IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

SOUND VIEW INNOVATIONS, LLC,	)	
	)	
Plaintiff,	)	
	)	
v.	)	C.A. No. 16-652-SLR
	)	
TWITTER, INC.	)	**JURY TRIAL DEMANDED**
	)	
Defendant.	)	

FIRST AMENDED COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Sound View Innovations, LLC ("Sound View"), for its First Amended Complaint for Patent Infringement against Twitter, Inc. ("Twitter") alleges as follows:

INTRODUCTION

1. Sound View is an intellectual property licensing company. Sound View's patent portfolio includes more than 900 active and pending patents worldwide, including approximately 500 U.S. Patents. Sound View's patents were developed by researchers at Alcatel Lucent ("Lucent") and its predecessors. Lucent is home to the world-renowned Bell Laboratories, which has a long and storied history of innovation. Researchers at Lucent's Bell Laboratories have developed a wide variety of key innovations that have greatly enhanced the capabilities and utility of computer systems and networks. This has resulted in benefits such as better and more efficient computer networking, computer security, and user experiences.

2. Patents enjoy the same fundamental protections as real property. Sound View, like any property owner, is entitled to insist that others respect its property and to demand compensation from those who take it for their own use. Twitter has used, and continues to use Sound View's patents. Moreover, despite Sound View's licensing offers and repeated attempts to negotiate,

Twitter refuses to take a license, but continues to use Sound View's property.

NATURE OF THE CASE

3. This action arises under 35 U.S.C. § 271 for Twitter's infringement of Sound View's United States Patent Nos. 5,806,062 (the "'062 patent"), 6,240,391 (the "'391 patent"), 6,408,296 (the "'296 patent"), 6,502,133 (the "'133 patent"), 6,708,213 (the "'213 patent"), and 6,757,796 (the "'796 patent") (collectively the "Patents-In-Suit").

THE PARTIES

4. Plaintiff Sound View is a Delaware limited liability company, with its principal place of business at 2001 Route 46, Waterview Plaza, Suite 310, Parsippany, New Jersey 07054.

5. Defendant Twitter is a Delaware corporation with its principal place of business at 1355 Market Street, Suite 900, San Francisco, California, 94103. Twitter may be served with process by serving its registered agent, Incorporating Services, Ltd., 3500 South Dupont Highway, Dover, Delaware, 19901.

JURISDICTION AND VENUE

6. This action arises under the patent laws of the United States, including 35 U.S.C. § 271 *et seq*. The jurisdiction of this Court over the subject matter of this action is proper under 28 U.S.C. §§ 1331 and 1338(a).

7. Venue is proper in this Court pursuant to 28 U.S.C. §§ 1391(b) and (c) and 1400(b).

8. This Court has personal jurisdiction over Twitter because, among other things: Twitter is incorporated under the laws of the State of Delaware; Twitter has committed, aided, abetted, contributed to and/or participated in the commission of acts giving rise to this action within the State of Delaware and this judicial district and has established minimum contacts within the forum such that the exercise of jurisdiction over Twitter would not offend traditional notions of fair play and substantial justice; Twitter has placed products and services that practice the claims of the

Patents-In-Suit into the stream of commerce with the reasonable expectation and/or knowledge that actual or potential users of such products and/or services were located within this judicial district; and Twitter has sold, advertised, solicited customers, marketed and distributed its products and services that practice the claims of the Patents-In-Suit in this judicial district.

THE PATENTS-IN-SUIT

9. Sound View incorporates by reference the preceding paragraphs as if fully set forth herein.

10. The ’062 patent, titled “Data Analysis System Using Virtual Databases,” was duly and properly issued by the USPTO on September 8, 1998. A copy of the ’062 patent is attached hereto as Exhibit A.

11. Sound View is the owner and assignee of the ’062 patent and holds the right to sue for and recover all damages for infringement thereof, including past infringement.

12. The ’391 patent, titled “Method And Apparatus For Assembling And Presenting Structured Voicemail Messages,” was duly and properly issued by the USPTO on May 29, 2001. A copy of the ’391 patent is attached hereto as Exhibit B.

13. Sound View is the owner and assignee of the ’391 patent and holds the right to sue for and recover all damages for infringement thereof, including past infringement.

14. The ’296 patent, titled “Computer Implemented Method And Apparatus For Enhancing Access To A File,” was duly and properly issued by the USPTO on June 18, 2002. A copy of the ’296 patent is attached hereto as Exhibit C.

15. Sound View is the owner and assignee of the ’296 patent and holds the right to sue for and recover all damages for infringement thereof, including past infringement.

16. The ’133 patent, titled “Real-Time Event Processing System With Analysis Engine Using Recovery Information,” was duly and properly issued by the USPTO on December 31, 2002.

A copy of the ’133 patent is attached hereto as Exhibit D.

17. Sound View is the owner and assignee of the ’133 patent and holds the right to sue for and recover all damages for infringement thereof, including past infringement.

18. The ’213 patent, titled “Method For Streaming Multimedia Information Over Public Networks,” was duly and properly issued by the USPTO on March 16, 2004. A copy of the ’213 patent is attached hereto as Exhibit E.

19. Sound View is the owner and assignee of the ’213 patent and holds the right to sue for and recover all damages for infringement thereof, including past infringement.

20. The ’796 patent, titled “Method And System For Caching Streaming Live Broadcasts Transmitted Over A Network,” was duly and properly issued by the USPTO on June 29, 2004. A copy of the ’796 patent is attached hereto as Exhibit F.

21. Sound View is the owner and assignee of the ’796 patent and holds the right to sue for and recover all damages for infringement thereof, including past infringement.

