

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
SHERMAN DIVISION**

R2 Solutions LLC,

Plaintiff,

v.

FedEx Corporate Services, Inc.,

Defendant.

Civil Action No. 4:21-cv-00940-ALM

Jury Trial Demanded

FIRST AMENDED COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff R2 Solutions LLC files this First Amended Complaint against FedEx Corporate Services, Inc. for infringement of U.S. Patent Nos. 8,190,610 (“the ’610 patent”), 8,341,157 (“the ’157 patent”), and 7,698,329 (“the ’329 patent”). The ’610 patent, ’157 patent, and ’329 patent are referred to collectively as the “patents-in-suit.”

THE PARTIES

1. Plaintiff R2 Solutions LLC (“R2 Solutions”) is a Texas limited liability company located in Frisco, Texas.
2. Defendant FedEx Corporate Services, Inc. (“FedEx Services” or “Defendant”) is a Delaware corporation with headquarters at 942 S. Shady Grove Road, Memphis, TN 38120 and a regular and established place of business located at 7900 Legacy Dr., Plano, TX 75024. FedEx Services may be served with process through its registered agent, CT Corporation System, 1999 Bryan St., Ste. 900 Dallas, TX 75201.

3. FedEx Services and its affiliates maintain thousands of physical locations in Texas, with 719 Texas cities serving as home to one or more FedEx Services-related locations.¹

4. FedEx Services and its affiliates advertise multiple locations in this District—for example, FedEx.com lists 34 locations in Plano, 18 in Tyler, 15 in Frisco, 14 in Beaumont, 10 in Lufkin, 10 in Texarkana, and 8 in Sherman, among others.² FedEx Services also maintains a significant operations center at 7900 Legacy Dr., Plano, TX 75024 (hereinafter, the “Plano Operations Center”) where it hosts numerous engineers and software developers. This location also serves as corporate headquarters for FedEx Services’ sister company, FedEx Office. FedEx Services and FedEx Office are deeply comingled.

JURISDICTION AND VENUE

5. This action arises under the patent laws of the United States, 35 U.S.C. § 101, *et seq.* This Court’s jurisdiction over this action is proper under the above statutes, including 35 U.S.C. § 271, *et seq.*, 28 U.S.C. § 1331 (federal question jurisdiction), and 28 U.S.C. § 1338 (jurisdiction over patent actions).

6. This Court has personal jurisdiction over FedEx Services in accordance with due process and/or the Texas Long Arm Statute because, among other things, FedEx Services conducts business in this State by, among other things, “recruit[ing] Texas residents, directly or through an intermediary located in this state, for employment inside or outside this state.” TEX. CIV. PRAC. & REM. CODE § 17.042(3). For instance, each of the employment listings below advertise openings at FedEx Services in Texas, including numerous positions in Plano:

¹ See “Find FedEx locations – Texas,” <https://local.fedex.com/en-us/tx> (accessed November 22, 2021).

² *Supra* at fn. 1.

FedEx [Featured Jobs](#) [Companies](#) [I am FedEx](#) [FedEx Careers](#) [Military](#) English ▾

[Job Search](#) [Job Matching](#)

Search Keyword, Category or Job Title: software Search Locations: Texas 10 Miles

Filters Categories ▾ Companies ▾ Locations ▾

Featured Jobs

- ★ Featured Job**
Data Engineer III (Remote) - Dataworks
Req ID: RC415108
Location: Multiple
Companies: FedEx Services
[Click to Apply](#) English ▾
- ★ Featured Job**
Data Engineer Advisor (Remote) - Dataworks
Req ID: RC415104
Location: Multiple
Companies: FedEx Services
[Click to Apply](#) English ▾

78 Results Sort By Relevance ▾

These results are close to Texas, USA

- Intern Information Technology - Dallas**
Req ID: RC418485
Location: 2201 W Plano Pkwy, Plano, Texas, United States
Companies: FedEx Services
[Click to Apply](#) English ▾
- Data Engineer III (Remote) - Dataworks**
Req ID: RC415108
Location: Multiple
Companies: FedEx Services
[Click to Apply](#) English ▾
- Network Engineering Advisor**
Req ID: 38925
Location: Multiple
Companies: FedEx Supply Chain
[Click to Apply](#) English ▾
- Data Engineer Advisor (Remote) - Dataworks**
Req ID: RC415104
Location: Multiple
Companies: FedEx Services
[Click to Apply](#) English ▾
- Senior Business Applications Analyst**
Req ID: 36830
Location: Multiple
Companies: FedEx Supply Chain
[Click to Apply](#) English ▾

<https://careers.fedex.com/fedex/jobs?keywords=software&stretchUnits=MILES&stretch=10&location=Texas&woe=8&radius=10&radiusUnit=MILES&sortBy=relevance&page=1&stretchUnit=MILES>.

