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IN THE UNITED STATES DISTRICT COURT
FOR THE CENTRAL DISTRICT OF CALIFORNIA
WESTERN DIVISION

SOUND VIEW INNOVATIONS, LLC,	Case No. 2:17-cv-04146-JAK-PLA
Plaintiff,	Hon. John A. Kronstadt
v.	**FIRST AMENDED COMPLAINT FOR PATENT INFRINGEMENT**
HULU, LLC,	
Defendant.	**JURY TRIAL DEMANDED**

Pursuant to Fed. R. Civ. P. 15(a), plaintiff Sound View Innovations, LLC ("Sound View"), for its Complaint for Patent Infringement against Hulu, LLC ("Hulu"), 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 475 active 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. Hulu has used, and continues to use, Sound View's patents. Moreover, despite Sound View's repeated attempts to negotiate, Hulu 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 Hulu's infringement of Sound View's United States Patent Nos. 5,806,062 (the "'062 patent"), 6,125,371 (the "'371 patent"), 6,502,133 (the "'133 patent"), 6,708,213 (the "'213 patent"), 6,757,796 (the "'796 patent"), and 9,462,074 (the "'074 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 Hulu is a Delaware limited liability company, with its principal place of business at 2500 Broadway, 2nd Floor, Santa Monica, California

1   90404.   Hulu may be served with process by serving its registered agent, C T

2   Corporation System, 818 West Seventh Street, Suite 930, Los Angeles, California

3   90017.

4   **JURISDICTION AND VENUE**

5   6.   This action arises under the patent laws of the United States, including 35

6   U.S.C. § 271 *et seq*. The jurisdiction of this Court over the subject matter of this

7   action is proper under 28 U.S.C. §§ 1331 and 1338(a).

8   7.   This Court has personal jurisdiction over Hulu because, among other

9   things: Hulu has its principal place of business in this judicial district; Hulu has

10 committed, aided, abetted, contributed to and/or participated in the commission of acts

11 giving rise to this action within the State of California and this judicial district and has

12 established minimum contacts within the forum such that the exercise of jurisdiction

13 over Hulu would not offend traditional notions of fair play and substantial justice;

14 Hulu has placed products and services that practice the claims of the Patents-in-Suit

15 into the stream of commerce with the reasonable expectation and/or knowledge that

16 actual or potential users of such products and/or services were located within this

17 judicial district; and Hulu has sold, advertised, solicited customers, marketed and

18 distributed its services that practice the claims of the Patents-in-Suit in this judicial

19 district.

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

21 and 1400(b), at least because Hulu has its principal, regular, and established place of

22 business in this judicial district, at 2500 Broadway, 2nd Floor, Santa Monica, CA

23 90404. Moreover, Hulu commits (directly and/or indirectly) acts of infringement in

24 this judicial district, including at least through the provision and use of its website and

25 services from its offices in this judicial district, and through its direction of, control of,

26 and entry into contracts with content delivery networks, such as Akamai

27 Technologies, Inc., Limelight Networks Inc., and Level 3 Communications, LLC,

28 from its offices in this judicial district.

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INFRINGEMENT

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 United States Patent and Trademark Office ("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 '371 patent, titled "System and Method For Aging Versions of Data in a Main Memory Database," was duly and properly issued by the USPTO on September 26, 2000. A copy of the '371 patent is attached hereto as Exhibit B.

13.   Sound View is the owner and assignee of the '371 patent and holds the right to sue for and recover all damages for infringement thereof, including past infringement.

14.   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 C.

15.   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.

16.   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 D.

17.   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.

18.   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 E.

19.   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.

20.   The '074 patent, titled "Method and System for Caching Streaming Multimedia on the Internet," was duly and properly issued by the USPTO on October 4, 2016. The USPTO further duly and properly issued a Certificate of Correction under 35 U.S.C. § 255 on August 8, 2017. A copy of the '074 patent and Certificate of Correction is attached hereto as Exhibit F.

21.   Sound View is the owner and assignee of the '074 patent and holds the right to sue for and recover all damages for infringement thereof, including past infringement.

BACKGROUND FACTS

22.   On October 10, 2016, Sound View sent a letter notifying Hulu of its infringement of six patents, including the '371, '133, and '213 patents. Sound View notified Hulu of representative Hulu features that infringe those patents and explained its intention to allow Hulu to continue to use the inventions covered in those patents through a license from Sound View. Sound View further requested a meeting to discuss the matter in more detail.

23.   Hulu did not respond to Sound View's October 10, 2016 letter.

24.   On March 28, 2017, Sound View sent an additional letter, including its October 10, 2016 letter and additionally notifying Hulu of its infringement of the '074 patent. Sound View notified Hulu of representative Hulu features that infringe that

patent and explained its intention to allow Hulu to continue to use the inventions covered in that patent through a license from Sound View. Sound View further requested a meeting to discuss the matter in more detail. Sound View sent a follow up email on April 3, 2017.

25.   On April 6, 2017, Hulu responded to Sound View's March 28, 2017 letter by requesting information about Sound View's licensees.

26.   On April 20, 2017, Sound View responded to Hulu's letter and requested a meeting with Hulu to present claim charts detailing Hulu's infringement of Sound View's patents and to discuss an amicable resolution.

27.   On April 20, 2017, Hulu responded, asking to postpone the proposed meeting to an undetermined time in the future.

28.   On May 2, 2017, Hulu requested claim charts evidencing Hulu's infringement of Sound View's patents.

29.   On May 22, 2017, Sound View provided Hulu with claim charts further detailing Hulu's infringement.

30.   On June 2, 2017, Sound View filed suit against Hulu, alleging infringement of the '062, '371, '133, '213, '796, and '074 patents.

31.   To date, Hulu has refused to engage in any meaningful discussion about reaching a licensing agreement to end its infringement of Sound View's patents. Instead, Hulu continues to knowingly, intentionally, and willfully infringe Sound View's patents so as to obtain their significant benefits without paying any compensation to Sound View. Sound View has no other choice but to seek relief through litigation.

COUNT ONE

INFRINGEMENT OF THE '062 PATENT

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

33.   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.

34.   The '062 patent is valid and enforceable.

35.   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; for example, comparing a first version to a second version, or analyzing dependency relationships between various sections of computer code.

36.   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.

37.   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.

38.   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.

39.   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.

40.   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.

41. 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.

42. Hulu's platforms, web pages, and servers 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.

43. 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.

44. 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.

45. jQuery is a DOM manipulation library that makes it easier to use JavaScript on a website by taking more complex code needed to manipulate the DOM and wrapping the code into simpler methods that can be called with smaller amounts of JavaScript.

46. Hulu has used jQuery throughout its products and services, including its webpages such as hulu.com.

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47.   Hulu has infringed one or more claims of the '062 patent under 35 U.S.C. § 271(a), 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 Hulu platforms, including for example its web pages and servers that use and have used jQuery.

48.   On May 22, 2017, Sound View informed Hulu that at least its use of the DOM infringed the '062 patent.

49.   For example, Hulu has infringed claim 14 by using a method for processing information (such as Hulu's applications, web pages, and/or servers that use and have used jQuery) comprising the steps of:

a.   providing a plurality of software operators (such as jQuery methods, including, for example, ".append( )," ".clone( )," ".attr( )," and ".wrap( )") 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 jQuery method to a node in the DOM tree), and for outputting a virtual database having said first schema; and

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

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

COUNT TWO

INFRINGEMENT OF THE '371 PATENT

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

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1   52.   The '371 patent generally relates to an improved multi-versioned

2   database management system and method that creates multiple versions of data

3   records affected by update transactions and increases capacity of memory by deleting

4   versions of data records in response to associated time stamps and a measurable

5   characteristic of the memory.   In the context of the '371 patent, "measurable

6   characteristics of the memory" are a current utilization or capacity of memory, a trend

7   analysis of a utilization or capacity of memory over a time period, or any other applied

8   mathematics- or statistics-based analysis, including a comparison of any of the same

9   with a threshold, ceiling/floor, limit, set point, or the like.

10   53.   The '371 patent is valid and enforceable.

11   54.   Database managers ("DBMs") have long been used in computer systems

12   to manage large amounts of data. A DBM is a control application that supervises or

13   manages interactions between application tasks and a database.   The '371 patent

14   inventors recognized that two important DBM functions are to ensure (i) data recovery

15   (in response to a database crash caused by, for example, a power outage or a program

16   crash), and (ii) data integrity. Data recovery involves rebuilding at least part of a

17   database after all or part of its data is corrupted or lost, based on the last known valid

18   or uncorrupted state. With respect to data integrity, latency in DBMs was largely

19   intolerable. Latency refers to the time differential between a request for data and

20   subsequent receipt of data. Latency is largely impacted by the type of computer

21   memory on which the database is stored. There are two classifications of computer

22   memory, volatile memory and non-volatile memory. Volatile memory is memory

23   which does not retain data after power is lost, and is typically characterized by fast

24   access to data. Non-volatile memory is memory that retains data after power is lost

25   and is typically characterized by slower access to data. As a general matter, volatile

26   memory is more expensive than non-volatile memory. Early computer database

27   systems were divided among main (volatile) memory and disk (non-volatile memory).

28   Those disk-based DBMs frequently failed to meet the performance requirements of

contemporary information management systems because of the latencies inherent with non-volatile memory transactions.

55.   One popular method to solve that latency problem was to map the entire database into the main memory. For data integrity purposes, however, those conventional main memory DBMs had to delay the processing of update transactions. For example, the conventional main memory DBMs had to prevent an update transaction from modifying a data record while another process was simultaneously relying on that data record. In order to reduce conflicts between update transactions and read-only transactions, contemporary databases created multiple versions of data records, known as multi-versioning. In those multi-version DBMs, read-only transactions were given consistent, but out-of-date views of certain data records or data record types.

56.   Although those multi-versioning techniques reduced "waits" and conflicts among transactions, they conflicted with DBM efforts to utilize main memory capacity efficiently because main memory continuously expended processing resources collecting data record versions that were no longer needed. The '371 patent solved this computer-based problem—that of lacking an efficient means to reclaim main memory space no longer used by multi-version techniques—by logically and economically aging data record versions in the database. The '371 patent inventions extend to, and provide benefits to, DBMs that utilize secondary or mass storage as opposed to main memory.

57.   In particular, to solve this discrete computer-centric problem, the '371 patent teaches a system that includes each of a time stamping controller, a versioning controller and an aging controller. The time stamping controller assigns a time stamp to transactions to be performed on the database, and may be assigned as a function of a time stamp counter. The time stamp operates to preserve an order of the transactions. The versioning controller creates multiple versions of data records of the database that are affected by update transactions. The aging controller, which may be

1 associated, directly or indirectly, with each of the time stamping and versioning

2 controllers, monitors at least one measurable characteristic and deletes prior ones of

3 the multiple data record versions in response to the time stamp and the at least one

4 measurable characteristic to thereby increase the data capacity of the database, thus

5 increasing memory capacity.

6   58.   Hulu uses and has used a distributed database known as Cassandra for

7 video progress tracking within Hulu's video streaming systems, as well as other

8 services, including social data from users, messaging, and the ability to use a mobile

9 device to send traffic to a connected device.

10   59.   The Cassandra database is stored in a memory comprising a combination

11 of "memtable" and "SSTable." A memtable is a Cassandra table-specific, in-memory

12 data structure that resembles a write-back cache. A sorted string table (SSTable) is an

13 immutable data file to which Cassandra writes memtables periodically. SSTables are

14 stored on disk sequentially and maintained for each Cassandra table.

15   60.   During a write transaction, a timestamp is assigned to the transaction

16 performed on the Cassandra database.

17   61.   Cassandra databases utilize periodic compaction to manage the

18 accumulation of SSTables.

19   62.   Cassandra databases have configurable parameters (such as

20 min_threshold and max_threshold parameters) that control when a minor compaction

21 occurs.

22   63.   Hulu has infringed one or more claims of the '371 patent under 35 U.S.C.