BACKGROUND FACTS

22. On July 15, 2014, Sound View sent a letter notifying Twitter of its infringement of the ’062 and ’391 patents. In that letter, Sound View stated that it intended to continue to allow Twitter to use the inventions covered in the patents identified, including the ’062 and ’391 patents, through a license from Sound View. Sound View further requested a meeting to discuss the matter in more detail.

23. Then, on March 16, 2015, Sound View sent an additional letter notifying Twitter of its infringement of the ’296 patent. In that letter, Sound View again requested to meet with Twitter to discuss the matter of its infringement with the intent of allowing Twitter to continue using inventions covered by Sound View’s patents through a license agreement.

24. The parties met on April 27, 2015, and Sound View again notified Twitter of its

infringement of various patents, including the ’062, ’391, and ’296 patents.

25. On August 18, 2015, Sound View notified Twitter of its infringement of the ’133 patent. In that August 18, 2015, communication, Sound View again requested to discuss the matter with Twitter with the intent of allowing Twitter to continue using inventions covered by Sound View’s patents through a license agreement.

26. The parties met on September 10, 2015, at which time Sound View offered Twitter a license agreement. Twitter did not accept Sound View’s offer.

27. From September 2015 through the filing of this complaint, Sound View continued to negotiate in good faith towards a license agreement allowing Twitter to continue using inventions covered by Sound View’s patents despite a lack of substantive response from Twitter. Sound View made itself available for weekly discussions and reached out to Twitter regularly via both phone and written correspondence in an effort to avoid litigation.

28. On July 27, 2016, Sound View notified Twitter of its infringement of various additional patents, including the ’213 and ’796 patents.

29. As of the date of the filing of this Complaint, Twitter has not provided Sound View with non-infringement positions relating to any of the Patents-In-Suit.

30. As of the date of the filing of this Complaint, Twitter has not alleged that any prior art anticipates or renders obvious any claims of the Patents-in-Suit.

31. Twitter has refused to engage in any meaningful discussions about reaching a license agreement to end its infringement of Sound View’s patents. Instead, Twitter continues to willfully infringe Sound View’s patents so as to obtain their significant benefits without paying any compensation to Sound View.

32. Unfortunately, Twitter has left Sound View no choice but to seek relief through

litigation.

COUNT ONE

INFRINGEMENT OF THE '062 PATENT

33. Sound View incorporates by reference the preceding paragraphs as if fully set forth herein.

34. The '062 patent generally relates to customizable data processing applications that rely on a combination of reusable software operators, such as initial operators, query operators, terminal operators, and/or external operators, to process source information from a virtual database in a particular schema, such as HTML or XML, and transform that source information into another virtual database having the same schema.

35. The '062 patent is valid and enforceable.

36. Various types of documents may be stored in a computer system, such as word processing files, computer programs, HTML documents, financial files, employee files, etc. When dealing with large or complex files, it is often desirable to analyze or alter the structure and content of the documents; e.g., comparing a first version to a second version or analyzing dependency relationships between various sections of computer code.

37. In order to aid such analysis, a database may be constructed which contains information describing the structure of the documents. Various database queries may be performed to extract and process information describing the structure of the source documents. A collection of source documents, along with an associated database that describes the structure of the documents, is called a repository.

38. To analyze source document information, it is necessary to process information contained in the repository. A computer program that extracts or converts information from a repository is called an operator. Thus, an operator receives a source document and/or a database as

input, processes the input, and produces some output. A simple example of an operator is a program that takes a source document as input and counts the number of occurrences of a particular word, and outputs a number containing the number of times the particular word occurs. The overall function of the analysis—in the above example, a count of the number of occurrences of a particular word—is called an application.

39. At the time of the invention of the ’062 patent, in existing repository analysis systems, operators were designed for single applications. Thus, the user indicated which operator he/she wished to apply to the repository, and the system processed the repository accordingly. The user was presented with the output when the processing was finished. Different operators processed the repository in different manners, but there was no convenient mechanism for combining the various operators to create new applications. Thus, when a new application was desired, a new operator would need to be designed from scratch.

40. Prior art repository analysis systems generally were closed systems, in that all operators were applied within the confines of the system, and all database accesses were performed within the system. For example, a repository analysis system operator may have produced as output a file containing information about the structure of a computer program. In conventional closed systems, this output could not be further processed by, for example, an external graphics program that would format the output in a desired manner. Instead, the output could only be formatted according to operators that were internal to the repository system. There was no convenient mechanism to allow the repository analysis system to communicate with operators that were external to the system.

41. The inventors of the ’062 patent solved these discrete computer-based problems by providing an apparatus and method for creating data analysis applications using reusable software

operators. For example, query operators receive data in a particular virtual database format, process the data in the virtual database, and output the results of the processing in another virtual database that has the same format as the original virtual database. A plurality of query operators can be combined to customize the processing of the data. In addition, initial operators convert source information into the virtual database format so that the query operators can analyze the source data. External operators take an external format as input and create another external format as output. Also, terminal operators are used to convert a virtual database into an external format. A user can combine initial, query, terminal, and external operators to create customizable data processing applications.

42. Creating data analysis applications using reusable software operators, as described in the ’062 patent, is particularly useful in that the external format data may be processed in various ways, thus allowing flexible presentation of the analysis results.

43. Twitter’s platforms, web pages, and servers use and have used the Document Object Model (“DOM”) to create and process customizable data analysis and processing applications. The DOM is an application programming interface (API) that allows documents to be modelled using objects of a variety of data formats, including HTML and XML. It defines the logical structure of documents and the way a document is accessed and manipulated.