FedEx Services Careers Home FedEx Cares Career Profile Join Our Talent Network Military

← Back

Data Engineer III (Remote) - Dataworks

Locations: Collierville, Tennessee; **Plano, Texas**; Harrison, Arkansas; Lakeland, Florida; Pittsburgh, Pennsylvania

Categories: Information Technology

Apply

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Job Description

Company: FedEx Services
Job Title: Data Engineer III (Remote) - Dataworks
Job Requisition Number: RC415108
Category: Information Technology
Pay Type: Exempt
Locations:
Collierville, Tennessee 38017
United States
Plano, Texas 75024
United States
Harrison, Arkansas 72601
United States
Lakeland, Florida 33801
United States
Pittsburgh, Pennsylvania 15205
United States

<https://careers.fedex.com/services/jobs/POSTING-3-506361?lang=en-US>.

7. Further, this Court has personal jurisdiction over FedEx Services because it has engaged, and continues to engage, in continuous, systematic, and substantial activities within this State, including the substantial marketing and sale of products and services within this State and this District. Indeed, this Court has personal jurisdiction over FedEx Services because it has committed acts giving rise to R2 Solutions' claims for patent infringement within and directed to this District, has derived substantial revenue from its goods and services provided to individuals

in this State and this District, and maintains regular and established places of business in this District, including at least its Plano Operations Center.

8. Relative to patent infringement, FedEx Services has committed and continues to commit acts in violation of 35 U.S.C. § 271, and has made, used, marketed, distributed, offered for sale, and/or sold infringing products and services in this State, including in this District, and otherwise engaged in infringing conduct within and directed at, or from, this District. Such infringing products and services include: (1) the FedEx.com tracking and/or search engine; and (2) the FedEx data analytics system, including the data analytics system built on Apache Hadoop. All such infringing systems are hereinafter referred to collectively as the “FedEx Systems.” Such products and services have been and continue to be made, offered for sale, distributed to, sold, and used in this District, and the infringing conduct has caused, and continues to cause, injury to R2 Solutions, including injury suffered within this District. These are purposeful acts and transactions in this State and this District such that FedEx Services reasonably should know and expect that it could be haled into this Court.

9. Venue is proper in this District under 28 U.S.C. §§ 1391 and 1400(b) because FedEx Services has a physical place in the District—the Plano Operations Center—that constitutes a regular and established place of business. Job offerings specifically originating from FedEx Services (as opposed to sister entities) are advertised as being located and fulfilled in Plano, presumably (and sometimes explicitly) at the Plano Operations Center:

Featured Jobs

★ Featured Job

Sr. Design Strategist - Remote Location: Multiple Companies: FedEx Services [Click to Apply](#)
Req ID: RC427741 English

Company: FedEx Services
Job Title: Sr. Design Strategist - Remote
Job Requisition Number: RC427741
Category: Marketing
Pay Type: Exempt
Locations:
Remote, Tennessee 38120
United States
Plano, Texas 75024
United States

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★ Featured Job

Product Management Principal - Dataworks - Remote Location: Multiple Companies: FedEx Services [Click to Apply](#)
Req ID: RC433291 English

Company: FedEx Services
Job Title: Product Management Principal - Dataworks - Remote
Job Requisition Number: RC433291
Category: Marketing
Pay Type: Exempt
Locations:
Memphis, Tennessee 38125
United States
Plano, Texas 75024
United States

[Read More](#)

<https://careers.fedex.com/services/jobs?stretchUnits=MILES&stretch=10&location=Plano&lat=33.01984&lng=-96.69889&woe=7>.

10. All of the following positions are FedEx Services positions currently available in this District. Notably, at least 10 of the 12 available position listings returned from a “Plano” search (as of November 23, 2021), are positions with FedEx Services:

Search Keyword, Category or Job Title Search Locations Exact

Filters Categories Locations

Featured Jobs			
★ Featured Job	Sr. Design Strategist - Remote Req ID: RC427741	Location Multiple	Companies FedEx Services <input type="button" value="Click to Apply"/> <input type="button" value="Down Arrow"/> English
★ Featured Job	Product Management Principal - Dataworks - Remote Req ID: RC433291	Location Multiple	Companies FedEx Services <input type="button" value="Click to Apply"/> <input type="button" value="Down Arrow"/> English

12 Results Sort By
Relevance

Notify me of future jobs matching this search [Login](#) or [Register](#)

