the two-step ineligibility analysis set forth in *Alice Corp. v. CLS Bank International*, 573 U.S. 208 (2014) for each patent. *Id.* It then summarized its analysis and addressed Realtime’s arguments, which the court found were applicable to every patent. *Id.* at 616–21.

As for *Alice* step one, the court found that every claim from the asserted patents is “directed to the concept of manipulating information using compression.” *Id.* at 616. And “[b]ecause data compression is, without more, simply a form of data analysis, the claims are directed to abstract ideas.” *Id.* The court found that the claims are not “highly specific” and do not provide a “technical solution”: they fail to teach “how to engineer an improved system,” how to “analyze data,” or how to achieve the claimed “efficiency benefits.” *Id.* at 616–17. The court found that these factors distinguished the claims from those at issue in the cases Realtime relied on—which were “necessarily rooted in computer technology.” *Id.* at 618 n.4.

As for *Alice* step two, the court found that the claims provided no additional features that would transform the

claims into non-abstract subject matter: “they simply apply an abstract idea on generic computers with generic techniques.” *Id.* at 616. The court thus concluded that “all claims of the asserted patent are invalid under § 101 for lack of subject matter eligibility.” *Id.* at 621. The district court gave Realtime the opportunity to file amended complaints. *Id.* After Realtime did so, the defendants renewed their motions to dismiss. *See, e.g.,* J.A. 3411.

On August 23, 2021, the district court again dismissed, finding once again that the patents were invalid under § 101. *Realtime III*, 556 F. Supp. 3d at 437. The court first examined whether there were any material differences between Realtime’s prior complaints and its amended complaints. *Id.* at 433. It found that nothing added changed its prior § 101 analysis. *Id.* It then incorporated its legal analysis from the *Realtime II* decision into its decision, reaffirmed its determination that the claims are all invalid under § 101, and granted dismissal. *Id.* at 435–36. At this point, the district court did not offer Realtime leave to amend.

Realtime appeals. We have jurisdiction under 28 U.S.C. § 1295(a)(1).

DISCUSSION

We review the grant of a Rule 12(b)(6) motion to dismiss under the law of the applicable regional circuit—here, the Third Circuit. *Endo Pharms. Inc. v. Teva Pharms. USA, Inc.*, 919 F.3d 1347, 1352 (Fed. Cir. 2019). The Third Circuit reviews de novo a district court’s grant of a motion to dismiss for failure to state a claim under Rule 12(b)(6). *Id.* (citing *Ballentine v. United States*, 486 F.3d 806, 808 (3d Cir. 2007)). To survive a motion to dismiss for failure to state a claim, a complaint must allege “enough facts to state a claim to relief that is plausible on its face.” *Bell Atlantic Corp. v. Twombly*, 550 U.S. 544, 570 (2007).

Section 101 of the Patent Act states: “Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.” 35 U.S.C. § 101. But § 101 “contains an important implicit exception: Laws of nature, natural phenomena, and abstract ideas are not patentable.” *Alice*, 573 U.S. at 216 (citations omitted). The Supreme Court has articulated a two-step test for examining patent eligibility when a patent claim allegedly involves such patent ineligible subject matter. *Id.* at 217–18. Under the “*Alice*” test, a claim falls outside § 101 if (1) it is directed to a patent-ineligible concept like an abstract idea, and (2) it lacks elements sufficient to transform the claim into a patent-eligible application. *SAP Am., Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1166–67 (Fed. Cir. 2018).

We review § 101 patent eligibility under Federal Circuit law. *Smart Sys. Innovations, LLC v. Chi. Transit Auth.*, 873 F.3d 1364, 1367 (Fed. Cir. 2017). Eligibility is ultimately a question of law that may be based on underlying factual findings. *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1365 (Fed. Cir. 2018). And it may be resolved on a Rule 12(b)(6) motion “where the undisputed facts, considered under the standards required by that Rule, require a holding of ineligibility under the substantive standards of law.” *SAP Am.*, 898 F.3d at 1166.

Here, the district court found that the claims of all seven patents at issue are directed to abstract ideas and that they do not recite elements that transform the subject matter into an eligible application of the abstract ideas. We agree.