44. Using the DOM, the nodes (or objects) of every document are organized in a tree structure, called the “DOM tree,” and can be manipulated individually using the DOM methods (or operators). With the DOM, programmers can build documents, navigate their structure, and add, modify, or delete elements and content. Anything found in an HTML or XML document can be manipulated in this way using the DOM, with a few exceptions.

45. As an object model, the DOM identifies: (1) the interfaces and objects used to

represent and manipulate a document; (2) the semantics of these interfaces and objects - including both behavior and attributes of the relationships; and (3) collaborations among these interfaces and objects.

46. Twitter uses and has used the DOM throughout its products and services.

47. Twitter has infringed one or more claims of the '062 patent under 35 U.S.C. § 271(a), either literally and/or under the doctrine of equivalents, by making, using, selling, and/or offering for sale in the United States, and/or importing into the United States, products and/or methods encompassed by those claims, including for example, by making, using, selling, offering for sale, and/or importing its Twitter platforms, including for example its web pages and servers that use and have used the DOM.

48. On July 15, 2014, Sound View informed Twitter that at least its use of the DOM infringes the '062 patent. However, Twitter did not stop infringing.

49. For example, Twitter has infringed claim 14 by using:

a. a method for processing information (such as Twitter applications, web pages, and/or servers that use and have used the DOM) comprising the steps of:

b. providing a plurality of software operators (such as DOM methods, including, for example, "-getAttribute( )," "-setAttribute ( )," and "-removeAttribute( )") each configured to receive a virtual database (such as DOM nodes (or objects) or web pages, describing the structure of a document) having a first schema (such as HTML or XML), for processing information contained in said virtual database (such as by applying a DOM method to a node in the DOM tree), and for outputting a virtual database having said first schema;

c. combining at least two of said software operators to create an application (such as that used to construct and serve Twitter's web pages).

50. Sound View has been damaged by Twitter's infringement of the '062 patent. Sound View is entitled to recover from Twitter the damages sustained by Sound View as a result of Twitter's wrongful acts in an amount adequate to compensate Sound View for Twitter's infringement subject to proof at trial.

51. In committing these acts of infringement, Twitter committed egregious misconduct including, for example, acting despite an objectively high likelihood that its actions constituted infringement of a valid patent, while Twitter actually knew or should have known that its actions constituted an unjustifiably high risk of infringement of a valid and enforceable patent.

52. Twitter's infringement of the '062 patent was deliberate and willful, entitling Sound View to increased damages under 35 U.S.C. § 284 and to attorney fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

COUNT TWO

INFRINGEMENT OF THE '391 PATENT

53. Sound View incorporates by reference the preceding paragraphs as if fully set forth herein.

54. The '391 patent generally relates to a method and apparatus for assembling and sequentially presenting messaging elements stored in a database, said messaging elements being associated with the content of the message, and additional messaging elements containing instructions as to the structure of the unified message.

55. The '391 patent is valid and enforceable.

56. At the time of the invention of the '391 patent, messaging systems sent messages composed of various different types of components (such as audio, text, and images) as a monolithic chunk of data that was required to be sent all at once, and not assembled from separate sources or sent in parts.

57. The ’391 patent solved that discrete computer-based problem by disclosing a novel method and apparatus for a message recipient’s messaging system to assemble a structured message that includes a plurality of messaging elements.

58. The ’391 patent teaches the assembly and presentation of messaging elements for delivery, and the inclusion of imbedded instructions—as one or more separate messaging elements—that define the structure of the message. These imbedded instructions are used to reassemble the messaging elements into a unified message for presentation to the recipient of the message. The messaging elements are related to the individual piece-part components associated with the content of the message.

59. The message, including its messaging elements, is delivered to an address associated with the recipient of the message. As described by the ’391 patent, the recipient’s messaging system has the capability of interpreting the instructions imbedded within the structured message. The recipient’s messaging system, upon receiving the message, assembles the message using the messaging elements in accordance with the imbedded instructions that define the message’s structure.

60. Twitter operates and has operated a “Direct Messages” platform that it uses to allow its members to send and receive electronic messages from other Twitter members, users, and customers. These messages comprise text, but can also include emoji characters, website URLs, and either one video file (such as mp4 or mov) or one image (such as gif, jpeg, jpg, png).

61. Twitter Direct Messages are stored in a mailbox labeled “Messages” within the Twitter interface. This mailbox is individualized to each Twitter user, only showing them the Direct Messages that have been sent to or from that user’s Twitter account.

62. When a Twitter user clicks on the “Messages” icon in the navigation bar, the client

retrieves the stored messages associated with that Twitter user. The messages retrieved for that Twitter user are assembled using the instructions in the retrieved data. The messaging elements that comprise each message are assembled in sequential order, using the messaging elements relating to the message's assembly instructions. The assembled message is then presented to the requesting Twitter user.

63. Twitter has infringed one or more claims of the '391 patent under 35 U.S.C. § 271(a), either literally and/or under the doctrine of equivalents, by making, using, selling, and/or offering for sale in the United States, and/or importing into the United States, products and/or methods encompassed by those claims, including for example, by making, using, selling, offering for sale, and/or importing Twitter's servers, websites and other products that include the Twitter Direct Messages platform.

64. On July 15, 2014, Sound View informed Twitter that at least its Twitter Direct Messages platform infringes the '391 patent. However, Twitter has not stopped infringing.