23 § 271(a), literally and/or under the doctrine of equivalents, by making, using, selling,

24 and/or offering for sale in the United States, and/or importing into the United States,

25 products and/or methods encompassed by those claims, including for example, by

26 making, using, selling, offering for sale, and/or importing servers and products that

27 include or use applications based on Cassandra, such as Hulu's servers that track its

28 users' video watching progress.

64. On October 10, 2016 and May 22, 2017, Sound View informed Hulu that its systems and applications infringe the '371 patent. However, Hulu has not stopped infringing.

65. For example, Hulu infringes claim 8 by using a method of operating a processing system (such as Hulu's servers) for use with a database of data records (such as a Cassandra database), said database stored in a memory, comprising the steps of:

a. assigning a time stamp to transactions to be performed on said database (such as a timestamp assigned during a write transaction);

b. creating multiple versions of ones of said data records affected by said transactions that are update transactions (such as the new timestamped version of an updated row in the database);

c. monitoring a measurable characteristic of said memory (such as a measurement associated with a min_threshold or max_threshold parameter); and

d. deleting ones of said multiple versions of said ones of said data records in response to said time stamp and said measurable characteristic thereby to increase a capacity of said memory (such as by performing a compaction process in response to the min_threshold parameter being met or exceeded).

66. Sound View has been damaged by Hulu's infringement of the '371 patent. Sound View is entitled to recover from Hulu the damages sustained by Sound View as a result of Hulu's wrongful acts in an amount adequate to compensate Sound View for Hulu's infringement subject to proof at trial.

67. In committing these acts of infringement, Hulu committed egregious misconduct including, for example, acting despite knowing that its actions constituted infringement of a valid patent, or recklessly disregarding the fact that its actions constituted an unjustifiably high risk of infringement of a valid and enforceable patent.

68.   Hulu's infringement of the '371 patent was and is 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.

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COUNT THREE

INFRINGEMENT OF THE '133 PATENT

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

70.   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.

71.   The '133 patent is valid and enforceable.

72.   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 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.

73.   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.

74.   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.

75.   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 real-time event processing system that avoids the problems associated with custom systems.

76.   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.

77.   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.

78.   Hulu uses and has used frameworks known as Apache Storm ("Storm") 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.

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

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

81.   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.

82.   Hulu's use of Storm enables Hulu to process billions of events per day.

83.   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.

84.   Hulu has infringed one or more claims of the '133 patent under 35 U.S.C. § 271(a), 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, such as Hulu's servers used for real-time analytics and real-time processing, that include or use applications based on Storm.

85. On October 10, 2016 and May 22, 2017, Sound View informed Hulu that its systems and applications infringe the '133 patent. However, Hulu has not stopped infringing.

86. For example, Hulu infringes claim 13 by using a method of processing events (such as Streams) generated by at least one system application (such as Hulu's database systems, analytics systems, and monitoring/alerting systems), the method comprising the steps of:

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

      b. storing in a main-memory database system (such as Storm'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).

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

88. In committing these acts of infringement, Hulu committed egregious misconduct including, for example, acting despite knowing that its actions constituted infringement of a valid patent, or recklessly disregarding the fact that its actions constituted an unjustifiably high risk of infringement of a valid and enforceable patent.

89. Hulu's infringement of the '133 patent was and is 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 '213 PATENT

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

91.   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 from a content provider over a network to a client's computer.

92.   The '213 patent is valid and enforceable.

93.   At the time of the invention of the '213 patent, multimedia 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 Internet service providers in that streaming caused network congestion problems, and to clients in that streaming often resulted in high start-up latency and unpredictable playback quality.

94.   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 because 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.

95.   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.

96.   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.

97.   The '213 patent has been recognized with the 2013 Edison Patent Award in Multimedia Technology for inventing "fundamental concepts and techniques to design content distribution networks and caching systems originally built for text and images to better support streaming media over the Internet." A press release regarding the award is attached as Exhibit G.

98.   A content delivery network, also called a content distribution network (CDN), is a network of connected computers that delivers internet content, such as streaming video, to end users. When a service, such as Hulu, uses a CDN, the content comes from an "origin server" and is replicated on numerous "edge servers." When an end user requests particular content, the CDN provides the content from an edge server near to the end user. This arrangement has numerous benefits, such as: faster response time (lower latency) because the content is served from a nearby edge server, instead of a potentially distant origin server; greater throughput because the edge server will be less loaded than a single origin server would be; and greater availability because the multiplicity of servers allows for a request to be failed over to another server if an edge server crashes.

99.   Hulu provides and has provided streaming services, including at least Hulu and Hulu Plus (the "'213 Services"), to allow users to watch streaming video. Hulu provides streaming video services to its users utilizing content delivery networks, including at least Akamai Technologies, Inc. ("Akamai"), Limelight Networks Inc. ("Limelight"), Level 3 Communications, LLC ("Level 3"), and Fastly Inc. ("Fastly") (collectively, "the CDNs"). The '213 Services provide video that is

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1 encoded using certain protocols, including the HTTP Live Streaming ("HLS")

2 protocol and the MPEG-DASH protocol.

3   100.   HLS is an HTTP-based media streaming communications protocol. It

4 works by breaking the overall stream into a sequence of small HTTP-based file

5 downloads; each download is one short chunk that is part of an overall potentially

6 unbounded transport stream. As the stream is played, the client may select from a

7 number of different alternate chunks containing the same material encoded at a variety

8 of data rates.

9   101.   MPEG-DASH is an adaptive bitrate streaming technique that enables

10 high quality streaming of media content over the Internet delivered from conventional

11 HTTP web servers. Similar to HLS, MPEG-DASH works by breaking the content

12 into a sequence of small HTTP-based file segments, each segment containing a short

13 interval of playback time of content that is potentially many hours in duration, such as

14 a live broadcast of a sports event. The content is made available at a variety of

15 different bit rates, with alternative segments encoded at different bit rates covering

16 aligned short intervals of playback time.

17   102.   Hulu has been actively involved in the promotion and industry adoption

18 of MPEG-DASH, through for example its involvement with the DASH Industry

19 Forum, of which it is a Contributor Member.

20   103.   The CDNs, including Akamai, Limelight, Level 3, and Fastly, each

21 support Hulu's delivery of video content to users using MPEG-DASH and/or HLS.

22 Moreover, each of the CDNs openly advertises and promotes the use of those

23 protocols to deliver video content to users.

24   104.   Knowing that each of the CDNs supports the delivery of video content

25 using MPEG-DASH and/or HLS, and directing and controlling such support, Hulu

26 delivers video streams to its users, including the '213 Services, using at least the

27 Akamai, Limelight, Level 3, and Fastly CDNs by transcoding videos into MPEG-

28 DASH segments with different bit rates, and providing those segments to each of the

1 CDNs. The CDNs store those MPEG-DASH segments in caches, and send them to

2 Hulu users who request to view the video files.

3   105. Hulu contracts or has contracted with each of the CDNs, so that when at

4 least certain Hulu users request a video stream, the request is routed to one of the edge

5 servers of the CDN, which receives the request. The edge server then allocates a local

6 buffer to store portions of the stream.

7   106. Hulu had and has the ability to configure and/or customize aspects of the

8 operation of each of the CDNs in delivering content to its users. For example, Hulu

9 can and has customized the operation of the Akamai CDN through configuration

10 tools, such as Akamai's Luna Control Center. As a further example, Hulu can and has

11 customized the operation of the Limelight CDN through configuration tools, such as

12 Limelight Control. As a further example, Hulu can and has customized the operation

13 of the Level 3 CDN through configuration tools, such as Level 3 CDN Portal.

14   107. At least through contracting with Akamai and configuring and/or

15 customizing aspects of the operation of the Akamai CDN, Hulu has knowledge of the

16 operations of the Akamai CDN and the steps the Akamai systems will perform in

17 order to deliver content to Hulu's users. Hulu thus knowingly causes and specifically

18 intends for Akamai to perform those steps, or directs and controls Akamai's

19 performance of these steps by means of at least its contractual relationship with

20 Akamai and by configuring and customizing Akamai's CDN.

21   108. For example, utilizing Akamai's CDN requires storing segments in a

22 local buffer on an edge server, and at least by entering into a contractual relationship

23 with Akamai, Hulu knowingly intends for Akamai to do so, or directs and controls

24 Akamai (either implicitly or explicitly) to do so. Hulu intends for, or directs, the

25 Akamai edge server to request the MPEG-DASH or HLS segments from a datacenter

26 cache, store them in the local buffer, and send them to Hulu users who view the video.

27 Further, Hulu intends for, or directs, the edge server to store data in the buffer so that

28 its end users can receive content with a lower latency.

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109.   While the Akamai edge server sends the requested segments to the user, it concurrently requests the next few segments in the stream from the datacenter cache or from the cache of another server. By doing so, the content can be streamed smoothly without pauses for buffering. Akamai advertises this process as "pre-fetching." Hulu intends for and contracts with Akamai to use pre-fetching so that its users can receive content without pauses for buffering. Hulu and other customers have the ability to configure the size of the segments to be fetched in the Akamai system. The Akamai CDN, as configured and customized by Hulu, also allows Hulu users to receive content without pauses for buffering by allowing end users to send byte range requests to the edge server.

110.   While the content is being played back by an MPEG-DASH or HLS client, the client automatically selects the next segment to download and play based on current network conditions.   The streaming server then provides the requested alternate segment, resulting in the server adjusting the data rate. Hulu intends for and controls the Akamai CDN to adjust the data rate by directing, controlling, and/or inducing Akamai to provide the content on its CDN at different data rates.

111.   As a further example, at least through contracting with Limelight and configuring and/or customizing aspects of the operation of the Limelight CDN, Hulu has knowledge of the operations of the Limelight CDN and the steps the Limelight systems will perform in order to deliver content to Hulu's users. Hulu thus knowingly causes and specifically intends for Limelight to perform those steps, or directs and controls Limelight's performance of those steps by means of at least its contractual relationship with Limelight and by configuring and customizing Limelight's CDN.

112.   For instance, utilizing Limelight's CDN requires storing segments in a local buffer on an edge server, and at least by entering into a contractual relationship with Limelight, Hulu knowingly intends for Limelight to do so, or directs and controls Limelight (either implicitly or explicitly) to do so. Hulu intends for, or directs, the Limelight edge server to request the MPEG-DASH or HLS segments from a

datacenter cache, store them in the local buffer, and send them to Hulu users who view the video. Further, Hulu intends for, or directs, the edge server to store data in the buffer so that its end users can receive content with a lower latency.

113.   While the Limelight edge server sends the requested segments to the user, it concurrently requests the next few segments in the stream from the datacenter cache or from the cache of another server. By doing so, the content can be streamed smoothly without pauses for buffering. Hulu intends for and contracts with (or has contracted with) Limelight to deliver content in this manner so that its users can receive content without pauses for buffering. Hulu and other customers have the ability to configure the size of the segments to be fetched in the Limelight system. The Limelight CDN, as configured and customized by Hulu, also allows Hulu users to receive content without pauses for buffering by allowing end users to send byte range requests to the edge server.

114.   While the content is being played back by an MPEG-DASH or HLS client, the client automatically selects from the alternatives the next segment to download and play based on current network conditions. The streaming server then provides the requested alternate segment, resulting in the server adjusting the data rate. Hulu intends for and controls the Limelight CDN to adjust the data rate by directing, controlling, and/or inducing Limelight to provide the content on its CDN at different data rates.

115.   As a further example, at least through contracting with Level 3 and configuring and/or customizing aspects of the operation of the Level 3 CDN, Hulu has knowledge of the operations of the Level 3 CDN and the steps the Level 3 systems will perform in order to deliver content to Hulu's users. Hulu thus knowingly causes and specifically intends for Level 3 to perform those steps, or directs and controls Level 3's performance of those steps by means of at least its contractual relationship with Level 3 and by configuring and customizing Level 3's CDN.