These results are close to 1508 K Ave, Plano, TX 75074, USA; Plano, TX, USA

Intern Information Technology - Dallas Req ID: RC418485	Location 2201 W Plano Pkwy Plano, Texas United States	Companies FedEx Services	<input type="button" value="Click to Apply"/> <input type="button" value="Down Arrow"/> English
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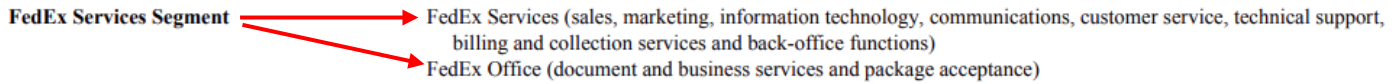
Jr. Associate Auditor - Intern Req ID: RC327023	Location 7900 Legacy Drive Plano, Texas United States	Companies FedEx Services	<input type="button" value="Click to Apply"/> <input type="button" value="Down Arrow"/> English
IT Governance, Risk and Compliance Analyst Req ID: RC448977	Location Multiple	Companies FedEx Services	<input type="button" value="Click to Apply"/> <input type="button" value="Down Arrow"/> English
Sr. Design Strategist - Remote Req ID: RC427741	Location Multiple	Companies FedEx Services	<input type="button" value="Click to Apply"/> <input type="button" value="Down Arrow"/> English
Research Advisor Req ID: RC419940	Location Multiple	Companies FedEx Services	<input type="button" value="Click to Apply"/> <input type="button" value="Down Arrow"/> English
Sr. Revenue Science Analyst and Revenue Science Advisor Req ID: RC446613	Location Multiple	Companies FedEx Services	<input type="button" value="Click to Apply"/> <input type="button" value="Down Arrow"/> English

Product Management Principal - Dataworks - Remote Req ID: RC433291	Location Multiple	Companies FedEx Services	Click to Apply English
Data Engineer III (Remote) - Dataworks Req ID: RC415108	Location Multiple	Companies FedEx Services	Click to Apply English
Data Engineer II (Remote) - Dataworks Req ID: RC414593	Location Multiple	Companies FedEx Services	Click to Apply English
Data Engineer Advisor (Remote) - Dataworks Req ID: RC415104	Location Multiple	Companies FedEx Services	Click to Apply English

11. The Plano Operations Center is a “place of the defendant” within the meaning of *In re Cray*, 871 F.3d 1355 (Fed. Cir. 2017). For instance, FedEx Services either owns or leases the location, or otherwise “exercises other attributes of possession or control over the place” by housing its employees there to perform FedEx Services’ extensive business. *See Cray*, 871 F.3d at 1363-64. Indeed, FedEx Services explicitly represents that “it has a place of business in the district” by “list[ing] the alleged place of business on a website”—i.e., FedEx Services advertises its need for employees in software engineering and data science fields for the Plano Operations Center in this District. *Id.* At a minimum, FedEx Services exercises substantial control over the Plano Operations Center by occupying it with its own employees conducting FedEx Services business.

12. To the extent that FedEx Services would argue that the Plano Operations Center belongs, instead, to FedEx Office, FedEx Services has long held itself out as being inexorably comingled with affiliated entities under the FedEx Corporation umbrella, especially FedEx

Office. For example, FedEx Corporation’s 2019 10-K filing reveals FedEx Office as actually a segment of FedEx Services:



FedEx Services Segment

The FedEx Services segment operates combined sales, marketing, administrative and information-technology functions in shared services operations that support our transportation businesses and allow us to obtain synergies from the combination of these functions. For the international regions of FedEx Express, some of these functions are performed on a regional basis and reported by FedEx Express in their natural expense line items. The FedEx Services segment includes: FedEx Services, which provides sales, marketing, information technology, communications, customer service, technical support, billing and collection services for U.S. customers of our major business units and certain back-office support to our other companies; and FedEx Office, which provides an array of document and business services and retail access to our customers for our package transportation businesses.

https://www.sec.gov/Archives/edgar/data/1048911/000156459019025065/fdx-10k_20190531.htm .

13. As such, the Plano Location is a “place of the defendant” within the meaning of *Cray*. *See id.*

14. Venue is further proper in this District because a substantial part of the events or omissions giving rise to the R2 Solutions’ claims occurred in this District. FedEx Services conducts business in this District, including providing District residents with access to a package tracking platform through FedEx.com. Indeed, District residents invoke the FedEx Systems within the District to facilitate shipping, delivery, and tracking of packages entrusted to FedEx Services (and/or its affiliates). Additionally, the operation of FedEx.com by FedEx Services in the District—including the tracking/search engine—constitutes one or more steps of the methods claimed in the patents-in-suit. And FedEx Services facilitates the fulfillment of orders to and from District residents via its web platform, further enabling the shipping/receiving/tracking of goods to and/or from FedEx Services’ (and/or its affiliates’) locations within this District.

BACKGROUND

15. The patents-in-suit were filed by Yahoo! Inc. (“Yahoo!”) between 2006 and 2009. At the time, Yahoo! was a leading Internet communications, commerce, and media company.

Yahoo! invested billions of dollars in research and development over this period, filing hundreds of patent applications each year to cover the innovative computing technologies emerging from its expansive research and development efforts.