65. For example, Twitter infringes claim 1 by using:

a. a method comprising;

b. receiving an electronic message (such as a Twitter Direct Message) addressed to a recipient (such as a Twitter user), the message comprising a plurality of messaging elements (such as text, links, and/or an image), at least some of the messaging elements being content-related that are each associated with a portion of the content of the message, and at least one of the messaging elements comprising instructions that define a structure of the message (such as '"class" = "DirectMessage-text,"' '"class" = "media,"' or '"class" = "twitter-timeline-link"') from which at least some of the content-related messaging elements can be sequentially combined for presentation to the recipient as a unified message;

c. storing the received message in a mailbox associated with the recipient (such as within the individual "Messages" mailbox located on Twitter's servers and accessible by that logged-in Twitter user);

d. in response to a request for the message from the recipient (such as when a Twitter user clicks on the "Messages" icon in the navigation bar),

e. retrieving the stored message (such as when REST API retrieves a stored message),

f. interpreting the instructions that define the structure of the message, and

g. assembling and combining at least some of the content-related messaging elements in accordance with the instructions (such as when Twitter assembles the elements of a stored message, e.g., text, links, and/or an image, into a single coherent message), and

h. sequentially (such as, e.g., based on the arrangement of the messaging elements in the original electronic message) presenting the assembled and combined content-related messaging elements to the recipient as a unified message (such as a Twitter Direct Message that may include text, links, and/or an image).

66. Sound View has been and continues to be damaged by Twitter's infringement of the '391 patent. Sound View is entitled to recover from Twitter the damages sustained by Sound View as a result of Twitter's wrongful acts in an amount adequate to compensate Sound View for Twitter's infringement subject to proof at trial.

67. In committing these acts of infringement, Twitter committed egregious misconduct including, for example, acting despite an objectively high likelihood that its actions constituted infringement of a valid patent, while Twitter actually knew or should have known that its actions constituted an unjustifiably high risk of infringement of a valid and enforceable patent.

68. Twitter's infringement of the '391 patent was, and continues to be, deliberate and willful, entitling Sound View to increased damages under 35 U.S.C. § 284 and to attorney fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

COUNT THREE

INFRINGEMENT OF THE '296 PATENT

69. Sound View incorporates by reference the preceding paragraphs as if fully set forth herein.

70. The '296 patent generally relates to enhancing access to an electronic file located on a server in a communications network by identifying the electronic file independently of its physical location on a particular server including allowing a client computer to request an electronic file by issuing a request using a logical reference, determining an electronic address corresponding to the logical reference, using, e.g., a look-up table located on a server, and transmitting the electronic file identified by the electronic address.

71. The '296 patent is valid and enforceable.

72. Users of the World Wide Web ("the Web") request transmission of files to their own computers. At the time of invention of the '296 patent, Web servers identified their stored files with a universal resource locator (URL), which comprises an electronic address. Each URL was a physical reference in that each URL pointed to a particular server and identified the location of a single file at that server, including the server name, as well as the entire directory tree in which the file was located. Many of the files stored on the Web servers are documents written in a standard programming language known as hypertext mark-up language (HTML).

73. Using HTML, a Web page author at the time of the invention of the '296 patent could designate a hyperlink—associated with a particular URL of another Web page—in order to allow a Web user to initiate a request for the particular file located at the electronic address

identified by the URL. Since each traditional hyperlink was associated with a single URL, each hyperlink was necessarily associated with only a single file having a particular location on a particular server. URLs could also be overlong, as they might need to reflect a particularly deep directory structure. The inventors of the '296 patent recognized that this arrangement could result in problems; for example, if the file was moved from its original address, the link would return an error as a "broken" link.

74. The inventors of the '296 patent solved that discrete computer-based problem, and in the case of Twitter, the computer-based problem of overly long URLs, by providing a specific method and apparatus for satisfying a request for information that identifies a file independently of its location on a particular server using a logical reference associated with the file.

75. The '296 patent teaches a specific system for transmitting files over a communications network in which an "indirect link" or a logical reference identifies the file to be retrieved, instead of the file's electronic address or URL. The logical reference may identify the server on which the file exists, but does not identify the file's complete electronic address, i.e., an identification of a particular server and the file's location on that server. Rather, the server or a proxy computer relates the logical reference to an actual current electronic address at the server containing that file. This logical reference is paired with a physical reference, i.e., an electronic address at which the requested file is, or should be, located by using, e.g., a look-up table or other system which stores the mapping of logical references to their current physical locations.

76. Twitter uses and has used link shortening functionalities in at least its tweets and also in its direct messages. Twitter created T.co to allow for the creation of shortened URLs for its tweets and direct messages. Once a Twitter user enters or submits a tweet or direct message which includes a full URL, Twitter generates a reference, in the form of a shortened link which uniquely

identifies the file associated with the full URL referenced in the tweet or direct message. Twitter then substitutes the full URL with the shortened URL in the direct message or tweet before sending or publishing the direct message or tweet.

77. When a Twitter client device requests the file associated with the shortened URL, the Twitter server determines the full URL associated with that file, and sends information back to the Twitter client device. The Twitter client device parses the returned information and identifies the full URL, which the client uses to request the file. Subsequently, the Twitter client device receives that file.

78. Twitter has infringed, contributed to the infringement of, and/or induced others to infringe one or more claims of the ’296 patent under 35 U.S.C. § 271, either literally and/or under the doctrine of equivalents, by making, using, selling, and/or offering for sale in the United States, and/or importing into the United States, products and/or methods encompassed by those claims, including for example, by making, using, selling, offering for sale, and/or importing servers and services that include or use a link shortener such as T.co.

79. On March 16, 2015, Sound View informed Twitter that its shortening of URLs infringes the ’296 patent. However, Twitter has not stopped infringing.