116.   For instance, utilizing Level 3's CDN requires storing segments in a local buffer on an edge server, and at least by entering into a contractual relationship with Level 3, Hulu knowingly intends for Level 3 to do so, or directs and controls Level 3 (either implicitly or explicitly) to do so. Hulu intends for, or directs, the Level 3 edge server to request the MPEG-DASH or HLS segments from a datacenter cache, store them in the local buffer, and send them to Hulu users who view the video. Further, Hulu intends for, or directs, the edge server to store data in the buffer so that its end users can receive content with a lower latency.

117.   While the Level 3 edge server sends the requested segments to the user, it concurrently requests the next few segments in the stream from the datacenter cache or from the cache of another server. By doing so, the content can be streamed smoothly without pauses for buffering. Hulu intends for and contracts with Level 3 to deliver content in this manner so that its users can receive content without pauses for buffering. Hulu and other customers have the ability to configure the size of the segments to be fetched in the Level 3 system. The Level 3 CDN, as configured and customized by Hulu, also allows Hulu users to receive content without pauses for buffering by allowing end users to send byte range requests to the edge server.

118.   While the content is being played back by an MPEG-DASH or HLS client, the client automatically selects from the alternatives the next segment to download and play based on current network conditions. The streaming server then provides the requested alternate segment, resulting in the server adjusting the data rate. Hulu intends for and controls the Level 3 CDN to adjust the data rate by directing, controlling, and/or inducing Level 3 to provide the content on its CDN at different data rates.

119.   Hulu directly infringes one or more claims of the '213 patent (including at least claim 16) under 35 U.S.C. § 271(a), literally and/or under the doctrine of equivalents, at least by directing and/or controlling at least the performance of the

claimed steps by Akamai, Limelight, and Level 3 to infringe the '213 patent to deliver the '213 Services.

120. For example, Hulu has directly infringed, and continues to directly infringe, claim 16 of the '213 patent under 35 U.S.C. § 271(a), literally and/or under the doctrine of equivalents, at least by directing and/or controlling Akamai to deliver the '213 Services. For example, Hulu has directly infringed, and continues to directly infringe, claim 16 of the '213 patent under 35 U.S.C. § 271(a) literally and/or under the doctrine of equivalents, at least by directing and/or controlling Akamai (through at least contracting with Akamai and customizing the Akamai CDN) to infringe claim 16 by using a method of reducing latency in a network having a content server which hosts streaming media ("SM") objects (such as videos) which comprise a plurality of time-ordered segments (such as HLS or MPEG-DASH segments) for distribution over said network through a plurality of helpers ("HSs") (such as Akamai cache or edge servers) to a plurality of clients (such as users of the '213 Services). Further:

a. Hulu directs and/or controls Akamai, at least via its contract with Akamai and/or its configuration and customization of Akamai's CDN, to receive a request for an SM object from one of said plurality of clients (such as a user of one of the '213 Services requesting to watch a hosted video) at one of said plurality of helper servers (such as by directing and/or controlling one of the Akamai cache or edge servers to receive such a request from a user of one of the '213 Services to watch a hosted video);

b. Hulu directs and/or controls Akamai, at least via its contract with Akamai and/or its configuration and customization of Akamai's CDN, to allocate a buffer at one of said plurality of HSs to cache at least a portion of said requested SM object (such as by directing and/or controlling Akamai to allocate a local buffer to store portions of the stream as HLS or MPEG-DASH segments at the Akamai cache or edge servers);

c.   Hulu directs and/or controls Akamai, at least via its contract with Akamai and/or its configuration and customization of Akamai's CDN, to download 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 by directing and/or controlling the Akamai cache or edge server to pre-fetch the next segment of video content by requesting the next HLS or MPEG-DASH segments in the stream from the datacenter cache, and/or by directing and/or controlling the Akamai cache or edge server to be capable of receiving a byte range request in order to download a segment of a requested video stream to a client while concurrently downloading the next segments from another server); and

d.   Hulu directs and/or controls Akamai, at least via its contract with Akamai and/or its configuration and customization of Akamai's CDN and/or its provision of content encoded at multiple bitrates, to adjust 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 by directing and/or controlling Akamai to provide alternate segments encoded at different data rates to the client to accommodate the current network conditions (*e.g.*, the client's current bandwidth), and then providing the requested alternate segment resulting in an adjusted data rate).

121.   As a further example, Hulu also has directly infringed, and continues to directly infringe, one or more claims of the '213 patent (including at least claim 16) under 35 U.S.C. § 271(a), literally and/or under the doctrine of equivalents, at least by directing and/or controlling Limelight to infringe the '213 patent to deliver the '213 Services. For example, Hulu has directly infringed, and continues to directly infringe, claim 16 of the '213 patent under 35 U.S.C. § 271(a), literally and/or under the doctrine of equivalents, at least by directing and/or controlling Limelight (through at least contracting with Limelight and customizing the Limelight CDN) to infringe

1 claim 16 by using a method of reducing latency in a network having a content server

2 which hosts SM objects (such as videos) which comprise a plurality of time-ordered

3 segments (such as HLS or MPEG-DASH segments) for distribution over said network

4 through a plurality of HSs (such as Limelight cache or edge servers) to a plurality of

5 clients (such as users of the '213 Services). Further:

6   a.   Hulu directs and/or controls Limelight, at least via its contract with

7 Limelight and/or its configuration and customization of Limelight's CDN, to receive a

8 request for an SM object from one of said plurality of clients (such as a user of one of

9 the '213 Services requesting to watch a hosted video) at one of said plurality of helper

10 servers (such as by directing and/or controlling one of the Limelight cache or edge

11 servers to receive such a request from a user of one of the '213 Services to watch a

12 hosted video);

13   b.   Hulu directs and/or controls Limelight, at least via its contract with

14 Limelight and/or its configuration and customization of Limelight's CDN, to allocate

15 a buffer at one of said plurality of HSs to cache at least a portion of said requested SM

16 object (such as by directing and/or controlling Limelight to allocate a local buffer to

17 store portions of the stream as HLS or MPEG-DASH segments at the Limelight cache

18 or edge servers);

19   c.   Hulu directs and/or controls Limelight, at least via its contract with

20 Limelight and/or its configuration and customization of Limelight's CDN, to

21 download said portion of said requested SM object to said requesting client, while

22 concurrently retrieving a remaining portion of said requested SM object from one of

23 another HS and said content server (such as by directing and/or controlling the

24 Limelight cache or edge server to pre-fetch the next segment of video content by

25 requesting the next HLS or MPEG-DASH segments in the stream from the datacenter

26 cache, and/or by directing and/or controlling the Limelight cache or edge server to be

27 capable of receiving a byte range request in order to download a segment of a

28

1   requested video stream to a client while concurrently downloading the next segments

2   from another server); and

3   d.   Hulu directs and/or controls Limelight, at least via its contract with

4   Limelight and/or its configuration and customization of Limelight's CDN and/or its

5   provision of content encoded at multiple bitrates, to adjust a data transfer rate at said

6   one of said plurality of HSs for transferring data from said one of said plurality of

7   helper servers to said one of said plurality of clients (such as by directing and/or

8   controlling Limelight to provide alternate segments encoded at different data rates to

9   the client to accommodate the current network conditions (*e.g.*, the client's current

10 bandwidth), and then providing the requested alternate segment resulting in an

11 adjusted data rate).

12   122.   As a further example, Hulu also has directly infringed, and continues to

13 directly infringe, one or more claims of the '213 patent (including at least claim 16)

14 under 35 U.S.C. § 271(a), literally and/or under the doctrine of equivalents, at least by

15 directing and/or controlling Level 3 (through at least contracting with Level 3 and

16 customizing the Level 3 CDN) to infringe the '213 patent to deliver the '213 Services.

17 For example, Hulu has directly infringed, and continues to directly infringe, claim 16

18 of the '213 patent under 35 U.S.C. § 271(a), literally and/or under the doctrine of

19 equivalents, at least by directing and/or controlling Level 3 to infringe claim 16 by

20 using a method of reducing latency in a network having a content server which hosts

21 SM objects (such as videos) which comprise a plurality of time-ordered segments

22 (such as HLS or MPEG-DASH segments) for distribution over said network through a

23 plurality of HSs (such as Level 3 cache or edge servers) to a plurality of clients (such

24 as users of the '213 Services). Further:

25   a.   Hulu directs and/or controls Level 3, at least via its contract with

26 Level 3 and/or its configuration and customization of Level 3's CDN, to receive a

27 request for an SM object from one of said plurality of clients (such as a user of one of

28 the '213 Services requesting to watch a hosted video) at one of said plurality of helper

servers (such as by directing and/or controlling one of the Level 3 cache or edge servers to receive such a request from a user of one of the '213 Services to watch a hosted video);

b.   Hulu directs and/or controls Level 3, at least via its contract with Level 3 and/or its configuration and customization of Level 3's CDN, to allocate a buffer at one of said plurality of HSs to cache at least a portion of said requested SM object (such as by directing and/or controlling Level 3 to allocate a local buffer to store portions of the stream as HLS or MPEG-DASH segments at the Level 3 cache or edge servers);

c.   Hulu directs and/or controls Level 3, at least via its contract with Level 3 and/or its configuration and customization of Level 3's CDN, to download 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 by directing and/or controlling the Level 3 cache or edge server to pre-fetch the next segment of video content by requesting the next HLS or MPEG-DASH segments in the stream from the datacenter cache, and/or by directing and/or controlling the Level 3 cache or edge server to be capable of receiving a byte range request in order to download a segment of a requested video stream to a client while concurrently downloading the next segments from another server); and

d.   Hulu directs and/or controls Level 3, at least via its contract with Level 3 and/or its configuration and customization of Level 3's CDN and/or its provision of content encoded at multiple bitrates, to adjust 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 by directing and/or controlling Level 3 to provide alternate segments encoded at different data rates to the client to accommodate the current network conditions (*e.g.*, the client's current

1 bandwidth), and then providing the requested alternate segment resulting in an

2 adjusted data rate).

3   123. In addition or in the alternative, Hulu has induced infringement, and

4 continues to induce infringement, of one or more claims of the '213 patent under 35

5 U.S.C. § 271(b), literally and/or under the doctrine of equivalents. Hulu has actively,

6 knowingly, and intentionally induced (and continues to induce) infringement of the

7 '213 patent by making, using, offering for sale, selling, supplying, maintaining, and/or

8 supporting the '213 Services; by contracting with the CDNs and customizing the

9 CDNs with the specific intent to cause the CDNs to perform the steps claimed in the

10 '213 patent to deliver video data, including the '213 Services, to Hulu's users, and

11 with the knowledge that such actions infringe the '213 patent.

12   124. For example, at least through repeated correspondence from Sound View,

13 and Sound View's June 2, 2017 Complaint, Hulu knows that at least Akamai,

14 Limelight, and Level 3 perform the claimed methods of the '213 patent to deliver the

15 '213 Services, and that Hulu induces the infringement of each of those CDNs. (*See*

16 Exhibit H, incorporated herein by reference.) Moreover, Hulu specifically intends that

17 infringement, at least by continuing to contract with and utilize the Akamai,

18 Limelight, and Level 3 CDNs to offer the '213 Services; configuring the Akamai,

19 Limelight, and Level 3 CDNs to perform the claimed methods of the '213 patent; and

20 by encouraging and facilitating their infringement through the use of the '213 Services

21 by Hulu's users and/or the creation and dissemination of documentation related to the

22 '213 Services, including by, for example, encouraging and instructing its agents and

23 contractors, such as Akamai, Limelight, and Level 3, to provide video to Hulu's users

24 through the '213 Services, causing the performance of the claimed methods with the

25 knowledge that such actions infringe the '213 patent.

