

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

**AMAZON.COM, INC.,
AMAZON.COM SERVICES LLC, and
AMAZON WEB SERVICES, INC.,**
Petitioners,

v.

AUDIO POD IP, LLC,
Patent Owner.

Case No. IPR2025-01041
U.S. Patent No. 10,735,488

DECLARATION OF PROFESSOR KETAN MAYER-PATEL, Ph.D.

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I, Ketan Mayer-Patel, do hereby declare:

1. I am making this declaration at the request of Petitioners Amazon.com, Inc., Amazon.com Services LLC, and Amazon Web Services, Inc. (“Petitioners”). I have been retained by Petitioners as a technical expert in this matter.

2. I am being compensated for my work on this case. My compensation does not depend on the content of this Declaration or the outcome of these proceedings.

I. BACKGROUND

A. Experience and Qualifications

3. I received Bachelor of Arts degrees in Computer Science and Economics in 1992, a Master of Science in 1997 from the Department of Electrical Engineering and Computer Science, and a Ph.D. in 1999 from the Department of Electrical Engineering and Computer Science, all from the University of California, Berkeley.

4. I have been involved in the research and development of multimedia computing systems for nearly 30 years. I have been a faculty member at the University of North Carolina since January 2000, where I perform research and teach in the areas of networking, web programming, and multimedia computing. I also have expertise in other areas, including distributed systems, networking devices, and the general operation of computer systems.

5. I am a member of the Association for Computing Machinery (ACM) and the Institute of Electrical and Electronics Engineers (IEEE). These are the two leading professional societies for both academic and practicing computer scientists.

6. I have authored or co-authored over 30 papers in peer-reviewed journals and conference proceedings. I have served as an Associate Editor for both IEEE Transactions on Multimedia and ACM Transactions on Multimedia Computing, Communications, and Applications, which are the two leading journals in the field. I regularly serve as a member of the technical program committee for a number of different conferences and workshops including ACM Multimedia, The International Workshop on Network and Operating System Support for Digital Audio and Video (NOSSDAV), IFIP Networking, ACM Multimedia Systems (MMSys), MMEDIA, and SIGMAP. I am also currently chair of the standing executive committee for both NOSSDAV and MMSys. A complete listing of all my publications can be found in my CV, which I understand is being submitted as Exhibit 1096. I am also a named inventor or co-inventor on multiple issued patents, which are also listed in my CV.

7. My research has been supported by both government agencies as well as private industry. I received the National Science Foundation (NSF) CAREER Award in 2003 while an Assistant Professor. I have been a principal investigator for grants awarded by the NSF, the Office of Naval Research, and the Laboratory of

Analytic Sciences. I have also served on several NSF reviewing panels for funding recommendations.

8. In my research and teaching I have considered problems of video streaming, dynamic adaptation and transcoding of media, adaptive streaming transport protocols, telepresence, and scalable display architectures, among others.

9. In the classroom, I have regularly taught classes on Data Structures, Foundations of Programming, Modern Web Programming, Files and Databases, and Multimedia Computing and Networking. I also serve as the Director of Undergraduate Studies for the Department of Computer Science.

B. Materials Considered

10. In preparing this Declaration, I have considered the following materials:

Exhibit No.	Description
1001	U.S. Patent No. 10,735,488 (“the ’488 patent”)
1006	Yoshimura et al., <i>Content Delivery Network Architecture for Mobile Streaming Service Enabled by SMIL Modification</i> , 86 IEICE TRANSACTIONS ON COMM’N 1778 (2003) (“Yoshimura”)
1008	U.S. Patent No. 6,477,522 (“Young”)
1009	U.S. Patent Publication No. 2003/0061305 (“Copley”)
1011	PCT Patent Publication No. WO2003/069437 (“Seed”)
1016	U.S. Patent Publication No. 2003/0002484 (“Freedman”)