80. For example, Twitter infringes claim 1 by using:

a. a method of operation of a server computer (such as a Twitter server or set of servers) connected to a client computer (such as a Twitter user’s device) by a communications network (such as the Internet), the method comprising the steps of:

b. receiving from the client computer, at the server computer, a logical reference (such as a shortened link to T.co) uniquely identifying a file (such as the file located on Twitter’s servers that is associated with the full URL) independently of an electronic address at

which the file is located (such as the full URL corresponding to that file);

c. determining, at the server computer, an electronic address corresponding to the logical reference (such as by retrieving the shortened link and associating it with the full URL); and

d. transmitting, from the server computer, the file identified by the electronic address (such as the file located on Twitter's servers that is associated with the full URL).

81. Twitter also indirectly infringes at least claim 10 of the '296 patent through its users' performance of:

a. a method of communication between a client computer (such as a Twitter user's device) and a server computer (such as a Twitter server or set of servers) connected to the client computer by a communications network (such as the Internet), the method comprising the steps of:

b. requesting, at the client computer, a file (such as a web page) identified by a logical reference (such as a shortened link to T.co) uniquely identifying the file independently of an electronic address at which the file is located (such as the full URL corresponding to that web page);

c. identifying an electronic address corresponding to the logical reference (such as by parsing the information retrieved from Twitter at the client device in response to a request for the shortened link and extracting the full URL from that information); and

d. receiving, at the client computer, the file identified by the logical reference (such as the web page requested by the Twitter user).

82. Twitter has induced infringement, and continues to induce infringement, of one or more claims of the '296 patent under 35 U.S.C. § 271(b). Twitter actively, knowingly, and

intentionally induced infringement of the ’296 patent by selling, supplying, maintaining, and/or supporting websites, servers, and services that include or use a link shortener such as T.co; with the knowledge and intent that third parties will access and use the websites, servers, and services in the United States for their intended purpose to infringe the ’296 patent; and with the knowledge and intent to encourage and facilitate the infringement through the dissemination, maintenance, and support of the websites, servers, and services and/or the creation and dissemination of documentation related to the websites, servers, and services, including by, for example, encouraging and instructing end-user customers to perform the steps identified above using the functionality identified above, such as requesting and receiving a file identified by a logical reference. For example, Twitter provides customer support, instructions, and advertisements encouraging members, users, and customers to perform the identified functionality. Twitter also requires its users to use its T.co link shortener in every tweet or direct message that includes a URL.

83. Twitter has contributed to the infringement by third parties, including Twitter’s members, users, and customers, and continues to contribute to the infringement by third parties, of one or more claims of the ’296 patent under 35 U.S.C. § 271(c), by making, using, selling and/or offering for sale in the United States, and/or importing into the United States, Twitter’s websites, servers, and services that contain and/or utilize a link shortener such as T.co, knowing that the infringing Twitter websites, servers, and services constitute a material part of the inventions of the ’296 patent, knowing that the infringing Twitter websites, servers, and services are especially made or adapted to infringe the ’296 patent, and knowing that the infringing Twitter websites, servers, and services are not a staple article of commerce suitable for substantial noninfringing use.

84. Sound View has been and continues to be damaged by Twitter’s infringement of the ’296 patent. Sound View is entitled to recover from Twitter the damages sustained by Sound View

as a result of Twitter's wrongful acts in an amount adequate to compensate Sound View for Twitter's infringement subject to proof at trial.

85. In committing these acts of infringement, Twitter committed egregious misconduct including, for example, acting despite an objectively high likelihood that its actions constituted infringement of a valid patent, while Twitter actually knew or should have known that its actions constituted an unjustifiably high risk of infringement of a valid and enforceable patent.

86. Twitter's infringement of the '296 patent was, and continues to be, deliberate and willful, entitling Sound View to increased damages under 35 U.S.C. § 284 and to attorney fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

COUNT FOUR

INFRINGEMENT OF THE '133 PATENT

87. Sound View incorporates by reference the preceding paragraphs as if fully set forth herein.

88. The '133 patent generally relates to real-time event processing in applications such as telecommunications and computer networks, and more particularly, to a method, apparatus, and system for processing events in a real-time analysis engine, and storing recovery information in a main-memory database system associated with the real-time analysis engine.

89. The '133 patent is valid and enforceable.

90. At the time of the invention of the '133 patent, high performance real-time event processing applications had performance requirements that could not be met by conventional general purpose database management systems. For example, some real-time event processing applications required the service time for such events to not exceed a few milliseconds. However, with conventional database technology, the service time costs of invoking a structured query language (SQL) operation over a client-server interface, or the service time costs associated with a

single access to secondary storage, could account for hundreds of milliseconds. These limitations led real-time event processing applications instead to rely on the use of custom database systems.

91. These custom database systems had disadvantages: (1) there was a high cost of developing and maintaining custom systems; (2) those high costs could not be amortized across a number of different applications; and (3) custom database systems were generally inflexible and difficult to adapt to unforeseen or evolving requirements.

92. At the time of the invention of the ’133 patent, a need therefore existed for an improved real-time event processing system that could provide the performance benefits of custom database systems, but without sacrificing the flexibility and maintainability typically associated with conventional general-purpose database systems.

93. The inventors of the ’133 patent solved that discrete computer-based problem and improved upon the existing real-time event processing systems by providing a general-purpose real-time event processing system that avoids the problems associated with custom systems.

94. Using a real-time analysis engine operating in the manner described by the ’133 patent is particularly useful because it can provide transactional access to persistent data, but at the speed of a main-memory system, and it also incorporates a recovery model which stores recovery information in order to facilitate roll-back to a recovery point after a failure.