26   125. For example, Hulu intends for and induces Akamai to infringe claim 16

27 to deliver the '213 Services by using a method of reducing latency in a network

28 having a content server which hosts SM objects (such as videos) which comprise a

plurality of time-ordered segments (such as HLS or MPEG-DASH segments) for distribution over said network through a plurality of HSs (such as Akamai cache or edge servers) to a plurality of clients (such as users of the '213 Services).   Hulu further intends for and induces Akamai to:

a.   receive a request for an SM object from one of said plurality of clients (such as a user of one of the '213 Services requesting to watch a hosted video) at one of said plurality of helper servers (such as one of the Akamai cache or edge servers, with knowledge that Akamai's cache or edge servers will receive such a request from a user of one of the '213 Services to watch a hosted video);

b.   allocate a buffer at one of said plurality of HSs to cache at least a portion of said requested SM object (such as by inducing Akamai to allocate a local buffer to store portions of the stream as HLS or MPEG-DASH segments at the Akamai cache or edge servers, with knowledge that Akamai's CDN will allocate such a buffer at one of the Akamai cache or edge servers to store portions of the stream as HLS or MPEG-DASH segments);

c.   download 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 the Akamai cache or edge server pre-fetching the next segment of video content by requesting the next HLS or MPEG-DASH segments in the stream from the datacenter cache, with knowledge that Akamai's cache or edge servers will pre-fetch the next segment of video by requesting the next HLS or MPEG-DASH segment in the stream from the datacenter cache); and

d.   adjust 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 providing alternate segments encoded at different data rates to the client to accommodate the current network conditions (*e.g.*, the client's current bandwidth), and then providing the requested alternate segment resulting in an

adjusted data rate, with knowledge that the Akamai CDN will provide alternate segments encoded at different data rates to the client).

126.   As a further example, Hulu intends for and induces Limelight to infringe claim 16 to deliver the '213 Services by using a method of reducing latency in a network having a content server which hosts SM objects (such as videos) which comprise a plurality of time-ordered segments (such as HLS or MPEG-DASH segments) for distribution over said network through a plurality of HSs (such as Limelight cache or edge servers) to a plurality of clients (such as users of the '213 Services). Hulu further intends for and induces Limelight to:

a.   receive a request for an SM object from one of said plurality of clients (such as a user of one of the '213 Services requesting to watch a hosted video) at one of said plurality of helper servers (such as one of the Limelight cache or edge servers, with knowledge that Limelight's cache or edge servers will receive such a request from a user of one of the '213 Services to watch a hosted video);

b.   allocate a buffer at one of said plurality of HSs to cache at least a portion of said requested SM object (such as by inducing Limelight to allocate a local buffer to store portions of the stream as HLS or MPEG-DASH segments at the Limelight cache or edge servers, with knowledge that Limelight's CDN will allocate such a buffer at one of the Limelight cache or edge servers to store portions of the stream as HLS or MPEG-DASH segments);

c.   download 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 the Limelight cache or edge server pre-fetching the next segment of video content by requesting the next HLS or MPEG-DASH segments in the stream from the datacenter cache, with knowledge that Limelight's cache or edge servers will pre-fetch the next segment of video by requesting the next HLS or MPEG-DASH segment in the stream from the datacenter cache); and

1   d.   adjust a data transfer rate at said one of said plurality of HSs for

2   transferring data from said one of said plurality of helper servers to said one of said

3   plurality of clients (such as providing alternate segments encoded at different data

4   rates to the client to accommodate the current network conditions (*e.g.*, the client's

5   current bandwidth), and then providing the requested alternate segment resulting in an

6   adjusted data rate, with knowledge that the Limelight CDN will provide alternate

7   segments encoded at different data rates to the client).

8   127.   As a further example, Hulu intends for and induces Level 3 to infringe

9   claim 16 to deliver the '213 Services by using a method of reducing latency in a

10 network having a content server which hosts SM objects (such as videos) which

11 comprise a plurality of time-ordered segments (such as HLS or MPEG-DASH

12 segments) for distribution over said network through a plurality of HSs (such as Level

13 3 cache or edge servers) to a plurality of clients (such as users of the '213 Services).

14 Hulu further intends for and induces Level 3 to:

15   a.   receive a request for an SM object from one of said plurality of

16 clients (such as a user of one of the '213 Services requesting to watch a hosted video)

17 at one of said plurality of helper servers (such as one of the Level 3 cache or edge

18 servers, with knowledge that Level 3's cache or edge servers will receive such a

19 request from a user of one of the '213 Services to watch a hosted video);

20   b.   allocate a buffer at one of said plurality of HSs to cache at least a

21 portion of said requested SM object (such as by inducing Level 3 to allocate a local

22 buffer to store portions of the stream as HLS or MPEG-DASH segments at the Level

23 3 cache or edge servers, with knowledge that Level 3's CDN will allocate such a

24 buffer at one of the Level 3 cache or edge servers to store portions of the stream as

25 HLS or MPEG-DASH segments);

26   c.   download said portion of said requested SM object to said

27 requesting client, while concurrently retrieving a remaining portion of said requested

28 SM object from one of another HS and said content server (such as the Level 3 cache

1 or edge server pre-fetching the next segment of video content by requesting the next

2 HLS or MPEG-DASH segments in the stream from the datacenter cache, with

3 knowledge that Level 3's cache or edge servers will pre-fetch the next segment of

4 video by requesting the next HLS or MPEG-DASH segment in the stream from the

5 datacenter cache); and

6   d.   adjust a data transfer rate at said one of said plurality of HSs for

7 transferring data from said one of said plurality of helper servers to said one of said

8 plurality of clients (such as providing alternate segments encoded at different data

9 rates to the client to accommodate the current network conditions (*e.g.*, the client's

10 current bandwidth), and then providing the requested alternate segment resulting in an

11 adjusted data rate, with knowledge that the Level 3 CDN will provide alternate

12 segments encoded at different data rates to the client).

13   128. Sound View has been and continues to be damaged by Hulu's

14 infringement of the '213 patent. Sound View is entitled to recover from Hulu the

15 damages sustained by Sound View as a result of Hulu's wrongful acts in an amount

16 adequate to compensate Sound View for Hulu's infringement subject to proof at trial.

17   129. In committing these acts of infringement, Hulu committed egregious

18 misconduct including, for example, acting despite knowing that its actions constituted

19 infringement of a valid patent, or recklessly disregarding the fact that its actions

20 constituted an unjustifiably high risk of infringement of a valid and enforceable

21 patent.

22   130. Hulu's infringement of the '213 patent was and is deliberate and willful,

23 entitling Sound View to increased damages under 35 U.S.C. § 284 and to attorney fees

24 and costs incurred in prosecuting this action under 35 U.S.C. § 285.

25 <div align="center">**COUNT FIVE**</div>

26 <div align="center">**INFRINGEMENT OF THE '796 PATENT**</div>

27   131. Sound View incorporates by reference the preceding paragraphs as if

28 fully set forth herein.

132.   The '796 patent generally relates to real-time multimedia applications, and more specifically, to methods and systems for decreasing the playback delay at a client computer of a live streaming broadcast transmitted over a network.

133.   The '796 patent is valid and enforceable.

134.   At the time of the invention of the '796 patent, live broadcasting of streaming multimedia over the Internet (including through movie broadcasts, television, sports, talk and music radio, business events, seminars, and tutorials) was becoming increasingly popular.

135.   Streaming data involves sending a continuous transmission of data from the server to a client. At the client computer, received data is buffered in a cache memory and continuously processed as soon as, or soon after, being received by the client. The client computer creates a multimedia output from the received multimedia data. The advantage of streaming is that the client computer does not have to wait until all data is downloaded from the server before some of the data is processed and the multimedia output is created.

136.   Because multimedia applications involve transferring large amount of information, such systems place a considerable load on the resources of the network, server, and client. As more people accessed network-based multimedia applications, there was an increased demand for longer, more complicated, more flexible multimedia applications.

137.   Multicast technology was developed for scaling live broadcasts. However, one problem that such technology did not address was that of start-up latency, *i.e.*, the delay between the client requesting multimedia playback and the beginning of the playback on the client.

138.   The techniques described in the '796 patent solve that discrete computer-based problem and improve upon prior caching systems to better support the live broadcasting of streaming multimedia over the Internet and other network systems. In particular, the '796 provides novel systems and methods for supporting high quality

live streaming multimedia broadcasts on a network by using helper servers which operate as caching and streaming agents inside the network to enhance caching and reduce playback delay without sacrificing perceived playback quality. To allow the client's buffer to be filled faster (and thus allow playback to start faster), a playout history buffer is allocated and maintained at the helper server in response to a client request for a particular live streaming media broadcast. The playout history buffer operates as a moving window of fixed size that advances with the live broadcast stream, storing the last few seconds of the datastream. An advantage of utilizing playout history buffers is that as subsequent client requests are received at the helper server for a live streaming media broadcast which is currently being stored in a previously allocated playout history buffer in response to a former request, each subsequent request can be serviced directly from the playout history buffer thereby reducing start up latency. An advantage in streaming data packets to each client is realized by virtue of having some number of them pre-stored in the playout history buffer. When a request is received at the helper server, the stored packets are immediately available for distribution to the requesting client.

139.   Servicing subsequent requests from the playout history buffer prevents the need to individually service each subsequent request from the content server as a unicast datastream, which reduces network congestion by redirecting requests to the helper server. Also, the playout history buffer (which may be considered a form of short term dynamic cache) allows the cached data to be made immediately available to a requesting client to fill the client's playout buffer as rapidly as possible.

140.   Hulu provides and has provided live streaming services, including at least Hulu Live (the "'796 Services") to allow users to watch live streaming video.

141.   The CDNs, including Akamai, Limelight, Level 3, and Fastly, each support Hulu's delivery of video content to users using MPEG-DASH and/or HLS. Moreover, each of the CDNs openly advertises and promotes the use of those protocols to deliver video content to users. Knowing that each of the CDNs supports

the delivery of video content using MPEG-DASH and/or HLS, and directing or controlling such support, Hulu delivers the '796 Services to its users using at least the Akamai, Limelight, Level 3, and Fastly CDNs by transcoding videos into MPEG-DASH and/or HLS segments.

142.   Hulu contracts or has contracted with each of the CDNs, so that when at least certain Hulu users request a '796 Services video stream, the request is routed to one of the edge servers of the CDN, which receives the request. Moreover, Hulu had and has the ability to configure and/or customize aspects of the operation of each of the CDNs in delivering content to its users. For example, Hulu can and has customized the operation of the Akamai CDN through configuration tools, such as Akamai's Luna Control Center. As a further example, Hulu can and has customized the operation of the Limelight CDN through configuration tools, such as Limelight Control. As a further example, Hulu can and has customized the operation of the Level 3 CDN through configuration tools, such as Level 3 CDN Portal.

143.   For example, at least through contracting with Akamai and configuring and/or customizing aspects of the operation of the Akamai CDN, Hulu has knowledge of the operations of the Akamai CDN and the steps the Akamai systems will perform in order to deliver content to Hulu's users. Hulu thus knowingly causes and specifically intends for Akamai to perform those steps, or directs and controls Akamai's performance of these steps by means of at least its contractual relationship with Akamai and by configuring and customizing Akamai's CDN.

144.   For example, Hulu contracts with Akamai knowing that when at least certain Hulu users request a '796 Services live stream, the request is routed to an Akamai edge server, which receives the request, and that the Akamai edge server allocates a local buffer to store portions of the stream. Hulu contracts with Akamai also knowing that when a second user requests the same video stream, the Akamai edge server will provide the stream from the same local buffer, because Akamai's edge servers serve the second request from the same local buffer because doing so

saves space and bandwidth. Hulu's contract with Akamai thus implicitly or explicitly directs and controls Akamai to serve a second request for the same stream from the same local buffer. Because the Akamai edge server already has the requested stream in a local buffer, it takes less time to send it to the second user.

145. As a further example, at least through contracting with Limelight and configuring and/or customizing aspects of the operation of the Limelight CDN, Hulu has knowledge of the operations of the Limelight CDN and the steps the Limelight systems will perform in order to deliver content to Hulu's users. Hulu thus knowingly causes and specifically intends for Limelight to perform those steps, or directs and controls Limelight's performance of those steps by means of at least its contractual relationship with Limelight and by configuring and customizing Limelight's CDN.