Exhibit No.	Description
1030	U.S. Patent No. 6,260,011 (“Heckerman”)
1032	U.S. Patent No. 6,108,703 (“Leighton”)
1080	U.S. Patent Publication No. 2003/0091338 (“Snow”)
1081	Dilley et al., <i>Globally Distributed Content Delivery</i> , 6 IEEE INTERNET COMPUTING 50 (2002) (“Dilley”)
1082	Crovella et al., <i>Dynamic Server Selection in the Internet</i> , PROC. 3 RD WORKSHOP ON HIGH PERFORMANCE SUBSYSTEMS (HPCS ’95) (1995) (“Crovella”)
1083	U.S. Patent Publication No. 2001/0041062 (“Ottesen”)
1084	U.S. Patent Publication No. 2004/0052371 (“Watanabe”)
1085	U.S. Patent Publication No. 2002/0147979 (“Corson”)
1086	PCT Patent Publication No. WO2001/24474 (“Shteyn”)
1095	Excerpts from the File History for U.S. Patent No. 10,735,488

11. In addition, I have reviewed the full file history of the ’488 patent. I have also relied on my education, training, and experience, and my knowledge of pertinent literature in the field of the ’488 patent.

II. APPLICABLE LEGAL STANDARDS

12. I have been asked to provide my opinion as to whether the claims of the ’488 patent would have been obvious to a person of ordinary skill in the art at the time of the alleged invention, in view of the prior art.

13. I am a computer scientist by training and profession. The opinions I am expressing in this report involve the application of my training and technical knowledge and experience to the evaluation of certain prior art with respect to the '488 patent.

14. Although I have been involved as a technical expert in patent matters before, I am not an expert in patent law. Therefore, the attorneys from Knobbe, Martens, Olson & Bear, LLP have provided me with guidance as to the applicable patent law in this matter. The paragraphs below express my understanding of how I must apply current principles related to patent validity to my analysis.

A. Claim Construction

15. It is my understanding that in determining whether a patent claim is obvious in view of the prior art, the Patent Office construes the claim by giving the claim terms their plain and ordinary meaning, as they would have been understood by a person of ordinary skill in the art at the time of the invention in view of the intrinsic record (patent specification and file history). For the purposes of this review, and to the extent necessary, I have interpreted each claim term in accordance with its plain and ordinary meaning as it would have been understood by a person of ordinary skill in the art at the time of the invention, in view of the intrinsic record. I understand that the time of the invention is December 13, 2005.

16. I understand that a patent and its prosecution history are considered “intrinsic evidence” and are the most important sources for interpreting claim language in a patent. I also understand that in reading the claim, I must not import limitations from the specification into the claim terms; in other words, I must not narrow the scope of the claim terms by implicitly adding disclosed limitations that have no express basis in the claims. The prosecution history of related patents and applications can also be relevant.

17. I understand that sources extrinsic to a patent and its prosecution history (such as dictionary definitions and technical publications) may also be used to help interpret the claim language, but that such extrinsic sources cannot be used to contradict the unambiguous meaning of the claim language that is evident from the intrinsic evidence.

18. Unless expressly stated herein, I have applied the plain and ordinary meaning of the claim terms, which I understand is the meaning that a person of ordinary skill in the art would have given to terms in December 2005 based on a review of the intrinsic evidence.

B. Obviousness

19. It is my understanding that a claim is “obvious” if the claimed subject matter as a whole would have been obvious to a person of ordinary skill in the art at the time of the alleged invention. I understand that an obviousness analysis involves

a number of considerations. I understand that the following factors must be evaluated to determine whether a claim would have been obvious: (i) the scope and content of the prior art; (ii) the differences, if any, between each claim of the '488 patent and the prior art; (iii) the level of ordinary skill in the art in December 2005; and (iv) additional considerations, if any, that indicate that the invention was obvious or not obvious. I understand that these “additional considerations” are often referred to as “secondary considerations” of non-obviousness or obviousness.