95. In accordance with the ’133 patent, recovery information regarding a recovery point for a given real-time analysis engine may be stored in a memory portion of the main-memory database system. This way, the real-time event processing system provides a critical path for event processing that is specifically designed for high performance, while also retaining many desirable features of conventional database systems, including high-level, declarative programming interfaces, and the transactional correctness properties of atomicity, consistency, isolation and

durability. These features of the '133 patent enhance the reliability, robustness, usability and maintainability of the real-time event processing system and any applications built thereon.

96. Twitter uses and has used frameworks known as Apache Storm ("Storm") and Heron to perform stream processing of events in real time and continuous data processing, including database updates and processing messages. Those systems' architecture is composed of three components: (1) "Streams," which are unbounded sequences of tuples that are processed; (2) "Spouts," which are sources of streams, and (3) "Bolts", which are responsible for processing the Streams in real-time.

97. Those systems are integrated with Twitter's infrastructure, such as its database systems, messaging, and monitoring/alerting systems. Events are generated by various Twitter system applications, such as discovery, realtime analytics, personalization, search, and revenue optimization. When these system applications generate events, these events are grouped into Streams.

98. Spouts emit Streams into the topology, so that they can subsequently be processed.

99. Bolts are real-time analysis engines that process the Streams. Bolts are capable of performing simple stream transformations, and multiple Bolts are used for more complex stream transformations (such as transforming a stream of tweets into a stream of trending images).

100. Twitter's use of Storm and Heron enables Twitter to process billions of events per day.

101. Those systems have the capability to save and retrieve in memory the state of the Bolts. For example, Storm has a default in-memory based state implementation and also a Redis backed implementation that provides state persistence. This main-memory database within Storm has the function known as state management, allowing it to automatically and periodically take

snapshots of the state of the Bolts.

102. Twitter has infringed one or more claims of the '133 patent under 35 U.S.C. § 271(a), either literally and/or under the doctrine of equivalents, by making, using, selling, and/or offering for sale in the United States, and/or importing into the United States, products and/or methods encompassed by those claims, including for example, by making, using, selling, offering for sale, and/or importing servers and products that include or use applications based on Storm.

103. On August 18, 2015, Sound View informed Twitter that its systems and applications infringe the '133 patent. However, Twitter has not stopped infringing.

104. For example, Twitter infringes claim 13 by using:

a. a method of processing events (such as Streams) generated by at least one system application (such as Twitter's database systems, messaging, and monitoring/alerting systems), the method comprising the steps of:

b. processing the events in at least one real-time analysis engine (such as a Bolt); and

c. storing in a main-memory database system (such as Storm or Heron's default in-memory based state implementation) associated with the real-time analysis engine recovery information regarding a recovery point for the real-time analysis engine (such as the state information relating to the Bolt's state).

105. Sound View has been and continues to be damaged by Twitter's infringement of the '133 patent. Sound View is entitled to recover from Twitter the damages sustained by Sound View as a result of Twitter's wrongful acts in an amount adequate to compensate Sound View for Twitter's infringement subject to proof at trial.

106. In committing these acts of infringement, Twitter committed egregious misconduct

including, for example, acting despite an objectively high likelihood that its actions constituted infringement of a valid patent, while Twitter actually knew or should have known that its actions constituted an unjustifiably high risk of infringement of a valid and enforceable patent.

107. Twitter's infringement of the '133 patent was, and continues to be, deliberate and willful, entitling Sound View to increased damages under 35 U.S.C. § 284 and to attorney fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

COUNT FIVE

INFRINGEMENT OF THE '213 PATENT

108. Sound View incorporates by reference the preceding paragraphs as if fully set forth herein.

109. The '213 patent generally relates to streaming multimedia data (e.g., audio and video data) over the Internet and other networks, and, more specifically, to methods and systems to improve caching of streaming multimedia data (e.g., audio and video data) from a content provider over a network to a client's computer.

110. The '213 patent is valid and enforceable.

111. At the time of the invention of the '213 patent, multimedia data (such as audio and video data) could either be downloaded by the client or streamed over the network to the client. Streaming eliminated the need for the client to wait for the downloading to complete before watching or listening to the multimedia data. However, with conventional unicast connections, streaming posed problems to content providers in that server load increased linearly with the number of clients, to ISPs in that streaming caused network congestion problems, and to clients in that streaming often resulted in high start-up latency and unpredictable playback quality.

112. Conventional caching systems attempted to address network congestion, but these were unsuitable for streaming multimedia data: (1) video files were typically too large to be cached

in their entirety, so only a few streams could be stored at a cache; (2) breaking video files into smaller pieces was not feasible, for the caching systems would treat different chunks from the same video object independently; and (3) streaming multimedia has temporal characteristics, like the transmission rate, while conventional caching was only capable of handling static web objects.

113. The inventors of the ’213 patent solved those discrete computer-based problems and improved upon conventional caching techniques by providing a novel architecture and method for supporting high quality live and on-demand streaming multimedia on network systems using helper servers.

114. The techniques described in the ’213 patent advantageously reduce server and network loads by employing helper servers with dynamic data transfer rate control to overcome arrival time and range heterogeneity in client requests, thereby improving the quality perceived by end users making requests for streaming media objects.

115. Twitter provides and has provided a service known as Periscope to allow users to watch and broadcast live video. Periscope is powered by the Wowza streaming engine, which includes content servers and helper servers for providing streaming multimedia content to Periscope’s users, such as in the live stream repeater configuration, among others. Wowza also includes, for example, functionality called MediaCache, which is a read-through caching mechanism built-in with the Wowza streaming engine software aimed at increasing scalability. Twitter uses MediaCache to cache streaming content. The Wowza streaming engine also dynamically alters the bitrate when streaming data to a user to accommodate that user’s CPU capacity and bandwidth.