146. For instance, Hulu contracts or has contracted with Limelight knowing that when at least certain Hulu users request a '796 Services live stream, the request is routed to a Limelight edge server, which receives the request, and that the Limelight edge server allocates a local buffer to store portions of the stream. Hulu contracts with Limelight also knowing that when a second user requests the same video stream, the Limelight edge server will provide the stream from the same local buffer, because Limelight's edge servers serve the second request from the same local buffer because doing so saves space and bandwidth. Hulu's contract with Limelight thus implicitly or explicitly directs and controls Limelight to serve a second request for the same stream from the same local buffer. Because the Limelight edge server already has the requested stream in a local buffer, it takes less time to send it to the second user.

147. As a further example, at least through contracting with Level 3 and configuring and/or customizing aspects of the operation of the Level 3 CDN, Hulu has knowledge of the operations of the Level 3 CDN and the steps the Level 3 systems will perform in order to deliver content to Hulu's users. Hulu thus knowingly causes and specifically intends for Level 3 to perform those steps, or directs and controls

1   Level 3's performance of those steps by means of at least its contractual relationship

2   with Level 3 and by configuring and customizing Level 3's CDN.

3   148.   For instance, Hulu contracts or has contracted with Level 3 knowing that

4   when at least certain Hulu users request a '796 Services live stream, the request is

5   routed to a Level 3 edge server, which receives the request, and that the Level 3 edge

6   server allocates a local buffer to store portions of the stream.   Hulu contracts with

7   Level 3 also knowing that when a second user requests the same video stream, the

8   Level 3 edge server will provide the stream from the same local buffer, because Level

9   3's edge servers serve the second request from the same local buffer because doing so

10   saves space and bandwidth.   Hulu's contract with Level 3 thus implicitly or explicitly

11   directs and controls Level 3 to serve a second request for the same stream from the

12   same local buffer.   Because the Level 3 edge server already has the requested stream

13   in a local buffer, it takes less time to send it to the second user.

14   149.   Hulu directly infringes one or more claims of the '796 patent (including

15   at least claim 27) under 35 U.S.C. § 271(a), literally and/or under the doctrine of

16   equivalents, at least by directing and/or controlling at least the performance of the

17   claimed steps by Akamai, Limelight, and Level 3 to infringe the '796 patent to deliver

18   the '796 Services.

19   150.   For example, Hulu has directly infringed, and continues to directly

20   infringe, claim 27 of the '796 patent under 35 U.S.C. § 271(a), literally and/or under

21   the doctrine of equivalents, at least by directing and/or controlling Akamai (through at

22   least contracting with Akamai and customizing the Akamai CDN) to infringe claim 27

23   by using, in a network having a content server (such as a web content server) which

24   hosts a plurality of live SM broadcast objects (such as live video) for distribution over

25   said network through a plurality of HSs (such as Akamai's edge servers) to a plurality

26   of clients (such as Hulu's users), a method of reducing start-up latency associated with

27   distributing said plurality of live SM broadcast objects from said content server and

28   said plurality of HSs to said plurality of clients. Further:

a.   Hulu directs and/or controls Akamai, at least via its contract with Akamai and/or its configuration and customization of Akamai's CDN, to receive a first request for one of said plurality of live SM broadcast objects at one of said plurality of HSs (such as by directing and/or controlling Akamai to receive a first request from a Hulu user to watch a live video at one of Akamai's edge servers);

b.   Hulu directs and/or controls Akamai, at least via its contract with Akamai and/or its configuration and customization of Akamai's CDN, to service said first request from a non pre-configured playout history ("PH") buffer (such as by directing and/or controlling Akamai to contact a content server, retrieve and cache the requested MPEG-DASH or HLS segments at the Akamai edge server in a local buffer, and deliver the requested content to the client) at a first data rate;

c.   Hulu directs and/or controls Akamai, at least via its contract with Akamai and/or its configuration and customization of Akamai's CDN, to receive a second request for said one of said plurality of live SM broadcast objects at said one of said plurality of HSs (such as by directing and/or controlling Akamai to receive a second request for the same MPEG-DASH or HLS segments at the Akamai edge server); and

d.   Hulu directs and/or controls Akamai, at least via its contract with Akamai and/or its configuration and customization of Akamai's CDN, to partially service said second request from said non pre-configured PH buffer (such as by directing and/or controlling Akamai to deliver the requested MPEG-DASH or HLS segments to the client from the same local buffer on the Akamai edge server) at a second data rate, wherein said second data rate is higher than said first data rate.

151.   As a further example, Hulu also has directly infringed, and continues to directly infringe, one or more claims of the '796 patent (including at least claim 27) under 35 U.S.C. § 271(a), literally and/or under the doctrine of equivalents, at least by directing and/or controlling Limelight (through at least contracting with Limelight and customizing the Limelight CDN) to infringe the '796 patent to deliver the '796

1   Services. For example, Hulu has directly infringed, and continues to directly infringe,

2   claim 27 by using, in a network having a content server (such as a web content server)

3   which hosts a plurality of live SM broadcast objects (such as live video) for

4   distribution over said network through a plurality of HSs (such as Limelight's edge

5   servers) to a plurality of clients (such as Hulu's users), a method of reducing start-up

6   latency associated with distributing said plurality of live SM broadcast objects from

7   said content server and said plurality of HSs to said plurality of clients. Further:

8   a.   Hulu directs and/or controls Limelight, at least via its contract with

9   Limelight and/or its configuration and customization of Limelight's CDN, to receive a

10   first request for one of said plurality of live SM broadcast objects at one of said

11   plurality of HSs (such as by directing and/or controlling Limelight to receive a first

12   request from a Hulu user to watch a live video at one of Limelight's edge servers);

13   b.   Hulu directs and/or controls Limelight, at least via its contract with

14   Limelight and/or its configuration and customization of Limelight's CDN, to service

15   said first request from a non pre-configured PH buffer (such as by directing and/or

16   controlling Limelight to contact a content server, retrieve and cache the requested

17   MPEG-DASH or HLS segments at the Limelight edge server in a local buffer, and

18   deliver the requested content to the client) at a first data rate;

19   c.   Hulu directs and/or controls Limelight, at least via its contract with

20   Limelight and/or its configuration and customization of Limelight's CDN, to receive a

21   second request for said one of said plurality of live SM broadcast objects at said one

22   of said plurality of HSs (such as by directing and/or controlling Limelight to receive a

23   second request for the same MPEG-DASH or HLS segments at the Limelight edge

24   server); and

25   d.   Hulu directs and/or controls Limelight, at least via its contract with

26   Limelight and/or its configuration and customization of Limelight's CDN, to partially

27   service said second request from said non pre-configured PH buffer (such as by

28   directing and/or controlling Limelight to deliver the requested MPEG-DASH or HLS

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1 segments to the client from the same local buffer on the Limelight edge server) at a

2 second data rate, wherein said second data rate is higher than said first data rate.

3 152. As a further example, Hulu also has directly infringed, and continues to

4 directly infringe, one or more claims of the '796 patent (including at least claim 27)

5 under 35 U.S.C. § 271(a), literally and/or under the doctrine of equivalents, at least by

6 directing and/or controlling Level 3 (through at least contracting with Level 3 and

7 customizing the Level 3 CDN) to infringe the '796 patent to deliver the '796 Services.

8 For example, Hulu has directly infringed, and continues to directly infringe, claim 27

9 by using, in a network having a content server (such as a web content server) which

10 hosts a plurality of live SM broadcast objects (such as live video) for distribution over

11 said network through a plurality of HSs (such as Level 3's edge servers) to a plurality

12 of clients (such as Hulu's users), a method of reducing start-up latency associated with

13 distributing said plurality of live SM broadcast objects from said content server and

14 said plurality of HSs to said plurality of clients. Further:

15 a. Hulu directs and/or controls Level 3, at least via its contract with

16 Level 3 and/or its configuration and customization of Level 3's CDN, to receive a first

17 request for one of said plurality of live SM broadcast objects at one of said plurality of

18 HSs (such as by directing and/or controlling Level 3 to receive a first request from a

19 Hulu user to watch a live video at one of Level 3's edge servers);

20 b. Hulu directs and/or controls Level 3, at least via its contract with

21 Level 3 and/or its configuration and customization of Level 3's CDN, to service said

22 first request from a non pre-configured PH buffer (such as by directing and/or

23 controlling Level 3 to contact a content server, retrieve and cache the requested

24 MPEG-DASH or HLS segments at the Level 3 edge server in a local buffer, and

25 deliver the requested content to the client) at a first data rate;

26 c. Hulu directs and/or controls Level 3, at least via its contract with

27 Level 3 and/or its configuration and customization of Level 3's CDN, to receive a

28 second request for said one of said plurality of live SM broadcast objects at said one

1   of said plurality of HSs (such as by directing and/or controlling Level 3 to receive a

2   second request for the same MPEG-DASH or HLS segments at the Level 3 edge

3   server); and

4   d.   Hulu directs and/or controls Level 3, at least via its contract with

5   Level 3 and/or its configuration and customization of Level 3's CDN, to partially

6   service said second request from said non pre-configured PH buffer (such as by

7   directing and/or controlling Level 3 to deliver the requested MPEG-DASH or HLS

8   segments to the client from the same local buffer on the Level 3 edge server) at a

9   second data rate, wherein said second data rate is higher than said first data rate.

10   153.   In addition or in the alternative, Hulu has induced infringement, and

11   continues to induce infringement, of one or more claims of the '796 patent under 35

12   U.S.C. § 271(b), literally and/or under the doctrine of equivalents. Hulu has actively,

13   knowingly, and intentionally induced (and continues to induce) infringement of the

14   '796 patent by making, using, offering for sale, selling, supplying, maintaining, and/or

15   supporting the '796 Services; by contracting with the CDNs and customizing the

16   CDNs with the specific intent to cause the CDNs to perform the steps claimed in the

17   '796 patent to deliver video data, including the '796 Services, to Hulu's users, and

18   with the knowledge that such actions infringe the '796 patent.

19   154.   For example, at least through repeated correspondence from Sound View,

20   and Sound View's June 2, 2017 Complaint, Hulu knows that at least Akamai,

21   Limelight, and Level 3 perform the claimed methods of the '796 patent, and that Hulu

22   induces the infringement of each of those CDNs. (*See* Exhibit H, incorporated herein

23   by reference.)   Moreover, Hulu specifically intends that infringement, at least by

24   continuing to contract with and utilize the Akamai, Limelight, and Level 3 CDNs to

25   offer the '796 Services; configuring or customizing the Akamai, Limelight, and Level

26   3 CDNs to perform the claimed methods of the '796 patent; and by encouraging and

27   facilitating their infringement through the use of the '796 Services by Hulu's users

28   and/or the creation and dissemination of documentation related to the '796 Services,

1   including by, for example, encouraging and instructing its agents and contractors, such

2   as Akamai, Limelight, and Level 3, to provide video to Hulu's users through the '796

3   Services, causing the performance of the claimed methods with the knowledge that

4   such actions infringe the '796 patent

5   155. For example, Hulu intends for and induces Akamai to infringe claim 27

6   to deliver the '796 Services by using, in a network having a content server (such as a

7   web content server) which hosts a plurality of live SM broadcast objects (such as live

8   video) for distribution over said network through a plurality of HSs (such as Akamai's

9   edge servers) to a plurality of clients (such as Hulu's users), a method of reducing

10 start-up latency associated with distributing said plurality of live SM broadcast objects

11 from said content server and said plurality of HSs to said plurality of clients, said

12 method comprising:

13   a.   receiving a first request for one of said plurality of live SM

14 broadcast objects (such as a Hulu user requesting to watch a live video) at one of said

15 plurality of HSs (such as the Akamai edge servers);

16   b.   servicing said first request from a non pre-configured PH buffer

17 (such as by contacting a content server, retrieving and caching the requested MPEG-

18 DASH or HLS segments at the Akamai edge server in a local buffer, and delivering

19 the requested content to the client) at a first data rate;

20   c.   receiving a second request for said one of said plurality of live SM

21 broadcast objects at said one of said plurality of HSs (such as receiving a second

22 request for the same MPEG-DASH or HLS segments at the Akamai edge server); and

23   d.   partially servicing said second request from said non pre-

24 configured PH buffer (such as by delivering the requested MPEG-DASH or HLS

25 segments to the client from the same local buffer on the Akamai edge server) at a

26 second data rate, wherein said second data rate is higher than said first data rate.