16. Yahoo! began as a directory of websites that two Stanford graduate students developed as a hobby. The name, “Yahoo,” stands for “Yet Another Hierarchical Official Oracle,” a nod to how the original Yahoo! database was arranged hierarchically in layers of subcategories. From this initial database, Yahoo! would develop and promulgate numerous advancements in the field of data storage and recall.

17. For example, in 1995, Yahoo! introduced Yahoo! Search. This software allowed users to search the Yahoo! directory, making it the first popular online directory search engine. This positioned Yahoo! as the launching point for most users of the World Wide Web. By 1998, Yahoo! had the largest audience of any website or online service.

18. However, the early iterations of Yahoo! Search did not operate like a modern search engine because it was only a directory. Yahoo! Search first integrated a Web crawling engine in 2000. Yahoo! Search used Google’s Web crawling engine from 2000–2004. During this time, Yahoo! was developing its own Web search technologies. Yahoo! deployed its own Web crawler in early 2004. The engine, known as Slurp, allowed Yahoo! to collect documents from the Web and build a searchable index. The patents-in-suit relate to innovations associated with Yahoo! Search developed and implemented during this period, which enabled Yahoo! to become Google’s biggest competitor in the search engine space.

THE PATENTS-IN-SUIT

19. The ’610 patent is entitled, “MapReduce for Distributed Database Processing.” The ’610 patent lawfully issued on May 29, 2012 and stems from U.S. Patent Application No.

11/539,090, which was filed on October 5, 2006. A copy of the '610 patent is attached hereto as Ex. 1.

20. The '157 patent is entitled, "System and Method for Intent-Driven Search Result Presentation." The '157 patent lawfully issued on December 25, 2012 and stems from U.S. Patent Application No. 12/533,299, which was filed on July 31, 2009. A copy of the '157 patent is attached hereto as Ex. 2.

21. The '329 patent is entitled, "Method for Improving Quality of Search Results by Avoiding Indexing Sections of Pages." The '329 patent lawfully issued on April 13, 2010 and stems from U.S. Patent Application No. 11/652,356, which was filed on January 10, 2007. A copy of the '329 patent is attached hereto as Ex. 3.

22. R2 Solutions is the owner of the patents-in-suit with all substantial rights, including the exclusive right to enforce, sue, and recover damages for past and future infringements.

23. As discussed at length in the Declaration of Bill Davis, attached hereto as Exhibit 7 and incorporated herein by reference in its entirety, the claims of the patents-in-suit are directed to patent eligible subject matter under 35 U.S.C. § 101. They are not directed to an abstract idea, and the technologies covered by the claims consist of ordered combinations of features and functions that, at the time of invention, were not, alone or in combination, well-understood, routine, or conventional.

24. In fact, the specifications of the patents-in-suit disclose shortcomings in the prior art and then explain, in detail, the technical way the claimed inventions resolve or overcome those shortcomings. The '610 patent explains, for instance, that "conventional MapReduce implementations do not have facility to efficiently process data from heterogeneous sources" and

that “it is impractical to perform joins over two relational tables that have different schemas.” ’610 patent at 3:9–20. To solve these problems, the ’610 patent provides a clear technological improvement to existing MapReduce systems by describing and implementing a novel MapReduce architecture where mapping and reduce functions can be applied to data from heterogeneous data sources (i.e., data sources having different schema) to accomplish the merger of heterogeneous data based on a key in common between or among the heterogeneous data. For example, the ’610 patent explains how implementation of, e.g., “data groups” realizes these improvements:

In general, partitioning the data sets into data groups enables a mechanism to associate (group) identifiers with data sets, map functions and iterators (useable within reduce functions to access intermediate data) and, also, to produce output data sets with (group) identifiers. It is noted that the output group identifiers may differ from the input/intermediate group identifiers.

’610 patent at 3:58-64.

25. The technological advantages of a “data group”-centric system is shown to “enhance[] the utility of the MapReduce programming methodology.” ’610 patent at 1:32-33. As the specification explains:

[T]he MapReduce concept may be utilized to carry out map processing independently on two or more related datasets (e.g., related by being characterized by a common key) even when the related data sets are heterogeneous with respect to each other, such as data tables organized according to different schema. The intermediate results of the map processing (key/value pairs) for a particular key can be processed together in a single reduce function by applying a different iterator to intermediate values for each group. In this way, operations on the two or more related datasets may be carried out more efficiently or in a way not even possible with the conventional MapReduce architecture.

Id. at 8:47–58.