116. Twitter’s use of Periscope has enabled over 200 million live broadcasts created on Periscope.

117. Twitter has infringed, through its own actions and/or those of its agents and contractors, such as Wowza, one or more claims of the ’213 patent under 35 U.S.C. § 271(a), either literally and/or under the doctrine of equivalents, by making, using, selling, and/or offering for sale in the United States, and/or importing into the United States, products and/or methods encompassed by those claims, including for example, by making, using, selling, offering for sale, and/or importing servers and products that include or use its Periscope or other streaming video services.

118. On July 27, 2016, Sound View informed Twitter that its Periscope application infringes the ’213 patent. However, Twitter has not stopped infringing.

119. For example, Twitter infringes claim 16 by using:

a. A method of reducing latency in a network having a content server which hosts streaming media (SM) objects (such as live videos from Twitter’s users) which comprise a plurality of time-ordered segments for distribution over said network through a plurality of helpers (HSs) (such as the Wowza edge servers) to a plurality of clients (such as Twitter’s users), said method comprising:

b. receiving a request for an SM object from one of said plurality of clients (such as a Twitter user requesting to watch a hosted video) at one of said plurality of helper servers (such as the Wowza edge servers);

c. allocating a buffer at one of said plurality of HSs to cache at least a portion of said requested SM object (such as using MediaCache to cache only a portion of the requested video);

d. downloading said portion of said requested SM object to said requesting client, while concurrently retrieving a remaining portion of said requested SM object from one of another HS and said content server (such as using MediaCache to cache and deliver the next

portion of the video); and

e. adjusting a data transfer rate at said one of said plurality of HSs for transferring data from said one of said plurality of helper servers to said one of said plurality of clients (such as when Wowza adapts the bitrate of content based on the client's bandwidth and CPU capacity).

120. Twitter has induced infringement, and continues to induce infringement, of one or more claims of the '213 patent under 35 U.S.C. § 271(b). Twitter actively, knowingly, and intentionally induced infringement of the '213 patent by selling, supplying, maintaining, and/or supporting Periscope; with the knowledge and intent that its agents and contractors, such as Wowza, will deploy the websites, servers, and services in the United States for their intended purpose to infringe the '213 patent; and with the knowledge and intent to encourage and facilitate the infringement through the dissemination, maintenance, and support of the websites, servers, and services and/or the creation and dissemination of documentation related to the websites, servers, and services, including by, for example, encouraging and instructing its agents and contractors, such as Wowza, to provide video on Periscope causing the performance of the steps identified above using the functionality identified above.

121. Twitter has contributed to the infringement by third parties, including its agents and contractors, such as Wowza, and continues to contribute to the infringement by third parties, of one or more claims of the '213 patent under 35 U.S.C. § 271(c), by making, using, selling and/or offering for sale in the United States, and/or importing into the United States, Twitter's websites and servers, including Periscope, knowing that the infringing websites, servers, and services constitute a material part of the inventions of the '213 patent, knowing that the infringing websites, servers, and services are especially made or adapted to infringe the '213 patent, and knowing that

the infringing websites, servers, and services are not a staple article of commerce suitable for substantial noninfringing use.

122. Sound View has been and continues to be damaged by Twitter's infringement of the '213 patent. Sound View is entitled to recover from Twitter the damages sustained by Sound View as a result of Twitter's wrongful acts in an amount adequate to compensate Sound View for Twitter's infringement subject to proof at trial.

123. In committing these acts of infringement, Twitter committed egregious misconduct including, for example, acting despite an objectively high likelihood that its actions constituted infringement of a valid patent, while Twitter actually knew or should have known that its actions constituted an unjustifiably high risk of infringement of a valid and enforceable patent.

124. Twitter's infringement of the '213 patent was, and continues to be, deliberate and willful, entitling Sound View to increased damages under 35 U.S.C. § 284 and to attorney fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

COUNT SIX

INFRINGEMENT OF THE '796 PATENT

125. Sound View incorporates by reference the preceding paragraphs as if fully set forth herein.

126. The '796 patent generally relates to live broadcasting streaming multimedia over the Internet and other network systems. More specifically, it describes a method for enhancing caching systems to better support the live broadcast of streaming multimedia over the Internet and other networks by decreasing the playback delay at a client computer of a live streaming broadcast transmitted over a network using helper servers that maintain buffers for providing cached data to a requesting client.

127. The '796 patent is valid and enforceable.

128. At the time of the invention of the ’796 patent, live broadcasting of streaming multimedia over the Internet was becoming increasingly popular. But multimedia applications involve the transfer of large amounts of information, which placed a considerable load on the resources of the network, server, and client. Streaming technology at the time was unable to provide features such as fast playback.

129. Conventional systems attempted to address the challenges of live broadcasting streaming media over the Internet, but were unable to achieve the “look and feel” of other broadcast technologies due to, for example, longer client buffering times when beginning a stream.

130. The inventor of the ’796 patent solved this discrete computer-based problem and improved upon conventional caching techniques by providing a novel architecture and method for supporting high quality live and on-demand streaming multimedia on networks using helper servers that maintain specialized buffers. The invention reduces the network congestion problem by making cached data immediately available to a requesting client to fill the client’s playout buffer as rapidly as possible.

131. The techniques described in the ’796 patent advantageously reduce start-up latency by employing helper servers with buffers for providing cached data to a requesting client, thereby improving the “look and feel” of streaming multimedia broadcast over the Internet and other networks.