A. *Alice* Step One

At *Alice* step one, we consider whether the claims are directed to an abstract idea. In doing so, we review the asserted claims, considered in light of the specification. *Yu*

v. Apple, 1 F.4th 1040, 1043 (Fed. Cir. 2021) (citing *TecSec, Inc. v. Adobe Inc.*, 978 F.3d 1278, 1292 (Fed. Cir. 2020)).

The district court found that the claims from the asserted patents are directed to the abstract idea “of manipulating information using compression.” *Realtime II*, 537 F. Supp. 3d at 616. Specifically, it found that the patents are directed to the following abstract ideas:

- the ’728 and ’825 patents—“compressing data based on the content of that data”;
- the ’203 patent—“compressing or decompressing data based on the characteristics of that data where a token is used to signify the compression method used”;
- the ’908 and ’530 patents—“the combination of the abstract idea of compressing two different data blocks with different methods and the logical condition that compression and storage together are faster than storage of the uncompressed data alone”;
- the ’458 patent—“compressing data using two distinct lossless compression algorithms such that the time to compress and store the first data block is less than the time to store the uncompressed data block”; and
- the ’751 patent—“compressing data with a state machine under conditions where compressing and storing the data is faster than storing the uncompressed data and where the compression method applied to the data is based on the content of the data.”

Realtime III, 556 F. Supp. 3d at 430.

Realtime argues that the claims of the asserted patents are directed not to abstract ideas but “to specific improvements to digital data compression, and do not simply recite the use of an abstract mathematical formula, or a fundamental economic or business practice, on any general-

purpose computer.” Appellant’s Reply Br. 13 (citing *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1338 (Fed. Cir. 2016)). Realtime contends that this court has “on multiple occasions highlighted ‘an improved, particularized method of digital data compression’ as an example of a non-abstract, ‘technologically complex’ invention.” Appellant’s Br. 48 (quoting *DDR Holdings v. Hotels.com, L.P.*, 773 F.3d 1245, 1259 (Fed. Cir. 2014)).

The district court found these arguments unpersuasive. “The asserted patents,” it explained, “do not in fact offer a ‘technologically complex . . . improved, particularized method’ for compression but instead recite abstract ideas with only the most general directions to apply those ideas.” *Realtime II*, 537 F. Supp. 3d at 621–22 (modifications in original). Indeed, the district court observed, the claims do not disclose the “how”—“how to engineer an improved system,” how to “analyze data,” or how to achieve the claimed “efficiency benefits.” *Id.* at 616–17; *see also Realtime III*, 556 F. Supp. 3d at 435 n.6 (“[W]hile the patents do disclose potential challenges (e.g., the problem of selecting the best compression method for given data), they do not teach how to address those challenges.”).

We agree. As we have “repeatedly” held, to avoid ineligibility, “a claim must have the specificity required to transform the claim from one claiming only a result to one claiming a way of achieving it.” *Free Stream Media Corp. v. Alphonso Inc.*, 996 F.3d 1355, 1363 (Fed. Cir. 2021) (cleaned up) (citing *SAP Am.*, 898 F.3d at 1167–68). We have determined that “the claim itself . . . must go beyond stating a functional result.” *Am. Axle & Mfg., Inc. v. Neapco Holdings LLC*, 967 F.3d 1285, 1302 (Fed. Cir. 2020). The claim must “identify ‘how’ th[e] functional result is achieved by limiting the claim scope to structures specified at some level of concreteness, in the case of a product claim, or to concrete action, in the case of a method claim.” *Id.*; *see also Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1356 (Fed. Cir. 2016) (“[T]here is a critical

difference between patenting a particular concrete solution to a problem and attempting to patent the abstract idea of a solution to the problem in general.” (citation omitted)).

The claims at issue here fail to do this. As the district court explained, none of the claims at issue specifies any particular technique to carry out the compression of data—the particular rules for producing a smaller set of data out of a larger starting set. Rather, they all take the availability of compression techniques as a given and address the threshold matter of choosing to use one or more such available techniques. And even as to making such a selection, the claims are directed to only abstract ideas, calling for unparticularized analysis of data and achievement of general goals.