26. Such a solution is embodied, for example, in Claim 1 of the '610 patent:

A method of processing data of a data set over a distributed system, wherein the data set comprises a ***plurality of data groups***, the method comprising:

partitioning the data of each one of the data groups into a plurality of data partitions that each have a plurality of key-value pairs and ***providing each data partition to a selected one of a plurality of mapping functions*** that are each user-configurable to independently output a plurality of lists of values for each of a set of keys found in such map function's corresponding data partition to form corresponding ***intermediate data for that data group and identifiable to that data group***, wherein ***the data of a first data group has a different schema than the data of a second data group*** and ***the data of the first data group is mapped differently than the data of the second data group*** so that different lists of values are output for the corresponding different intermediate data, ***wherein the different schema and corresponding different intermediate data have a key in common***; and

reducing the intermediate data for the data groups to at least one output data group, including ***processing the intermediate data for each data group in a manner that is defined to correspond to that data group***, so as to result in a ***merging of the corresponding different intermediate data based on the key in common***,

wherein the mapping and reducing operations are performed by a distributed system.

(emphasis added).

27. As explained by Mr. Davis, “[t]he concept of ‘data groups’ as found in Claim 1 of the '610 patent in the context of MapReduce, thus, attains a novel and technological improvement in computer capabilities.” Ex. 7 at 43. For example, employing “data groups” allows “a diverse data set [to] be fed to a collection of mapping functions within the same

MapReduce architecture to ultimately be reduced and/or merged in spite of the diversity, and this is facilitated by a character of each ‘data group’ (i.e., the ‘mechanism for identifying data from that group’) of the diverse data set following the data through the mapping.” *Id.* Per Claim 1, “the improved MapReduce architecture in the reducing phase is able to selectively employ specialized processing based on the ‘data group’ from which the data being reduced originated,” and “[t]his specialized processing[] enables the MapReduce architecture in the reducing phase to accomplish the merger of intermediate data hailing from different data groups.” *Id.*

28. The inventions described and claimed in the ’610 patent improve the “speed, efficiency, effectiveness, and functionality of computer systems.” Ex. 7 at 50. Moreover, “[t]he inventions provide an improvement in computer functionality rather than improvement in performance of an economic task or other tasks for which a computer is used merely as a tool.” *Id.* The ’610 patent itself states that the claimed inventions “enhance[] the utility of the MapReduce programming methodology.” ’610 patent at Abstract, 1:31–33, 1:66–2:2. The ’610 patent specification goes on to explain that “[t]he intermediate results of the map processing (key/value pairs) for a particular key can be processed together in a single reduce function by applying a different iterator to intermediate values for each group.” *Id.* at Abstract, 1:37–39, 2:4–8. And the specification discusses the use of multiple processors to perform processing functions in parallel. *See id.* As a result, computer functionality is improved. *Id.* at 1:42–44.

29. Additionally, “[t]he claimed inventions provide for more dynamic, customizable, and efficient processing of large sets of data.” Ex. 7 at 51; *see also, e.g.*, ’610 patent at 2:58–61, 4:18–22. The inventions provide optimization, which increases efficiency and reduces processor execution time. *See* Ex. 7 at 51. For example, the specification describes a combiner function that “helps reduce the network traffic and speed up the total execution time.” ’610 patent at 3:1–

8. The specification also discusses the use of configurable settings to reduce processing overhead. *See, e.g., id.* at 4:60–62, 5:33–39.

30. Relative to the '157 patent, the specification explains that if, as in the case of traditional search engines, the “engine simply regards a web query as, for example, a ‘bag of words’, the search engine will search for web pages and other data objects (e.g., images, audio files, text files) that contain, or are otherwise associated with, the individual words within the query.” '157 patent at 4:1–5. However, simply treating a user query as a “bag of words” may yield results that do not align with the purpose of the user’s search. Additionally, it can be onerous to scrutinize generated results for a desired returned object, as the objects can be unremarkable as to each other. *Id.* at 4:10-15. Thus, the specification teaches:

Search results could be significantly enhanced if the likely intent of the query is known. For example, search results may be ranked such that results that are more relevant to the user’s intent appear at or near the top of the search results. Perhaps more significantly, however, the user’s intent can be used to customize the display and behavior of a search result to be narrowly targeted to a user’s intent. An illustrative list of such customizations could include a customized title or abstract for the result or specialized parameters of a displayed clickable URL to provide the landing page with information regarding the user’s intent or triggered by the user's intent.

Id. at 4:16–26.