20. I also understand that the frame of reference when evaluating obviousness is what a hypothetical person of ordinary skill in the pertinent art would have known in December 2005. I understand that the hypothetical person of ordinary skill is presumed to have knowledge of all pertinent prior art references.

21. It is my understanding that something is “inherent in,” and therefore taught by, the prior art, if it necessarily flows from the explicit disclosure of the prior art. I understand that the fact that a certain result or characteristic *may be* present in the prior art is not sufficient to establish inherency. However, if the result or characteristic is *necessarily* present based upon the explicit disclosure in the prior art, it is inherent in the prior art and is therefore disclosed.

22. I understand that a prior art reference may be a pertinent prior art reference (or “analogous art”) if it is in the same field of endeavor as the patent or if it is pertinent to the problem that the inventors were trying to solve. A reference is

reasonably pertinent if it logically would have commended itself to an inventor's attention in considering the problem at hand. If a reference relates to the same problem as the claimed invention, that supports use of the reference as prior art in an obviousness analysis. Here, all of the references relied on in my obviousness analysis below are from the same field of endeavor as the '488 patent, e.g., content distribution and/or rendering. The references are also pertinent to a particular problem the inventor was focused on, e.g., efficient and effective distribution and/or rendering of content.

23. It is my understanding that the law recognizes several rationales for combining references or modifying a reference to show obviousness of claimed subject matter. Some of these rationales include:

- combining prior art elements according to known methods to yield predictable results;
- simple substitution of one known element for another to obtain predictable results;
- a predictable use of prior art elements according to their established functions;
- using known techniques to improve similar devices (methods, or products) in the same way;

- applying a known technique to a known device (method, or product) ready for improvement to yield predictable results;
- choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success (in which case a claim would have been obvious to try);
- known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations would have been predictable to one of ordinary skill in the art; and
- some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

24. I understand that “secondary considerations” must be considered as part of the obviousness analysis when present. I further understand that the secondary considerations may include: (1) a long-felt but unmet need in the prior art that was satisfied by the claimed invention; (2) the failure of others; (3) skepticism by experts; (4) commercial success of a product covered by the patent; (5) unexpected results achieved by the claimed invention; (6) industry praise of the claimed invention; (7) deliberate copying of the invention; and (8) teaching away by others. I also understand that evidence of the independent and nearly simultaneous “invention” of the

claimed subject matter by others is a secondary consideration supporting an obviousness determination and may support a conclusion that a claimed invention was within the knowledge of a person of ordinary skill as of December 13, 2005. I am not aware of any evidence of secondary considerations that would suggest that the claims of the '488 patent would have been nonobvious in December 2005.

25. I understand that when assessing obviousness, using hindsight is impermissible; that is, what is known today or what was learned from the teachings of the patent should not be considered. The patent should not be used as a road map for selecting and combining items of prior art. Rather, obviousness must be considered from the perspective of a person of ordinary skill at the time the alleged invention was made – December 2005 in this case.

26. I also understand that an obviousness analysis must consider the invention as a whole, as opposed to just a part or element of the invention. I understand this “as a whole” assessment to require showing that one of ordinary skill in the art at the time of invention, confronted by the same problems as the inventor and with no knowledge of the claimed invention, would have selected the elements from the prior art and combined them in the claimed manner.

III. PERSON OF ORDINARY SKILL IN THE ART

27. It is my understanding that when interpreting the claims of the '488 patent and evaluating whether a claim would have been obvious, I must do so based

on the perspective of a person of ordinary skill in the art at the relevant priority date.

I understand that the relevant priority date of the '488 patent is December 13, 2005.

28. I understand that in determining the level of ordinary skill in the art, several factors are considered. Those factors may include: (i) the type of problems encountered in the art; (ii) prior art solutions to those problems; (iii) the rapidity with which innovations are made; (iv) the sophistication of the technology; and (v) the educational level of active workers in the field. A person of ordinary skill in the art must have the capability of understanding the scientific and engineering principles applicable to the pertinent art.