We begin our review with the family 1 patents. The representative claim of the '728 patent recites a method that requires “analyzing” “data within a data block” using a “processor” to “identify” certain unspecified “parameters” or “attributes” of the data; “determining” whether to “output” the data block in either a “received” or “compressed” form; and “outputting” the data block in the determined form; wherein outputting in compressed form comprises determining whether to compress with “content dependent data compression” (based on the parameters or attributes) or to compress with a “single data compression encoder”; and wherein analyzing the data “excludes analyzing based only on a descriptor that is indicative” of the parameters or attributes. '728 patent at claim 25. But neither the claim nor the specification ever explains *how* that data is to be analyzed or compressed. *See, e.g., id.* at 7:11–22 (“The encoder set E1, E2, E3 . . . En may include any number . . . of . . . lossless encoding techniques currently well known within the art . . . to provide a broad coverage of existing and future data types”). The claim, for example, does not recite whether it analyzes data to determine the data’s length, complexity, type, or structure. The sole guidance it provides is that the analysis cannot be “based only on a

descriptor.” But minimal narrowing does not make the claim less abstract. *BSG Tech LLC v. Buyseasons, Inc.*, 899 F.3d 1281, 1287 (Fed. Cir. 2018); *see also SAP Am.*, 898 F.3d at 1169 (“further narrowing of what are still mathematical operations” is still abstract).

The representative claim of the ’825 patent is similar. It recites a method that requires “associating” at least one “encoder” with unspecified “parameters” or “attributes” of the data; “analyzing” the data within a “data block” to determine whether the unspecified parameters or attributes are identified; “identifying” a “parameter”; and “compressing” the data. ’825 patent at claim 18. Like claim 25 of the ’728 patent, this claim also fails to recite how the data is to be analyzed or compressed.

The representative claim of the ’203 patent fares no better. It recites a decompression system that requires a “data decompression processor” to “analyze” a “data packet” to “identify” “data tokens” associated with the data packet and which “identify[]” an “encoder used” for compression; “decompression decoders” to “decompress” a “compressed data block” based on the tokens associated with the compression method; and an “output interface” to “output” the decompressed data. ’203 patent at claim 14. Neither the claim nor the specification explains how the decompression is actually achieved. *See id.* at 14:66–15:3 (“The decoders D1 . . . Dn may include those lossless encoding techniques currently well known within the art.”).

Turning to the family 2 patents, the representative claim of the ’908 patent recites a system requiring a “memory device” and a “data accelerator” to “compress” a “first data block with a first compression technique” and a “second data block with a second compression technique,” wherein the compressed data blocks are stored on the memory device and the “compression and storage occurs faster” than storage of the uncompressed data alone. ’908 patent at claim 1. The claim does not recite specific

compression techniques or explain how the data accelerator selects those techniques. The specification simply notes that “any” of many “conventional,” “well known,” or “widely used” compression techniques can be used. *Id.* at 1:50–53, 4:48–54, 16:49–53, 11:31–45, 11:66–12:5, 13:45–57. Neither the claim nor the specification, moreover, explains how the storage of the compressed data occurs “faster.” *Id.* at 4:64–5:1 (stating that the “data storage accelerator” is “configured to simultaneously or sequentially losslessly compress data at a rate equivalent to or faster than the transmission rate of an input data stream”).

The representative claim of the ’530 patent is similar to claim 1 of the ’908 patent but adds storing a compression technique “descriptor” and “utiliz[ing]” that descriptor to decompress the data. ’530 patent at claim 1. These recitations do not explain how the storage of the compressed data occurs “faster,” do not say how the descriptor is implemented, and are at most simply more abstract data manipulation. *See Hawk Tech. Sys., LLC v. Castle Retail, LLC*, 60 F.4th 1349, 1357 (Fed. Cir. 2023) (“[C]onverting information from one format to another—including changing the format of video data or compressing it—is an abstract idea.”). Requiring the compression to be done using an identifier or data descriptor does not make the claims less abstract. *See PersonalWeb Techs. LLC v. Google LLC*, 8 F.4th 1310, 1315–18 (Fed. Cir. 2021) (finding that claims directed to the use of “an algorithm-generated content-based identifier to perform the claimed data-management functions” were abstract); *Intell. Ventures I LLC v. Symantec Corp.*, 838 F.3d 1307, 1313 (Fed. Cir. 2016) (finding that claims for identifying digital data based on “file content identifiers” were abstract).