27   156. As a further example, Hulu intends for and induces Limelight to infringe

28 claim 27 to deliver the '796 Services by using, in a network having a content server

(such as a web content server) which hosts a plurality of live SM broadcast objects (such as live video) for distribution over said network through a plurality of HSs (such as Limelight's edge servers) to a plurality of clients (such as Hulu'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:

a. receiving a first request for one of said plurality of live SM broadcast objects (such as a Hulu user requesting to watch a live video) at one of said plurality of HSs (such as the Limelight edge servers);

b. servicing said first request from a non pre-configured PH buffer (such as by contacting a content server, retrieving and caching the requested MPEG-DASH or HLS segments at the Limelight edge server in a local buffer, and delivering the requested content to the client) at a first data rate;

c. receiving a second request for said one of said plurality of live SM broadcast objects at said one of said plurality of HSs (such as receiving a second request for the same MPEG-DASH or HLS segments at the Limelight edge server); and

d. partially servicing said second request from said non pre-configured PH buffer (such as by delivering the requested MPEG-DASH or HLS segments to the client from the same local buffer on the Limelight edge server) at a second data rate, wherein said second data rate is higher than said first data rate.

157. As a further example, Hulu intends for and induces Level 3 to infringe claim 27 to deliver the '796 Services by using, in a network having a content server (such as a web content server) which hosts a plurality of live SM broadcast objects (such as live video) for distribution over said network through a plurality of HSs (such as Level 3's edge servers) to a plurality of clients (such as Hulu's users), a method of reducing start-up latency associated with distributing said plurality of live SM

1   broadcast objects from said content server and said plurality of HSs to said plurality of

2   clients, said method comprising:

3   a.   receiving a first request for one of said plurality of live SM

4   broadcast objects (such as a Hulu user requesting to watch a live video) at one of said

5   plurality of HSs (such as the Level 3 edge servers);

6   b.   servicing said first request from a non pre-configured PH buffer

7   (such as by contacting a content server, retrieving and caching the requested MPEG-

8   DASH or HLS segments at the Level 3 edge server in a local buffer, and delivering

9   the requested content to the client) at a first data rate;

10   c.   receiving a second request for said one of said plurality of live SM

11 broadcast objects at said one of said plurality of HSs (such as receiving a second

12 request for the same MPEG-DASH or HLS segments at the Level 3 edge server); and

13   d.   partially servicing said second request from said non pre-

14 configured PH buffer (such as by delivering the requested MPEG-DASH or HLS

15 segments to the client from the same local buffer on the Level 3 edge server) at a

16 second data rate, wherein said second data rate is higher than said first data rate.

17   158. Sound View has been and continues to be damaged by Hulu's

18 infringement of the '796 patent. Sound View is entitled to recover from Hulu the

19 damages sustained by Sound View as a result of Hulu's wrongful acts in an amount

20 adequate to compensate Sound View for Hulu's infringement subject to proof at trial.

21   159. In committing these acts of infringement, Hulu committed egregious

22 misconduct including, for example, acting despite knowing that its actions constituted

23 infringement of a valid patent, or recklessly disregarding the fact that its actions

24 constituted an unjustifiably high risk of infringement of a valid and enforceable

25 patent.

26   160. Hulu's infringement of the '796 patent was and is deliberate and willful,

27 entitling Sound View to increased damages under 35 U.S.C. § 284 and to attorney fees

28 and costs incurred in prosecuting this action under 35 U.S.C. § 285.

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COUNT SIX

INFRINGEMENT OF THE '074 PATENT

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

162. The '074 patent generally relates to network systems, and more particularly to methods and systems for improving the caching of streaming multimedia data from a content provider over a network to a client.

163. The '074 patent is valid and enforceable.

164. At the time of the invention of the '074 patent, broadcasting of streaming multimedia over the Internet was becoming increasingly popular.

165. Streaming data involves sending a continuous transmission of data from the server to a client. The client computer begins to present the information as it arrives, rather than waiting for the entire data set to arrive before beginning the presentation of the data. The client computer creates a multimedia output from the received multimedia data. The advantage of streaming is that the client computer does not have to wait until all data is downloaded from the server before some of the data is processed and the multimedia output is created.

166. Problems arose when users began to expect instantaneous streaming data on demand, particularly for video data, because streaming multimedia objects were generally delivered over the Internet and other data networks via unicast connections. Such architectures had many shortcomings, both from the content provider's and user's points of view. For content providers, such architectures put increased demand on networks and servers, as the server load increased linearly with the number of clients. For users, there were often long delays between requesting the video content and the time when the video contact actually began playing (*i.e.*, high start-up latency) and unpredictable playback quality due to network congestion.

167. Web caching technology had been implemented on the Internet to reduce network load, server load, and high start-up latency. However, caching systems that

1 existed at the time were restricted to supporting static web objects such as HTML

2 documents or images, and did not adequately support streaming multimedia data such

3 as video and audio streaming multimedia objects. While larger objects could be

4 broken into smaller pieces for caching, then-existing caching systems would treat

5 different chunks of the same video object independently, rather than considering the

6 logical relationship among the various pieces. Also, given the larger size of streaming

7 multimedia objects relative to static web objects, streaming multimedia objects to not

8 lend themselves to being cached in their entirety, as disk space limitations made it not

9 feasible to statically store more than a few complete streaming multimedia objects.

10   168.   The techniques described in the '074 patent solve that discrete computer-

11 based problem and improve upon prior caching systems by providing novel systems

12 and methods for supporting high quality streaming multimedia on a network that use

13 helper servers that operate as caching and streaming agents inside the network. The

14 helper servers implement several methods specifically designed to support streaming

15 multimedia, including segmentation of streaming multimedia objects into smaller

16 units, cooperation of the helper servers, and novel cache placement and replacement

17 policies of the constituent units which make up the streaming multimedia objects.

18 The helper servers reduce a content provider's memory and processing requirements

19 by reducing the server load, reduce congestion problems, and reduce high start-up

20 latency.

21   169.   The CDNs, including Akamai, Limelight, Level 3, and Fastly, each

22 support Hulu's delivery of video content, including at least Hulu and Hulu Plus (the

23 "'074 Services"), to users using MPEG-DASH and/or HLS. Moreover, each of the

24 CDNs openly advertises and promotes the use of those protocols to deliver video

25 content to users. Knowing that each of the CDNs supports the delivery of video

26 content using MPEG-DASH and/or HLS, and directing and controlling such support,

27 Hulu delivers video streams to its users, including the '074 Services, using at least the

28 Akamai, Limelight, Level 3, and Fastly CDNs.

170.   Hulu contracts or has contracted with each of the CDNs, so that when at least certain Hulu end users request a stream, the CDN's edge server handling the request downloads portions of that stream (segments or chunks). Moreover, Hulu had and has the ability to configure and/or customize aspects of the operation of each of the CDNs in delivering content to its users. For example, Hulu can and has customized the operation of the Akamai CDN through configuration tools, such as Akamai's Luna Control Center. As a further example, Hulu can and has customized the operation of the Limelight CDN through configuration tools, such as Limelight Control. As a further example, Hulu can and has customized the operation of the Level 3 CDN through configuration tools, such as Level 3 CDN Portal.

171.   At least through contracting with Akamai and configuring and/or customizing aspects of the operation of the Akamai CDN, Hulu has knowledge of the operations of the Akamai CDN and the steps the Akamai systems will perform in order to deliver content to Hulu's users. Hulu thus knowingly causes and specifically intends for Akamai to perform those steps, or directs and controls Akamai's performance of these steps by means of its contractual relationship with Akamai and by configuring and customizing Akamai's CDN.

172.   For example, Hulu contracts with Akamai knowing that when at least certain Hulu end users request a stream, Akamai's edge server handling the request downloads portions of that stream (segments or chunks), and that the Akamai edge server then attempts to store portions of the stream. Hulu knows and intends for the Akamai edge server to store data in the buffer in order so that its end users can receive content with a lower latency.

173.   The Akamai edge server utilizes caching algorithms to determine if there is sufficient disk space to store the requested portions. Hulu intends for and induces Akamai to determine if there is sufficient disk space because the Akamai edge server will not be able to store portions of a stream if there is insufficient space, resulting in service interruption to Hulu's end users.

174.   Akamai advertises that if there is insufficient disk space at an Akamai edge server, the Akamai edge server will delete the least recently used chunks of various streams stored on the server rather than delete all of any one stream's content. Akamai's edge servers delete the least recently used chunks of various streams in order to conserve bandwidth.   Hulu's contract with Akamai thus explicitly or implicitly directs and/or controls Akamai to delete the least recently used chunks. Hulu intends for and induces Akamai to delete the least recently used chunks of various streams in order to, among other things, more efficiently utilize disk space on the Akamai edge server, reducing Hulu's costs.

175.   As a further example, at least through contracting with Limelight and configuring and/or customizing aspects of the operation of the Limelight CDN, Hulu has knowledge of the operations of the Limelight CDN and the steps the Limelight systems will perform in order to deliver content to Hulu's users. Hulu thus knowingly causes and specifically intends for Limelight to perform those steps, or directs and controls Limelight's performance of those steps by means of its contractual relationship with Limelight and by configuring and customizing Limelight's CDN.

176.   For instance, Hulu contracts with Limelight so that when at least certain Hulu end users request a stream, the Limelight edge server handling the request downloads portions of that stream (segments or chunks). The Limelight edge server then attempts to store portions of the stream. Hulu intends for the Limelight edge server to store data in the buffer in order so that its end users can receive content with a lower latency.

177.   The Limelight edge server utilizes caching algorithms to determine if there is sufficient disk space to store the requested portions. Hulu intends for and induces Limelight to determine if there is sufficient disk space because the Limelight edge server will not be able to store portions of a stream if there is insufficient space, resulting in service interruption to Hulu's end users.

178.   Limelight advertises that if there is insufficient disk space at a Limelight edge server, the Limelight edge server will delete the least recently used chunks of various streams stored on the server rather than delete all of any one stream's content. Limelight's edge servers delete the least recently used chunks of various streams in order to conserve bandwidth.   Hulu's contract with Limelight thus explicitly or implicitly directs and/or controls Limelight to delete the least recently used chunks. Hulu intends for and induces Limelight to delete the least recently used chunks of various streams in order to, among other things, more efficiently utilize disk space on the Limelight edge server, reducing Hulu's costs.

179.   As a further example, at least through contracting with Level 3 and configuring and/or customizing aspects of the operation of the Level 3 CDN, Hulu has knowledge of the operations of the Level 3 CDN and the steps the Level 3 systems will perform in order to deliver content to Hulu's users. Hulu thus knowingly causes and specifically intends for Level 3 to perform those steps, or directs and controls Level 3's performance of those steps by means of its contractual relationship with Level 3 and by configuring and customizing Level 3's CDN.

180.   For instance, Hulu contracts with Level 3 so that when at least certain Hulu end users request a stream, the Level 3 edge server handling the request downloads portions of that stream (segments or chunks).

181.   The Level 3 edge server then attempts to store portions of the stream. Hulu intends for the Level 3 edge server to store data in the buffer in order so that its end users can receive content with a lower latency.

182.   The Level 3 edge server utilizes caching algorithms to determine if there is sufficient disk space to store the requested portions. Hulu intends for and induces Level 3 to determine if there is sufficient disk space because the Level 3 edge server will not be able to store portions of a stream if there is insufficient space, resulting in service interruption to Hulu's end users.