31. This “‘intents’-driven search engine process” offers significant technical features that constitute enhancements over then-existing search engine technology. Ex. 7 at 77. For example, the '157 patent discusses how pre-programmed “intents” can be mapped to from query keywords, and how “intents” determination can be fine-tuned via particular parameters:

The query is then classified into one or more likely intents, which can include an unclassified intent when no defined intents match the query 2300. An intent is a

mapping from many combinations of keywords to a relatively small set of common goals that users pursue in a search query or session of multiple queries. Often, the intent of the query is not explicitly stated in the keywords. While the space of possible queries, is very large, the set of intents is much smaller. Examples of intents relating to product queries can be, for example: official-site, research, purchase, dealer, support, or reviews. Examples of intents relating to local/map queries: directions, reviews, phone, hours-of-operation. In one embodiment, query intent may be determined by linguistic analysis of query keywords. In one embodiment, previous queries in the user session, user profile information such as preferences, the set of all queries from all users or any subset of all users (e.g. a subset of users having specific demographics or usage patterns), and click data from previous sessions for the current user as well as the set of all users or any subset of all users are used to determine query intent.

'157 patent at 9:42-61.

32. The “‘intents’-driven search engine process” of the '157 patent ensures that “query keywords, via the ‘intents,’ can even ultimately impact how particular data objects are constructed within a result. This provides an added benefit of enabling keywords to be utilized for more than just relevancy analysis.” Ex. 7 at 79. Also, while other search engines existing at the time could tailor search results by ranking the results and displaying each result with a title and brief abstract taken from the document, the '157 patent explains how “results could be significantly enhanced if the likely intent of the query is known.” '157 patent at 4:16–17. Rather than return all documents having a matching keyword—i.e., by using traditional indexing methods—a narrower set of results can be returned if the search results are “ranked such that results that are more relevant to the user’s intent appear at or near the top of the search results.” *Id.* at 4:17–19.

33. Indeed, the claims of the '157 patent provide just such a solution to the problem of generating robust yet usable search results in response to a user query. For example, Claim 1 of the '157 patent discloses a method comprising:

receiving, over a network, a query from a user, the query comprising at least one query token;

analyzing the query, using at least one computing device, to *identify at least one query keyword*;

determining, at least the one computing device, *a plurality of intents from the at least one keyword, each of the plurality of intents indicates a type of information regarding the query keyword that is likely to be desired by a user submitting the query*;

classifying the query, using the at least one computing device, *into at least one of the plurality of intents*;

identifying, using the at least one computing device, a plurality of data objects available over the network that match the at least one query keyword;

assigning, using the at least one computing device, *at least one of the plurality of intents to at least some of the plurality of data objects*;

ranking, using the at least one computing device, the plurality of data objects;

building a result, using the at least one computing device, using the ranked plurality of data objects, the result comprises a plurality of display entries, *at least one display entry customized to a respective assigned intent is constructed for each of the ranked plurality of data objects*; and

transmitting the result, over the network, to the user.

(emphasis added).

34. These technical features highlight that “Claim 1 itself outlines a novel process executed by a specialized programming architecture that constitutes a significant improvement in computer functionality. Each of the technical features emphasized above operates cooperatively

to enhance the technological process of search engine application, and these advances define a novel improvement in computer capabilities.” Ex. 7 at 81.

35. Thus, “the inventions claimed in the ’157 patent improve the speed, efficiency, effectiveness, and functionality of computer systems” rather than improve upon “some other task for which a computer is used in its ordinary capacity.” *Id.* at 87. For example, the ’157 patent focuses on circumventing the “bag of words” approach in result generation, and “ultimately achieve[s] better, more-usable computer-generated results as compared to technologies that existed in 2009.” *Id.* As another example, the ’157 patent can rank documents based on intent rather than using “a traditional {query,document} score,” increasing the probability that a relevant result will be in the final result set presented to the user. ’157 patent at 12:7–22. This reduces the number of queries that must be processed in order to return relevant results to the user. As a result, the processor is free to allocate more resources to other tasks.

36. With respect to the ’329 patent, the specification explains that nefarious parties can trick traditional search engines “into recalling documents and inflating their ranking” using techniques known as “search engine spamming.” ’329 patent at 2:6–8. For example, spamming may be used to “trick search engine ranking algorithms into recalling and highly ranking documents that contain . . . sponsored links to a web merchant.” *Id.* at 2:8–11. The result is that search results for many queries include irrelevant content that the querier did not desire. *Id.* at 2:14–17. The specification gives a specific example of an online shopper:

A typical example of search engine spam is when a user tries to search for the terms “digital camera reviews” and expects to find pages which review various models of digital cameras, detailing performance specifications, sample images and reviewer pros and cons list. Having this expectation when the user clicks on a link for one of the results, the user is instead led to a page that contains nothing but a plethora of keywords and links to other stores where he can buy the camera.

Id. at 2:18–27. Thus, the specification recognizes that “there is need for mechanisms that prevent hiding of search engine spam but yet allow webmasters to designate page content that should not be indexed.” *Id.* at 2:34–37.