The representative claim of the ’458 patent is similar to those of the ’908 and ’530 patents. It recites a method that requires “analyzing” a first and a second data block to determine a “parameter” of those data blocks; “applying” “encoder[s]” associated with the determined parameters to

create a first and second encoded data block wherein the encoders “utilize[]” a “lossless dictionary compression technique”; and “storing” the encoded data blocks on a memory device, “wherein encoding and storage of the first encoded data block occur faster than the first data block is able to be stored on the memory device in unencoded form.” ’458 patent at claim 9. But requiring the analysis of data blocks—without explaining how the data is to be analyzed—and the use of lossless compression techniques does not make the claim any less abstract. *See Hawk*, 60 F.4th at 1357; *RecogniCorp, LLC v. Nintendo Co., Ltd.*, 855 F.3d 1322, 1327 (Fed. Cir. 2017) (“[P]rocess that start[s] with data, add[s] an algorithm, and end[s] with a new form of data [is] directed to an abstract idea.”); *PersonalWeb Techs.*, 8 F.4th at 1317 (“Stringing together the claimed steps by ‘[a]dding one abstract idea . . . to another,’ . . . amounts merely to the abstract idea of using a content-based identifier to perform an abstract data-management function.” (citations omitted)). Neither the claim nor the specification explains how the storage of the compressed data occurs “faster.” ’458 patent at 4:67–5:4.

As for the family 3 patent, the representative claim of the ’751 patent recites a method that requires “analyzing content of a data block to identify a parameter, attribute, or value” of the data block “that excludes analyzing based solely on reading a descriptor”; “selecting an encoder” based on that parameter; “compressing” the data at a certain rate using a “state machine”; “storing” the data; “wherein the time of the compressing the data block and the storing the compressed data block is less than the time of storing the data block in uncompressed form.” ’751 patent at claim 1. This claim too states the result to be achieved: compressing the data block and storing the compressed data block in “less than the time of storing the data block in the uncompressed form.” *Id.* Like the claims of the family 2 patents, claim 1 of the ’751 patent does not explain how to accomplish the result. Nor does the

specification meaningfully do so. *Id.* at 6:28–36 (explaining that “accelerated” transmission is “a process of receiving a data stream for transmission over a communication channel, compressing the broadcast data . . . at a compression rate that increases the effective bandwidth of the communication channel, and transmitting the compressed broadcast data over the communication channel”); *see also id.* at 7:11–14. And like the claims of the family 1 patents, claim 1 of the ’751 patent fails to explain how to “analyze” data.

In sum, the claims of the asserted patents are “data manipulation” claims that are recited at a high “level of result-oriented generality” and that lack “sufficient recitation of *how* the purported invention[s]” accomplish the results. *Koninklijke KPN N.V. v. Gemalto M2M GmbH*, 942 F.3d 1143, 1152 (Fed. Cir. 2019) (citation omitted). They thus “amount[] to a mere implementation of . . . abstract idea[s].” *Id.*

Realtime argues that the claims at issue here are like those we found eligible in *Visual Memory LLC v. NVIDIA Corp.*, 867 F.3d 1253 (Fed. Cir. 2017). *See Realtime I*, 831 F. App’x at 496 (“Realtime identified *Visual Memory* . . . as the case most analogous to this one.”). We disagree. The claims there recited “an enhanced computer memory system” that used “programmable operational characteristics configurable based on the type of processor” to “enabl[e] interoperability with multiple different processors.” *Visual Memory*, 867 F.3d at 1259–60. The patent explained that the enhanced computer memory system “outperform[ed] a prior art memory system . . . armed with ‘a cache many times larger than the cumulative size of the subject caches.’” *Id.* at 1259. As we later explained, “[t]he patent did not merely claim this enhancement to the computer memory system; it explained how it worked, appending ‘263 frames of computer code.’” *Univ. of Fla. Research Found., Inc. v. GE Co.*, 916 F.3d 1363, 1368 (Fed. Cir. 2019) (distinguishing the claims in *Visual Memory*). The patents here, by contrast, fail to explain the “how.”

Because the claims of the asserted patents are directed to abstract ideas, we examine the claims at *Alice* step two to determine if the claims are transformed into subject matter beyond the abstract ideas themselves.