1   183.   Level 3 advertises that if there is insufficient disk space at a Level 3 edge

2   server, the Level 3 edge server will delete the least recently used chunks of various

3   streams stored on the server rather than delete all of any one stream's content. Level

4   3's edge servers delete the least recently used chunks of various streams in order to

5   conserve bandwidth. Hulu's contract with Level 3 thus explicitly or implicitly directs

6   and/or controls Level 3 to delete the least recently used chunks. Hulu intends for and

7   induces Level 3 to delete the least recently used chunks of various streams in order to,

8   among other things, more efficiently utilize disk space on the Level 3 edge server,

9   reducing Hulu's costs.

10   184.   Hulu directly infringes one or more claims of the '074 patent (including

11   at least both the corrected and uncorrected versions of claim 9) under 35 U.S.C.

12   § 271(a), literally and/or under the doctrine of equivalents, at least by directing and/or

13   controlling at least the performance of the claimed steps by Akamai, Limelight, and

14   Level 3 to infringe the '074 patent to deliver the '074 Services.

15   185.   For example, Hulu has directly infringed, one or more claims of the '074

16   patent (including at least uncorrected claim 9) under 35 U.S.C. § 271(a), literally

17   and/or under the doctrine of equivalents, at least by directing and/or controlling

18   Akamai (through at least contracting with Akamai and configuring the Akamai CDN)

19   to infringe uncorrected claim 9 before August 8, 2017 to deliver the '074 Services by

20   using a method for managing storage of a streaming media (SM) object (such as

21   videos) in a network having a content server which hosts SM objects for distribution

22   over said network through a plurality of servers (such as Akamai's CDN with a

23   plurality of edge servers) to a plurality of clients (such as Hulu's users). Further:

24   a.   Hulu directed and/or controlled Akamai, at least via its contract

25   with Akamai and/or its configuration and customization of Akamai's CDN, to receive

26   said SM object (such as by directing and/or controlling Akamai to receive the

27   requested portion of a video at an Akamai edge server);

28

b.   Hulu directed and/or controlled Akamai, at least via its contract with Akamai and/or its configuration and customization of Akamai's CDN, to determine whether there is a disk space available on one of said plurality of servers (such as by directing and/or controlling Akamai to use a caching algorithm to determine whether sufficient disk space is available on a storage device on the Akamai edge server);

c.   Hulu directed and/or controlled Akamai, at least via its contract with Akamai and/or its configuration and customization of Akamai's CDN, to store said SM object at said at least one HS if it is determined that there is sufficient disk space available (such as by directing and/or controlling Akamai to store the requested portion of the video on the Akamai edge server if it is determined that there is sufficient disk space available); and

d.   Hulu directed and/or controlled Akamai, at least via its contract with Akamai and/or its configuration and customization of Akamai's CDN, to, if it is determined that there is insufficient disk space available to store the received SM object, for each of a plurality of SM objects stored in said disk space, delete only a portion of said SM object (such as by directing and/or controlling Akamai to use a caching algorithm to delete the least recently used portion of a multimedia object from a storage device on the Akamai edge server), whereby the deletion of said portions of said SM objects results in sufficient disk space being available for storage of the received SM object.

186.   As a further example, since August 8, 2017, Hulu has directly infringed, and continues to directly infringe, one or more claims of the '074 patent (including at least corrected claim 9) under 35 U.S.C. § 271(a), literally and/or under the doctrine of equivalents, at least by directing and/or controlling Akamai (through at least contracting with Akamai and configuring the Akamai CDN) to infringe corrected claim 9 to deliver the '074 Services by using a method for managing storage of a streaming media (SM) object (such as videos) in a network having a content server

which hosts SM objects for distribution over said network through a plurality of servers (such as Akamai's CDN with a plurality of edge servers) to a plurality of clients (such as Hulu's users). Further:

a.   Hulu directs and/or controls Akamai, at least via its contract with Akamai and/or its configuration and customization of Akamai's CDN, to receive said SM object (such as by directing and/or controlling Akamai to receive the requested portion of a video at an Akamai edge server);

b.   Hulu directs and/or controls Akamai, at least via its contract with Akamai and/or its configuration and customization of Akamai's CDN, to determine whether there is a disk space available on one of said plurality of servers (such as by directing and/or controlling Akamai to use a caching algorithm to determine whether sufficient disk space is available on a storage device on the Akamai edge server);

c.   Hulu directs and/or controls Akamai, at least via its contract with Akamai and/or its configuration and customization of Akamai's CDN, to store said SM object at said one of said plurality of servers if it is determined that there is sufficient disk space available (such as by directing and/or controlling Akamai to store the requested portion of the video on the Akamai edge server if it is determined that there is sufficient disk space available); and

d.   Hulu directs and/or controls Akamai, at least via its contract with Akamai and/or its configuration and customization of Akamai's CDN, to, if it is determined that there is insufficient disk space available to store the received SM object, for each of a plurality of SM objects stored in said disk space, delete only a portion of said SM object (such as by directing and/or controlling Akamai to use a caching algorithm to delete the least recently used portion of a multimedia object from a storage device on the Akamai edge server), whereby the deletion of said portions of said SM objects results in sufficient disk space being available for storage of the received SM object.

187.   As a further example, Hulu also has directly infringed, and continues to directly infringe, one or more claims of the '074 patent (including at least both corrected and uncorrected claim 9) under 35 U.S.C. § 271(a), literally and/or under the doctrine of equivalents, at least by directing and/or controlling Limelight (through at least contracting with Limelight and configuring the Limelight CDN) to infringe the '074 patent to deliver the '074 Services. For example, Hulu has directly infringed one or more claims of the '074 patent (including at least uncorrected claim 9) under 35 U.S.C. § 271(a), literally and/or under the doctrine of equivalents, at least by directing and/or controlling Limelight (through at least contracting with Limelight and configuring the Limelight CDN) to infringe uncorrected claim 9 before August 8, 2017 to deliver the '074 Services by using a method for managing storage of a streaming media (SM) object (such as videos) in a network having a content server which hosts SM objects for distribution over said network through a plurality of servers (such as Limelight's CDN with a plurality of edge servers) to a plurality of clients (such as Hulu's users). Further:

a.   Hulu directed and/or controlled Limelight, at least via its contract with Limelight and/or its configuration and customization of Limelight's CDN, to receive said SM object (such as by directing and/or controlling Limelight to receive the requested portion of a video at a Limelight edge server);

b.   Hulu directed and/or controlled Limelight, at least via its contract with Limelight and/or its configuration and customization of Limelight's CDN, to determine whether there is a disk space available on one of said plurality of servers (such as by directing and/or controlling Limelight to use a caching algorithm to determine whether sufficient disk space is available on a storage device on the Limelight edge server);

c.   Hulu directed and/or controlled Limelight, at least via its contract with Limelight and/or its configuration and customization of Limelight's CDN, to store said SM object at said at least one HS if it is determined that there is sufficient

1 disk space available (such as by directing and/or controlling Limelight to store the

2 requested portion of the video on the Limelight edge server if it is determined that

3 there is sufficient disk space available); and

4   188. d. Hulu directed and/or controlled Limelight, at least via its contract

5 with Limelight and/or its configuration and customization of Limelight's CDN, to, if

6 it is determined that there is insufficient disk space available to store the received SM

7 object, for each of a plurality of SM objects stored in said disk space, delete only a

8 portion of said SM object (such as by directing and/or controlling Limelight to use a

9 caching algorithm to delete the least recently used portion of a multimedia object from

10 a storage device on the Limelight edge server), whereby the deletion of said portions

11 of said SM objects results in sufficient disk space being available for storage of the

12 received SM object.

13   189. As a further example, since August 8, 2017, Hulu has directly infringed,

14 and continues to directly infringe, one or more claims of the '074 patent (including at

15 least corrected claim 9) under 35 U.S.C. § 271(a), literally and/or under the doctrine of

16 equivalents, at least by directing and/or controlling Limelight (through at least

17 contracting with Limelight and configuring the Limelight CDN) to infringe corrected

18 claim 9 to deliver the '074 Services by using a method for managing storage of a

19 streaming media (SM) object (such as videos) in a network having a content server

20 which hosts SM objects for distribution over said network through a plurality of

21 servers (such as Limelight's CDN with a plurality of edge servers) to a plurality of

22 clients (such as Hulu's users). Further:

23   a. Hulu directs and/or controls Limelight, at least via its contract with

24 Limelight and/or its configuration and customization of Limelight's CDN, to receive

25 said SM object (such as by directing and/or controlling Limelight to receive the

26 requested portion of a video at a Limelight edge server);

27   b. Hulu directs and/or controls Limelight, at least via its contract with

28 Limelight and/or its configuration and customization of Limelight's CDN, to

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determine whether there is a disk space available on one of said plurality of servers (such as by directing and/or controlling Limelight to use a caching algorithm to determine whether sufficient disk space is available on a storage device on the Limelight edge server);

c.   Hulu directs and/or controls Limelight, at least via its contract with Limelight and/or its configuration and customization of Limelight's CDN, to store said SM object at said one of said plurality of servers if it is determined that there is sufficient disk space available (such as by directing and/or controlling Limelight to store the requested portion of the video on the Limelight edge server if it is determined that there is sufficient disk space available); and

d.   Hulu directs and/or controls Limelight, at least via its contract with Limelight and/or its configuration and customization of Limelight's CDN, to, if it is determined that there is insufficient disk space available to store the received SM object, for each of a plurality of SM objects stored in said disk space, delete only a portion of said SM object (such as by directing and/or controlling Limelight to use a caching algorithm to delete the least recently used portion of a multimedia object from a storage device on the Limelight edge server), whereby the deletion of said portions of said SM objects results in sufficient disk space being available for storage of the received SM object.

190.   As a further example, Hulu also has directly infringed, and continues to directly infringe, one or more claims of the '074 patent (including at least both corrected and uncorrected claim 9) under 35 U.S.C. § 271(a), literally and/or under the doctrine of equivalents, at least by directing and/or controlling Level 3 (through at least contracting with Level 3 and customizing the Level 3 CDN) to infringe the '074 patent to deliver the '074 Services. For example, Hulu has directly infringed one or more claims of the '074 patent (including at least uncorrected claim 9) under 35 U.S.C. § 271(a), literally and/or under the doctrine of equivalents, at least by directing and/or controlling Level 3 (through at least contracting with Level 3 and configuring

1 the Level 3 CDN) to infringe uncorrected claim 9 before August 8, 2017 to deliver the

2 '074 Services by using a method for managing storage of a streaming media (SM)

3 object (such as videos) in a network having a content server which hosts SM objects

4 for distribution over said network through a plurality of servers (such as Level 3's

5 CDN with a plurality of edge servers) to a plurality of clients (such as Hulu's users).

6 Further:

7   a.   Hulu directed and/or controlled Level 3, at least via its contract

8 with Level 3 and/or its configuration and customization of Level 3's CDN, to receive

9 said SM object (such as by directing and/or controlling Level 3 to receive the

10 requested portion of a video at a Level 3 edge server);

11   b.   Hulu directed and/or controlled Level 3, at least via its contract

12 with Level 3 and/or its configuration and customization of Level 3's CDN, to

13 determine whether there is a disk space available on one of said plurality of servers

14 (such as by directing and/or controlling Level 3 to use a caching algorithm to

15 determine whether sufficient disk space is available on a storage device on the Level 3

16 edge server);

17   c.   Hulu directed and/or controlled Level 3, at least via its contract

18 with Level 3 and/or its configuration and customization of Level 3's CDN, to store

19 said SM object at said at least one HS if it is determined that there is sufficient disk

20 space available (such as by directing and/or controlling Level 3 to store the requested

21 portion of the video on the Level 3 edge server if it is determined that there is

22 sufficient disk space available); and

23   d.   Hulu directed and/or controlled Level 3, at least via its contract with

24 Level 3 and/or its configuration and customization of Level 3's CDN, to, if it is

25 determined that there is insufficient disk space available to store the received SM

26 object, for each of a plurality of SM objects stored in said disk space, delete only a

27 portion of said SM object (such as by directing and/or controlling Level 3 to use a

28 caching algorithm to delete the least recently used portion of a multimedia object from

a storage device on the Level 3 edge server), whereby the deletion of said portions of said SM objects results in sufficient disk space being available for storage of the received SM object.