37. The specification describes a novel approach to achieve this goal.

As a crawler examines an individual document, one of the attributes that can be considered is section structure. In examining the various sections, the crawler identifies sections to ignore, that is, to not index in search engine indexes and or otherwise use for recalling the document. Such sections are referred to herein as “no-recall sections.” Those portions that are indexed for recalling are referred to as recall sections. In an embodiment, a crawler ignores no-recall sections demarcated by, for example, a tag. In another embodiment a no-recall section may be identified by analyzing section content rather than examining only delimiters. The terms inside no-recall sections do not contribute to the document term frequency counts and are not used for recalling the documents in response to search engine queries. However the no-recall sections are included as input to forms of analysis of the document that affect, for example, the document’s ranking. Links inside the no-recall sections as well as the rest of the document may be followed in order to discover new content. The document may be analyzed for the amount of advertisements or other features in its entirety. Therefore, terms inside the no-recall sections can affect document ranking.

Id. at 3:7–27. This approach solves the problem described in the specification by simultaneously enabling non-relevance-dictated ranking and preventing nefarious parties from hiding search engine spam, e.g., because pages with “copious amounts of advertisements, or low quality links, will be readily identified and ranked accordingly.” *Id.* at 3:28–31.

38. Claim 1 of the ’329 patent embodies this solution:

A method, comprising:

ranking a plurality of documents recalled by a search engine for a query;

wherein the plurality of documents contain certain documents, *each document of said certain documents containing at least one section that is not used by said search engine for recall* and one or more sections that are used by said search engine for recall;

wherein ranking a plurality of documents includes ranking said plurality of documents *based, at least in part, on the at least one section of said certain documents not used by said search engine to recall documents*; and;

wherein the method is performed by one or more computing devices.

(emphasis added).

39. As explained by Mr. Davis, Claim 1 communicates “two overarching technological improvements”:

- 1) an improved data structure that is capable of facilitating both search engine recall and improved ranking via the attributes of recall and no-recall sections, and
- 2) an improved ranking process rooted in a specialized computing device and/or software capable of delineating between and selectively employing recall and no-recall sections found in a plurality of the aforementioned improved data structures. These two technological advancements, working in tandem, realize a discrete process and/or system that greatly improves upon search engine technology that existed in 2007.

Ex. 7 at 105.

40. The claimed method of indexing pages improves navigation of the World Wide Web by increasing the relevance of search results and thwarting nefarious Web users seeking to “game Web query rankings.” *Id.* at 107; *see also, e.g.*, ’329 patent at 1:67–2:17. By improving the functionality of the Web, “the claimed invention is necessarily rooted in the improvement of computer functionality, as opposed to, e.g., enhancing the economy of a task usually performed by hand.” Ex. 7 at 109. For example, by not ignoring no-recall sections when ranking the documents, the claimed invention prevents a document from being “designed so that content that

increases recall and/or ranking potential is placed in the recall section and content that diminishes high ranking potential is hidden in a no-recall section.” ’329 patent at 4:1–9. This allows “[a]ll the attributes in all of the sections of a document such as ‘links’, frequency of terms, coloring, font, etc.” to be considered in the spam and relevancy analyses. *Id.* at 4:13–16. The result is that a search engine can “affect the recall and ranking of documents to more accurately reflect relevance of the documents to search engine queries.” *Id.* at 3:1–3. This technological solution is the precise reason that the ’329 patent was allowed, as is apparent from the prosecution history. *See* Dkt. 13-3 at 28, 57.

41. In essence, each of the patents-in-suit relate to novel and non-obvious inventions in the fields of search engines and database structures.

COUNT I
INFRINGEMENT OF U.S. PATENT NO. 8,190,610

42. R2 Solutions incorporates paragraphs 1–14, 19, 22 – 29, and 41 herein by reference.

43. This cause of action arises under the patent laws of the United States, and in particular, 35 U.S.C. §§ 271, *et seq.*

44. R2 Solutions is the owner of the ’610 patent with all substantial rights to the ’610 patent, including the exclusive right to enforce, sue, and recover damages for past and future infringements.

45. The ’610 patent is valid and enforceable and was duly issued in full compliance with Title 35 of the United States Code.

Direct Infringement (35 U.S.C. § 271(a))

46. FedEx Services has directly infringed and continues to directly infringe one or more claims of the ’610 patent in this District and elsewhere in Texas and the United States.

47. To this end, FedEx Services has infringed and continues to infringe, either by itself or via an agent, at least claims 1–5 and 17–21 of the '610 patent by, among other things, making, offering to sell, selling, testing and/or using the FedEx Services data analytics system built on Apache Hadoop.

48. Attached hereto as Ex. 4, and incorporated herein by reference, is a claim chart detailing how FedEx Services infringes the '610 patent.