B. *Alice* Step Two

At *Alice* step two, we look for an “inventive concept”—“an element or combination of elements that is sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.” *Alice*, 573 U.S. at 217–18 (citation and internal quotation marks omitted). In so doing, we consider the claim elements—individually and as an ordered combination—to assess whether [they] transform the nature of the claim into a patent-eligible application of the abstract idea.” *Two-Way Media Ltd. v. Comcast Cable Commc’ns, LLC*, 874 F.3d 1329, 1338 (Fed. Cir. 2017) (citation omitted). The inventive concept must amount to more than “well-understood, routine, or conventional activities.” *Alice*, 573 U.S. at 225 (cleaned up). And the “mere recitation of concrete, tangible components is insufficient to confer patent eligibility to an otherwise abstract idea.” *In re TLI Commc’ns, LLC Patent Litig.*, 823 F.3d 607, 613 (Fed. Cir. 2016). At the same time, “an inventive concept can be found in the non-conventional and non-generic arrangement of known, conventional pieces.” *BASCOM Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1350 (Fed. Cir. 2016).

The district court found that the claims from the asserted patents “simply apply an abstract idea on generic computers with generic techniques.” *Realtime II*, 537 F. Supp. 3d at 616. It thus found that the claims failed *Alice* step two. We agree.

Realtime argues that “the disclosed inventions . . . provide specific, unconventional technological solutions that improve computer functionality and overcome problems specifically arising in the realm of compression of digital

computer data.” Appellant’s Br. 63. But this “amounts to no more than a restatement of the assertion that the desired results are an advance.” *Am. Axle & Mfg.*, 967 F.3d at 1299. As explained above, the claims here merely claim a result and are thus directed to ineligible subject matter. “[A] claimed invention’s use of the ineligible concept to which it is directed cannot supply the inventive concept’ required to cross the line into eligibility.” *Id.* (quoting *BSG Tech*, 899 F.3d at 1290).

As for the specific patents, Realtime contends that the claims of the family 1 patents “require specific, unconventional combinations of specially configured computer elements,” like using content dependent and content independent data compression, encoders, and processors. Appellant’s Br. 60–61. The common specification of the family 1 patents, however, does not purport to require the use of any special processor. *See, e.g.*, ’728 patent at 6:32–37 (“[T]he system modules described herein are preferably implemented in software as an application program that is executable by, e.g., a general purpose computer or any machine or device having any suitable and preferred microprocessor architecture.”). The same goes for the “encoders.” *See, e.g., id.* at 7:13–17 (“The encoder set . . . may include any number . . . of those lossless encoding techniques currently well known within the art”); *id.* at 6:30–32 (“[T]he present invention may be implemented in various forms of hardware, software, firmware, or a combination thereof.”). And the common specification explains that data can be analyzed “using methods known by those skilled in the art to extract the data compression type descriptor associated with the data block,” *id.* at 14:59–64, that “there are many conventional content dependent techniques,” *id.* at 2:67–3:2, and that it was known that the effectiveness of data compression is “highly contingent upon the content of the data being compressed,” *id.* at 2:33–35.

Realtime also argues that “analyzing the data to identify one or more parameters or attributes and performing

compression with a plurality of different encoders based on that analysis” is a “non-conventional” function and that using “multiple encoders to compress data blocks based on an analysis of the specific content or type of the data being encoded without relying solely on a descriptor” is what the common specification of the family 1 patents “makes clear” is the “inventive concept.” Appellant’s Br. 64–65. But these are themselves abstract ideas and thus cannot provide an inventive concept. *BSG Tech*, 899 F.3d at 1290.