29. The '488 patent describes the use of well-known technologies for the rendering and/or distribution of digital content. Based on my review of the specification and claims of the '488 patent, it is my opinion that a person of ordinary skill in the art would have had a minimum of a bachelor's degree in electrical engineering, computer engineering, or computer science, and at least three years of industry or academic experience in the design, development, and/or implementation of content rendering and/or distribution systems. Work experience could substitute for formal education and additional formal education could substitute for work experience.

30. My conclusions below that the claims of the '488 patent would have been obvious would remain the same even if the priority date, field of endeavor, or level of ordinary skill were slightly different.

31. I meet the above definition of a person of ordinary skill in the art, and did so as of December 13, 2005. Also, I have worked with persons of ordinary skill in the art through my professional and academic experiences, and I have an understanding of their skill level around December 2005.

IV. TECHNOLOGY BACKGROUND

32. The claims of the '488 patent relate to downloading two segments of media content from two different servers. The claims require downloading a first segment from a first server and then selecting, based on server performance statistics, a second server for downloading a second segment. These steps were described in many references and were conventional in content distribution networks (“CDNs”) before the '488 patent's earliest possible priority date in December 2005.

A. Selecting Servers Based on Performance Statistics Was Known.

33. By the 1990s, CDNs were widely used to distribute content from multiple servers. CDNs routed client requests to the optimal server using server performance statistics such as the time for information to travel between a server and client, packet loss, bandwidth, and/or server load. (EX-1081 (Dilley), 51; EX-1082 (Crovella), 1; EX-1016 (Freedman), Abstract, ¶¶[0030]-[0061].) This process was often handled by domain name system (“DNS”) servers that map a request to the identified server(s). (EX-1016 (Freedman) ¶¶[0024]-[0025]; EX-1081 (Dilley), 52.)

34. In 2002, Young disclosed routing media content requests to an optimal server based on performance statistics. After making a request, the client obtains a list of servers having the requested content and ranks those servers based on performance statistics. (EX-1008 (Young), Abstract.) The client then downloads a portion of the content from each listed server, re-ranks the servers based on download performance, and then chooses the optimal server for downloading the remainder of the content. (*Id.*) If the chosen server's performance drops below a threshold, the next best server is selected. (*Id.*)

35. Similar server-selection processes were described in Leighton (EX-1032), Copley (EX-1009, Abstract), and Seed (EX-1011 ¶[0024]), among many other references. The '488 patent acknowledges that automatically selecting a second server was known. (EX-1001 ('488 patent), 10:47-54 ("This server replacement occurs in the same manner that is customarily used That is, the transaction is retried following the server replacement process without the upper levels of client software logic or the user becoming aware that it has occurred.").)

B. Storing Media Content in Segments Was Known.

36. Segmenting media content into multiple smaller segments was well known by 2005, as the '488 patent admits. (EX-1001 ('488 patent), 2:26-30 ("commercially released" audiobook segmented into 24 files).) Such segmentation was described in many references. (*E.g.*, EX-1080 (Snow) ¶¶[0027], [0029] (file "sliced

into smaller playback files”); EX-1030 (Heckerman), 13:14-27 (audio file divided into a “file for each sentence or paragraph”), claim 22; EX-1083 (Ottesen) ¶¶[0043] (segmenting audio presentation), [0056]-[0057]; EX-1084 (Watanabe) ¶[0002]; EX-1085 (Corson), claim 1; EX-1086 (Shteyn), Abstract.)