49. FedEx Services is liable for its infringements of the '610 patent pursuant to 35 U.S.C. § 271.

Damages

50. R2 Solutions has been damaged as a result of FedEx Services' infringing conduct described in this Count. FedEx Services is, thus, liable to R2 Solutions in an amount that adequately compensates it for FedEx Services' infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT II **INFRINGEMENT OF U.S. PATENT NO. 8,341,157**

51. R2 Solutions incorporates paragraphs 1–14, 20, 22–23, 30–35, and 41 herein by reference.

52. This cause of action arises under the patent laws of the United States, and in particular, 35 U.S.C. §§ 271, *et seq.*

53. R2 Solutions is the owner of the '157 patent with all substantial rights to the '157 patent, including the exclusive right to enforce, sue, and recover damages for past and future infringements.

54. The '157 patent is valid and enforceable and was duly issued in full compliance with Title 35 of the United States Code.

Direct Infringement (35 U.S.C. § 271(a))

55. FedEx Services has directly infringed and continues to directly infringe one or more claims of the '157 patent in this District and elsewhere in Texas and the United States.

56. To this end, FedEx Services has infringed and continues to infringe, either by itself or via an agent, at least claims 1–5 and 7–10 of the '157 patent by, among other things, making, offering to sell, selling, testing and/or using the FedEx.com search and/or tracking engine.

57. Attached hereto as Ex. 5, and incorporated herein by reference, is a claim chart detailing how FedEx Services infringes the '157 patent.

58. FedEx Services is liable for its infringements of the '157 patent pursuant to 35 U.S.C. § 271.

Damages

59. R2 Solutions has been damaged as a result of FedEx Services' infringing conduct described in this Count. FedEx Services is, thus, liable to R2 Solutions in an amount that adequately compensates it for FedEx Services' infringements, which, by law, cannot be less than a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

COUNT III
INFRINGEMENT OF U.S. PATENT NO. 7,698,329

60. R2 Solutions incorporates paragraphs 1–14, 21–23, and 36–41 herein by reference.

61. This cause of action arises under the patent laws of the United States, and in particular, 35 U.S.C. §§ 271, *et seq.*

62. R2 Solutions is the owner of the '329 patent with all substantial rights to the '329 patent, including the exclusive right to enforce, sue, and recover damages for past and future infringements.

63. The '329 patent is valid and enforceable and was duly issued in full compliance with Title 35 of the United States Code.

Direct Infringement (35 U.S.C. § 271(a))

64. FedEx Services has directly infringed and continues to directly infringe one or more claims of the '329 patent in this District and elsewhere in Texas and the United States.

65. To this end, FedEx Services has infringed and continues to infringe, either by itself or via an agent, at least claims 1, 4–5, 8, and 11–12 of the '329 patent by, among other things, making, offering to sell, selling, testing and/or using the FedEx.com search and/or tracking engine.

66. Attached hereto as Ex. 6, and incorporated herein by reference, is a claim chart detailing how FedEx Services infringes the '329 patent.

67. FedEx Services is liable for its infringements of the '329 patent pursuant to 35 U.S.C. § 271.

Damages

68. R2 Solutions has been damaged as a result of FedEx Services' infringing conduct described in this Count. FedEx Services is, thus, liable to R2 Solutions in an amount that adequately compensates it for FedEx Services' infringements, which, by law, cannot be less than

a reasonable royalty, together with interest and costs as fixed by this Court under 35 U.S.C. § 284.

DEMAND FOR A JURY TRIAL

R2 Solutions demands a trial by jury on all issues triable of right by jury pursuant to Rule 38 of the Federal Rules of Civil Procedure.

PRAYER FOR RELIEF

R2 Solutions respectfully requests that this Court enter judgment in its favor and grant the following relief:

- (i) Judgment and Order that FedEx Services has directly infringed one or more claims of each of the patents-in-suit;
- (ii) Judgment and Order that FedEx Services must pay R2 Solutions past and future damages under 35 U.S.C. § 284, including supplemental damages arising from any continuing, post-verdict infringement for the time between trial and entry of the final judgment, together with an accounting, as needed, as provided under 35 U.S.C. § 284;
- (iii) Judgment and Order that FedEx Services must pay R2 Solutions reasonable ongoing royalties on a go-forward basis after Final Judgment;
- (iv) Judgment and Order that FedEx Services must pay R2 Solutions pre-judgment and post-judgment interest on the damages award;
- (v) Judgment and Order that FedEx Services must pay R2 Solutions' costs;
- (vi) Judgment and Order that the Court find this case exceptional under the provisions of 35 U.S.C. § 285; and
- (vii) Such other and further relief as the Court may deem just and proper.

Dated: April 15, 2022

Respectfully submitted,

/s/ Edward R. Nelson III

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CERTIFICATE OF SERVICE

Pursuant to Local Rule CV-5, I hereby certify that the foregoing document was electronically filed with the Clerk of Court using the CM/ECF filing system, which will generate and send an e-mail notification of the filing to all counsel of record on this the 15th day of April, 2022.

/s/ Edward R. Nelson III