As for the family 2 patents, Realtime contends that they solve “problems in conventional digital data compression systems,” like “bandwidth limitations,” by requiring “specific, unconventional combinations of specially configured elements.” Appellant’s Br. 61. Realtime, for example, points to ’908 patent claim 1’s “memory device” and “data accelerator,” the latter of which Realtime argues is “unconventional” because it “requires two different compression techniques and the structural capability of compressing and storing digital data faster than the digital data can be stored in uncompressed form.” *Id.* But the “memory device” is simply a generic computer component. See ’908 patent at 5:42–47 (“The memory storage device 45 may be volatile or non-volatile in nature, or any combination thereof. Storage devices as known within the current art include all forms of random access memory”). The compression techniques are generic, well-known, and conventional. See, e.g., *id.* at 1:51–53, 11:31–45, 11:65–12:10, 13:45–48, 16:52–53. And using a “data accelerator” to store data “faster” amounts to using a generic component “to increase the speed or efficiency of the process” and thus “does not confer patent eligibility on an otherwise abstract idea.” *PersonalWeb Techs.*, 8 F.4th at 1319 (citations omitted). Using multiple compression techniques and compressing and storing data on a generic component faster than if it were uncompressed data, moreover, is an abstract idea and cannot provide an inventive concept. *BSG Tech*, 899 F.3d at 1290.

Realtime also highlights that claim 1 of the '530 patent adds using a descriptor to decompress the compressed data. Appellant's Br. 61–62. The '530 patent specification, however, confirms that using a descriptor to decompress data is conventional, explaining that “other data decompression systems and methods known to those skilled in the art may be employed for providing accelerated data retrieval.” '530 patent at 14:42–48. Realtime also directs us to an encoder performing compression in claim 1 of the '458 patent. Yet neither the claim nor the specification describes specific, unconventional encoding or compression techniques. So Realtime’s reliance on the encoder is misplaced. *See Adaptive Streaming Inc. v. Netflix, Inc.*, 836 F. App’x 900, 904 (Fed. Cir. 2020) (nonprecedential) (finding that claims failed *Alice* step two where there was “no identification in the claims or written description of specific, unconventional encoding, decoding, compression, or broadcasting techniques”).

As for family 3, Realtime asserts that the '751 patent addresses problems in the prior art like “latency” and solves them “by providing an unconventional compression system allowing for a multiplication of bandwidth and a reduction in transmission latency.” Appellant's Br. 62. Realtime points to claim 25’s requirement of “a data server” that is implemented on “processors” and “memory systems,” and that is configured to “analyze” data, “select” an encoder, “compress” the data using a “state machine,” and “store” the data. *Id.* But Realtime fails to explain how a “data server,” “processor,” and “memory system” are anything but generic computer components, and indeed, “it is hard to imagine a patent claim that recites hardware limitations in more generic terms.” *In re Bd. of Trs. of Leland Stanford Junior Univ.*, 989 F.3d 1367, 1374 (Fed. Cir. 2021) (explaining that patent reciting a method carried out by a “computer” with a “processor” and a “memory” failed to require a “specialized computer or a computer with a specialized memory or processor”). And as for the “state

machine,” Realtime has acknowledged that such machines are “well-known computer components.” J.A. 4921 at 31:19–20.

Realtime further contends that the ’751 patent provides “unconventional technological solutions in digital data transmission,” by, for instance, providing “transmission and transparent multiplication of digital data communication bandwidth, as well as a potential reduction of the latency associated with data transmission of conventional systems.” Appellant’s Br. 69. Data transmission, however, is an abstract idea that does not provide an inventive concept. *See Two-Way Media*, 874 F.3d at 1340–41. And Realtime’s assertion of a potential reduction of the latency “amounts to no more than a restatement of the assertion that the desired results are an advance.” *Am. Axle & Mfg.*, 967 F.3d at 1299.

In short, we see nothing in the individual limitations or their ordered combination that transform the claims into patent-eligible subject matter. “[M]erely reciting an abstract idea performed on a set of generic computer components, as [the claims] do[] here, would ‘not contain an inventive concept.’” *Two-Way Media*, 874 F.3d at 1339 (quoting *BASCOM*, 827 F.3d at 1350).

CONCLUSION

We have considered Realtime’s other arguments and find them unpersuasive. For the above reasons, we hold that the claims of the asserted patents are directed to patent-ineligible subject matter. We thus affirm the district court’s dismissal under Rule 12(b)(6) based on subject-matter ineligibility under 35 U.S.C. § 101.

AFFIRMED

COSTS

No costs.

NOTE: This disposition is nonprecedential.

**United States Court of Appeals
for the Federal Circuit**

REALTIME DATA LLC, DBA IXO,
Plaintiff-Appellant

v.