132. Twitter provides and has provided a service known as Periscope to allow users to watch and broadcast live video. Periscope is powered by the Wowza streaming engine, which includes content servers and helper servers for providing streaming multimedia content to Periscope’s users, such as in the live stream repeater configuration, among others. Wowza also includes, for example, functionality called MediaCache, which is a read-through caching

mechanism built-in with the Wowza streaming engine software aimed at increasing scalability. Twitter uses MediaCache to cache live broadcast streaming content.

133. Twitter's use of Periscope has enabled over 200 million live broadcasts created on Periscope.

134. Twitter has infringed, through its own actions and/or those of its agents and contractors, such as Wowza, one or more claims of the '796 patent under 35 U.S.C. § 271(a), either literally and/or under the doctrine of equivalents, by making, using, selling, and/or offering for sale in the United States, and/or importing into the United States, products and/or methods encompassed by those claims, including for example, by making, using, selling, offering for sale, and/or importing servers and products that include or use its Periscope or other streaming video services.

135. On July 27, 2016, Sound View informed Twitter that its Periscope application infringes the '796 patent. However, Twitter has not stopped infringing.

136. For example, Twitter infringes claim 27 by using:

a. In a network having a content server (such as the server hosting a live streaming video) which hosts a plurality of live streaming multimedia (SM) broadcast objects (such as live videos from Twitter's users) for distribution over said network through a plurality of helper servers (HSs) (such as the Wowza edge servers) to a plurality of clients (such as Twitter's users), a method of reducing start-up latency associated with distributing said plurality of live SM broadcast objects from said content server and said plurality of HSs to said plurality of clients, said method comprising:

b. receiving a first request (such as a Twitter user requesting to watch a hosted video) for one of said plurality of live SM broadcast objects (such as a live Periscope stream) at one of said plurality of HSs (such as the Wowza edge servers);

c. servicing said first request from a non pre-configured playout history (PH) buffer (such as the cache buffer at a Wowza edge server) at a first data rate (such as the data rate when servicing a request from a Wowza edge server where the requested stream is not contained in the cache buffer);

d. receiving a second request for said one of said plurality of live SM broadcast objects (such as a second Twitter user requesting to watch the same hosted video) at said one of said plurality of HSs (such as the Wowza edge server that serviced the first request);

e. partially servicing said second request from said non pre-configured PH buffer at a second data rate, wherein said second data rate is higher than said first data rate (such as servicing a portion of that second request using data cached at the Wowza edge server at the resulting data rate).

137. Twitter has induced infringement, and continues to induce infringement, of one or more claims of the ’796 patent under 35 U.S.C. § 271(b). Twitter actively, knowingly, and intentionally induced infringement of the ’796 patent by selling, supplying, maintaining, and/or supporting Periscope; with the knowledge and intent that its agents and contractors, such as Wowza, will deploy the websites, servers, and services in the United States for their intended purpose to infringe the ’796 patent; and with the knowledge and intent to encourage and facilitate the infringement through the dissemination, maintenance, and support of the websites, servers, and services and/or the creation and dissemination of documentation related to the websites, servers, and services, including by, for example, encouraging and instructing its agents and contractors, such as Wowza, to provide video on Periscope causing the performance of the steps identified above using the functionality identified above.

138. Twitter has contributed to the infringement by third parties, including its agents and

contractors, such as Wowza, and continues to contribute to the infringement by third parties, of one or more claims of the '796 patent under 35 U.S.C. § 271(c), by making, using, selling and/or offering for sale in the United States, and/or importing into the United States, Twitter's websites and servers, including Periscope, knowing that the infringing websites, servers, and services constitute a material part of the inventions of the '796 patent, knowing that the infringing websites, servers, and services are especially made or adapted to infringe the '796 patent, and knowing that the infringing websites, servers, and services are not a staple article of commerce suitable for substantial noninfringing use.

139. Sound View has been and continues to be damaged by Twitter's infringement of the '796 patent. Sound View is entitled to recover from Twitter the damages sustained by Sound View as a result of Twitter's wrongful acts in an amount adequate to compensate Sound View for Twitter's infringement subject to proof at trial.

140. In committing these acts of infringement, Twitter committed egregious misconduct including, for example, acting despite an objectively high likelihood that its actions constituted infringement of a valid patent, while Twitter actually knew or should have known that its actions constituted an unjustifiably high risk of infringement of a valid and enforceable patent.

141. Twitter's infringement of the '796 patent was, and continues to be, deliberate and willful, entitling Sound View to increased damages under 35 U.S.C. § 284 and to attorney fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

RELIEF REQUESTED

142. Wherefore, Sound View respectfully requests that this Court enter judgment against Twitter as follows:

a) that Twitter has infringed each of the Patents-In-Suit;

b) that Twitter's infringement of the Patents-in-Suit is willful;

c) that Sound View be awarded damages in accordance with 35 U.S.C. § 284, including trebled damages, and, if necessary to adequately compensate Sound View for Twitter's infringement, an accounting;

d) that this case is exceptional under 35 U.S.C. § 285;

e) that Sound View be awarded the attorney fees, costs, and expenses that it incurs in prosecuting this action; and

f) that Sound View be awarded such further relief at law or in equity as the Court deems just and proper.

DEMAND FOR JURY TRIAL

Sound View hereby demands trial by jury on all claims and issues so triable.

Dated: September 9, 2016

PHILLIPS, GOLDMAN, McLAUGHLIN & HALL, P.A.

/s/ John C. Phillips, Jr.

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