191. As a further example, since August 8, 2017, Hulu has directly infringed, and continues to directly infringe, one or more claims of the '074 patent (including at least corrected claim 9) under 35 U.S.C. § 271(a), literally and/or under the doctrine of equivalents, at least by directing and/or controlling Level 3 (through at least contracting with Level 3 and configuring the Level 3 CDN) to infringe corrected claim 9 to deliver the '074 Services by using a method for managing storage of a streaming media (SM) object (such as videos) in a network having a content server which hosts SM objects for distribution over said network through a plurality of servers (such as Level 3's CDN with a plurality of edge servers) to a plurality of clients (such as Hulu's users). Further:

a. Hulu directs and/or controls Level 3, at least via its contract with Level 3 and/or its configuration and customization of Level 3's CDN, to receive said SM object (such as by directing and/or controlling Level 3 to receive the requested portion of a video at a Level 3 edge server);

b. Hulu directs and/or controls Level 3, at least via its contract with Level 3 and/or its configuration and customization of Level 3's CDN, to determine whether there is a disk space available on one of said plurality of servers (such as by directing and/or controlling Level 3 to use a caching algorithm to determine whether sufficient disk space is available on a storage device on the Level 3 edge server);

c. Hulu directs and/or controls Level 3, at least via its contract with Level 3 and/or its configuration and customization of Level 3's CDN, to store said SM object at said one of said plurality of servers if it is determined that there is sufficient disk space available (such as by directing and/or controlling Level 3 to store the requested portion of the video on the Level 3 edge server if it is determined that there is sufficient disk space available); and

d.   Hulu directs and/or controls Level 3, at least via its contract with Level 3 and/or its configuration and customization of Level 3's CDN, to, if it is determined that there is insufficient disk space available to store the received SM object, for each of a plurality of SM objects stored in said disk space, delete only a portion of said SM object (such as by directing and/or controlling Level 3 to use a caching algorithm to delete the least recently used portion of a multimedia object from a storage device on the Level 3 edge server), whereby the deletion of said portions of said SM objects results in sufficient disk space being available for storage of the received SM object.

192.   In addition or in the alternative, Hulu has induced infringement, and continues to induce infringement, of one or more claims of the '074 patent under 35 U.S.C. § 271(b), literally and/or under the doctrine of equivalents. Hulu has actively, knowingly, and intentionally induced (and continues to induce) infringement of the '074 patent by making, using, offering for sale, selling, supplying, maintaining, and/or supporting the '074 Services; by contracting with the CDNs and configuring the CDNs with the specific intent to cause the CDNs to perform the steps claimed in the '074 patent to deliver the '074 Services to Hulu's users, and with the knowledge that such actions infringe the '074 patent.

193.   For example, at least through repeated correspondence from Sound View, and Sound View's June 2, 2017 complaint, Hulu knows that at least Akamai, Limelight, and Level 3 perform the claimed methods of the '074 patent, and that Hulu induces the infringement of each of those CDNs. (*See* Exhibit H, incorporated herein by reference.)   Moreover, Hulu specifically intends that infringement, at least by continuing to contract with and utilize the Akamai CDN, as well as the Limelight and Level 3 CDNs, to offer the '074 Services; configuring or customizing the Akamai, Limelight, and Level 3 CDNs to perform the claimed methods of the '074 patent; and by encouraging and facilitating their infringement through the use of the '074 Services by Hulu's users and/or the creation and dissemination of documentation related to the

1 '074 Services, including by, for example, encouraging and instructing its agents and

2 contractors, such as Akamai, Limelight, and Level 3, to provide video to Hulu's users

3 through the '074 Services, causing the performance of the claimed methods with the

4 knowledge that such actions infringe the '074 patent.

5 194. For example, Hulu intended for and induced Akamai to infringe

6 uncorrected claim 9 to deliver the '074 Services by using a method for managing

7 storage of a SM object (such as videos) in a network having a content server which

8 hosts SM objects for distribution over said network through a plurality of servers

9 (such as Akamai's CDN with a plurality of edge servers) to a plurality of clients (such

10 as Hulu's users), said method comprising

11 a. receiving said SM object (such as the Akamai edge server

12 retrieving the requested portion of a video);

13 b. determining whether there is a disk space available on one of said

14 plurality of servers (such as by using a caching algorithm to determine whether

15 sufficient disk space is available on a storage device on the Akamai edge server);

16 c. storing said SM object at said at least one HS if it is determined

17 that there is sufficient disk space available (such as by storing the requested portion of

18 the video on the Akamai edge server if it is determined that there is sufficient disk

19 space available); and

20 d. if it is determined that there is insufficient disk space available to

21 store the received SM object, for each of a plurality of SM objects stored in said disk

22 space, deleting only a portion of said SM object (such as by using a caching algorithm

23 to delete the least recently used portion of a multimedia object from a storage device

24 on the Akamai edge server), whereby the deletion of said portions of said SM objects

25 results in sufficient disk space being available for storage of the received SM object.

26 195. As a further example, Hulu intends for and induces Akamai to infringe

27 corrected claim 9 to deliver the '074 Services by using a method for managing storage

28 of a SM object (such as videos) in a network having a content server which hosts SM

1   objects for distribution over said network through a plurality of servers (such as

2   Akamai's CDN with a plurality of edge servers) to a plurality of clients (such as

3   Hulu's users), said method comprising

4   a.   receiving said SM object (such as the Akamai edge server

5   retrieving the requested portion of a video);

6   b.   determining whether there is a disk space available on one of said

7   plurality of servers (such as by using a caching algorithm to determine whether

8   sufficient disk space is available on a storage device on the Akamai edge server);

9   c.   storing said SM object at said one of said plurality of servers if it is

10   determined that there is sufficient disk space available (such as by storing the

11   requested portion of the video on the Akamai edge server if it is determined that there

12   is sufficient disk space available); and

13   196.   d.   if it is determined that there is insufficient disk space available to

14   store the received SM object, for each of a plurality of SM objects stored in said disk

15   space, deleting only a portion of said SM object (such as by using a caching algorithm

16   to delete the least recently used portion of a multimedia object from a storage device

17   on the Akamai edge server), whereby the deletion of said portions of said SM objects

18   results in sufficient disk space being available for storage of the received SM object.

19   197.   As a further example, Hulu intended for and induced Limelight to

20   infringe uncorrected claim 9 to deliver the '074 Services by using a method for

21   managing storage of a SM object (such as videos) in a network having a content

22   server which hosts SM objects for distribution over said network through a plurality of

23   servers (such as Limelight's CDN with a plurality of edge servers) to a plurality of

24   clients (such as Hulu's users), said method comprising

25   a.   receiving said SM object (such as the Limelight edge server

26   retrieving the requested portion of a video);

27

28

b.   determining whether there is a disk space available on one of said plurality of servers (such as by using a caching algorithm to determine whether sufficient disk space is available on a storage device on the Limelight edge server);

c.   storing said SM object at said at least one HS if it is determined that there is sufficient disk space available (such as by storing the requested portion of the video on the Limelight edge server if it is determined that there is sufficient disk space available); and

d.   if it is determined that there is insufficient disk space available to store the received SM object, for each of a plurality of SM objects stored in said disk space, deleting only a portion of said SM object (such as by using a caching algorithm to delete the least recently used portion of a multimedia object from a storage device on the Limelight edge server), whereby the deletion of said portions of said SM objects results in sufficient disk space being available for storage of the received SM object.

198.   As a further example, Hulu intends for and induces Limelight to infringe corrected claim 9 to deliver the '074 Services by using a method for managing storage of a SM object (such as videos) in a network having a content server which hosts SM objects for distribution over said network through a plurality of servers (such as Limelight's CDN with a plurality of edge servers) to a plurality of clients (such as Hulu's users), said method comprising

a.   receiving said SM object (such as the Limelight edge server retrieving the requested portion of a video);

b.   determining whether there is a disk space available on one of said plurality of servers (such as by using a caching algorithm to determine whether sufficient disk space is available on a storage device on the Limelight edge server);

c.   storing said SM object at said one of said plurality of servers if it is determined that there is sufficient disk space available (such as by storing the

1   requested portion of the video on the Limelight edge server if it is determined that

2   there is sufficient disk space available); and

3   d.   if it is determined that there is insufficient disk space available to

4   store the received SM object, for each of a plurality of SM objects stored in said disk

5   space, deleting only a portion of said SM object (such as by using a caching algorithm

6   to delete the least recently used portion of a multimedia object from a storage device

7   on the Limelight edge server), whereby the deletion of said portions of said SM

8   objects results in sufficient disk space being available for storage of the received SM

9   object.

10   199.   As a further example, Hulu intended for and induced Level 3 to infringe

11   uncorrected claim 9 to deliver the '074 Services by using a method for managing

12   storage of a SM object (such as videos) in a network having a content server which

13   hosts SM objects for distribution over said network through a plurality of servers

14   (such as Level 3's CDN with a plurality of edge servers) to a plurality of clients (such

15   as Hulu's users), said method comprising

16   a.   receiving said SM object (such as the Level 3 edge server

17   retrieving the requested portion of a video);

18   b.   determining whether there is a disk space available on one of said

19   plurality of servers (such as by using a caching algorithm to determine whether

20   sufficient disk space is available on a storage device on the Level 3 edge server);

21   c.   storing said SM object at said at least one HS if it is determined

22   that there is sufficient disk space available (such as by storing the requested portion of

23   the video on the Level 3 edge server if it is determined that there is sufficient disk

24   space available); and

25   d.   if it is determined that there is insufficient disk space available to

26   store the received SM object, for each of a plurality of SM objects stored in said disk

27   space, deleting only a portion of said SM object (such as by using a caching algorithm

28   to delete the least recently used portion of a multimedia object from a storage device

on the Level 3 edge server), whereby the deletion of said portions of said SM objects results in sufficient disk space being available for storage of the received SM object.

200.   As a further example, Hulu intends for and induces Level 3 to infringe corrected claim 9 to deliver the '074 Services by using a method for managing storage of a SM object (such as videos) in a network having a content server which hosts SM objects for distribution over said network through a plurality of servers (such as Level 3's CDN with a plurality of edge servers) to a plurality of clients (such as Hulu's users), said method comprising

a.   receiving said SM object (such as the Level 3 edge server retrieving the requested portion of a video);

b.   determining whether there is a disk space available on one of said plurality of servers (such as by using a caching algorithm to determine whether sufficient disk space is available on a storage device on the Level 3 edge server);

c.   storing said SM object at said one of said plurality of servers if it is determined that there is sufficient disk space available (such as by storing the requested portion of the video on the Level 3 edge server if it is determined that there is sufficient disk space available); and

d.   if it is determined that there is insufficient disk space available to store the received SM object, for each of a plurality of SM objects stored in said disk space, deleting only a portion of said SM object (such as by using a caching algorithm to delete the least recently used portion of a multimedia object from a storage device on the Level 3 edge server), whereby the deletion of said portions of said SM objects results in sufficient disk space being available for storage of the received SM object.

201.   Sound View has been and continues to be damaged by Hulu's infringement of the '074 patent.   Sound View is entitled to recover from Hulu the damages sustained by Sound View as a result of Hulu's wrongful acts in an amount adequate to compensate Sound View for Hulu's infringement subject to proof at trial.

202.   In committing these acts of infringement, Hulu committed egregious misconduct including, for example, acting despite knowing that its actions constituted infringement of a valid patent, or recklessly disregarding the fact that its actions constituted an unjustifiably high risk of infringement of a valid and enforceable patent.

203.   Hulu's infringement of the '074 patent was and is 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

Wherefore, Sound View respectfully requests that this Court enter judgment against Hulu as follows:

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

b)   that Hulu's infringement of the '371, '133, '213, '796, and '074 patents is and has been 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 Hulu'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.

FIRST AMENDED COMPLAINT FOR PATENT INFRINGEMENT

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Case No. 2:17-cv-04146-JAK-PLA

Dated: August 15, 2017

By: */s/ Benjamin T. Wang*

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