ARRAY NETWORKS INC., NIMBUS DATA, INC.,
Defendants

**FORTINET, INC., REDUXIO SYSTEMS, INC.,
QUEST SOFTWARE, INC., CTERA NETWORKS,
LTD., ARYAKA NETWORKS, INC., OPEN TEXT,
INC., MONGODB INC., EGNYTE, INC., PANZURA,
INC.,**
Defendants-Appellees

2021-2251

Appeal from the United States District Court for the
District of Delaware in No. 1:17-cv-00800-CFC, Chief
Judge Colm F. Connolly.

REALTIME DATA LLC, DBA IXO,
Plaintiff-Appellant

v.

SPECTRA LOGIC CORPORATION,
Defendant-Appellee

2021-2291

Appeal from the United States District Court for the District of Delaware in No. 1:17-cv-00925-CFC, Chief Judge Colm F. Connolly.

NEWMAN, *Circuit Judge*, dissenting.

This is properly an enablement case. The panel today invalidates patent claims under 35 U.S.C. § 101 by applying the test for judicial exceptions to patent eligibility as presented by the Supreme Court in *Alice* and as enlarged by the Federal Circuit. I write separately to note once again that § 101 was never intended to bar categories of invention in this way. This judicial exception to eligibility is an unnecessary and confusing creation of the courts. This case is an example, for the enablement requirement of § 112 is better suited to determining validity of these claims than is the distortion of § 101. I respectfully dissent, and would remand for determination of validity under § 112.

The current law of § 101 has diverged from its historical purpose. Numerous scholars, practitioners, and Congresspeople have observed that the current law of § 101 creates uncertainty and stifles innovation. As I have summarized:

At the time of the Domestic Policy Review, the meaning of § 101 was not a topic of concern. Section 101 was understood as an introduction to the statute, not as a limitation on patentable subject

matter. The interpretation of patentable subject matter today is unsatisfactory; it is time to clarify the principles of patentable subject matter, and to apply principles supportive of innovation.

Pauline Newman, *The Birth of the Federal Circuit*, AIPLA Q.J. 515, 518 (2022).

Representative Doug Collins, then the ranking member of the House Judiciary Committee, complained about this court's application of § 101, stating:

It's unthinkable The courts have misstated the law several times, which deprives many innovative products of adequate protection. Congress must establish a new eligibility test to encourage investment in developing new U.S. technologies and ensure American inventors aren't at a global disadvantage.

Rep. Doug Collins, Press Release, House of Representatives Judiciary Committee, Office of the Ranking Member (Oct. 4, 2019), <https://republicans-judiciary.house.gov/press-release/collins-calls-for-new-patent-eligibility-test-following-flawed-court-ruling/> (discussing *Am. Axle & Mfg., Inc. v. Neapco Holdings LLC*, 939 F.3d 1355 (Fed. Cir. 2019), *opinion withdrawn and replaced by* 967 F.3d 1285 (Fed. Cir. 2020)).

Senator Chris Coons, chair of the Senate Subcommittee on Intellectual Property, recently stated:

More than a decade after the Supreme Court waded into patent eligibility law, uncertainty remains about what areas of innovation are eligible for patent protection. Critical technologies like medical diagnostics and artificial intelligence can be protected with patents in Europe and China, but not in the United States.

Sen. Chris Coons, *quoted in* Sen. Thom Tillis, Press Release (June 22, 2023), <https://www.tillis.senate.gov/2023/6/tillis-coons-introduce-landmark-legislation-to-restore-american-innovation>. Senator Tillis, ranking member of the same subcommittee, added:

I have long said that clear, strong, and predictable patent rights are imperative to enable investments in the broad array of innovative technologies that are critical to the economic and global competitiveness of the United States, and to its national security Unfortunately, our current Supreme Court’s patent eligibility jurisprudence is undermining American innovation and allowing foreign adversaries like China to overtake us in key technology innovations.

Sen. Thom Tillis, *id.*

Eligibility law has been called a “morass of seemingly conflicting judicial decisions.” Michael Xun Liu, *Subject matter Eligibility and Functional Claiming in Software Patents*, 20 N.C. J.L. & Tech. 227, 266 (2018). We should not wade further into this morass.

This case is another example that conforms with our flawed precedent. I respectfully dissent. I would remand for determination of validity under § 112 and, if applicable, §§ 102 and 103.