37. For example, Yoshimura disclosed dividing original media content into segments stored on servers:

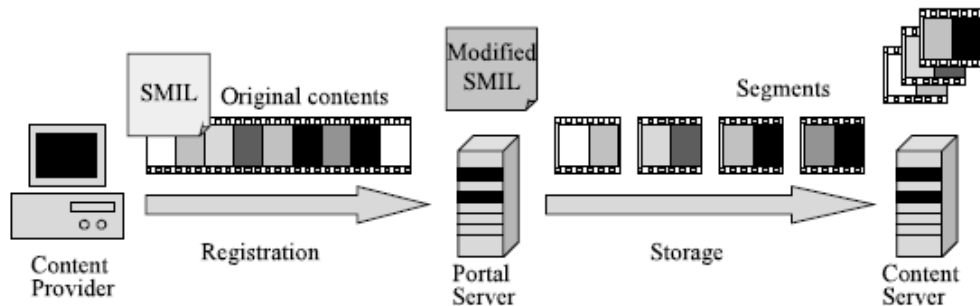


Fig. 3 Content segmentation and SMIL modification at portal server.

(EX-1006 (Yoshimura), Fig. 3; *id.*, 1781.)

V. THE '488 PATENT

A. Overview

38. The '488 patent discloses a system for delivering digital media data. (EX-1001 ('488 patent), Abstract.) Its purported advance is “segmenting an audio stream into a plurality of small digital audio files” that can be “transmitted, loaded, and played, in a specific order[.]” (*Id.*, 2:45-51.) The segments are stored on multiple servers. (*Id.*, 16:11-21.) A client can download a server list and select a “primary server.” (*Id.*, 10:21-25.) If that server encounters performance issues or fails,

the client selects another server. (*Id.*, 9:58- 10:27, 10:47-56.) The '488 patent admits that (i) segmenting media content was known (*id.*, 2:26-30), and (ii) “server replacement” was known (*id.*, 10:47-54).

B. Claims

39. I have been asked to consider claims 1-18 in this Declaration. Of those, claims 1 and 10 are independent. Claim 1 is representative and recites “[a] method of downloading digital content to be rendered” comprising the following steps:

- [a] downloading from a network accessible server to a client device a list of content servers that are capable of serving requested digital content;
- [b] tracking service level statistics for the content servers in the list of content servers;
- [c] selecting a first content server to serve the requested digital content from the list of content servers in dependence upon the service level statistics;
- [d] downloading a first segment of the requested digital content from the first content server to the client device for rendering;
- [e] in the event of a degradation in service from the first content server, selecting a second content server to replace the first content server in serving the requested digital content from the list of content servers in

dependence upon the service level statistics, wherein the server replacement is imperceptible to a user of the client device; and

[f] downloading a second segment of the requested digital content from the second content server to the client device for rendering;

[g] wherein the requested digital content is a digital media stream that includes the first and second segments, wherein the first content server is a first library server having the digital media stream stored thereon, and wherein the second content server is a second library server having a copy of the digital media stream stored thereon.

VI. CLAIMS 1-18 OF THE '488 PATENT WOULD HAVE BEEN OBVIOUS.

A. Claims 1-3, 5-12, and 14-18 Would Have Been Obvious in View of Young.

40. For at least the reasons I discuss below, Young renders claims 1-3, 5-12, and 14-18 obvious.

41. Young discloses a CDN that tracks server performance and routes media content requests to an optimal server. In response to a client request for a media file, Young's client obtains a list of servers that host the requested content. (EX-1008 (Young), Abstract.) The client performs a series of steps relating to server selection and downloads. First, the client pings each server on the list and prioritizes them based on performance (e.g., latency). (*Id.*) The client then downloads a portion

of the file from the highest priority server, a portion from the second highest priority server, and so on until it has received a portion from every server in the list. (*Id.*, 2:3-15.) The downloaded portions comprise either the same portion of the file from each server or “consecutive or contiguous portions of the file” from each server. (*Id.*; *see also id.*, 4:39-57.) I refer to those steps as the “First Stage” for ease of reference.

42. Having monitored each server’s throughput during the First Stage, the client selects the best server to complete the download. (EX-1008 (Young), Abstract.) I refer to that process as the “Second Stage.” If that server’s performance drops below a threshold, the client selects the next best server based on the previously obtained statistics. (*Id.*)

43. An overview of Young’s process is shown in Figure 2:

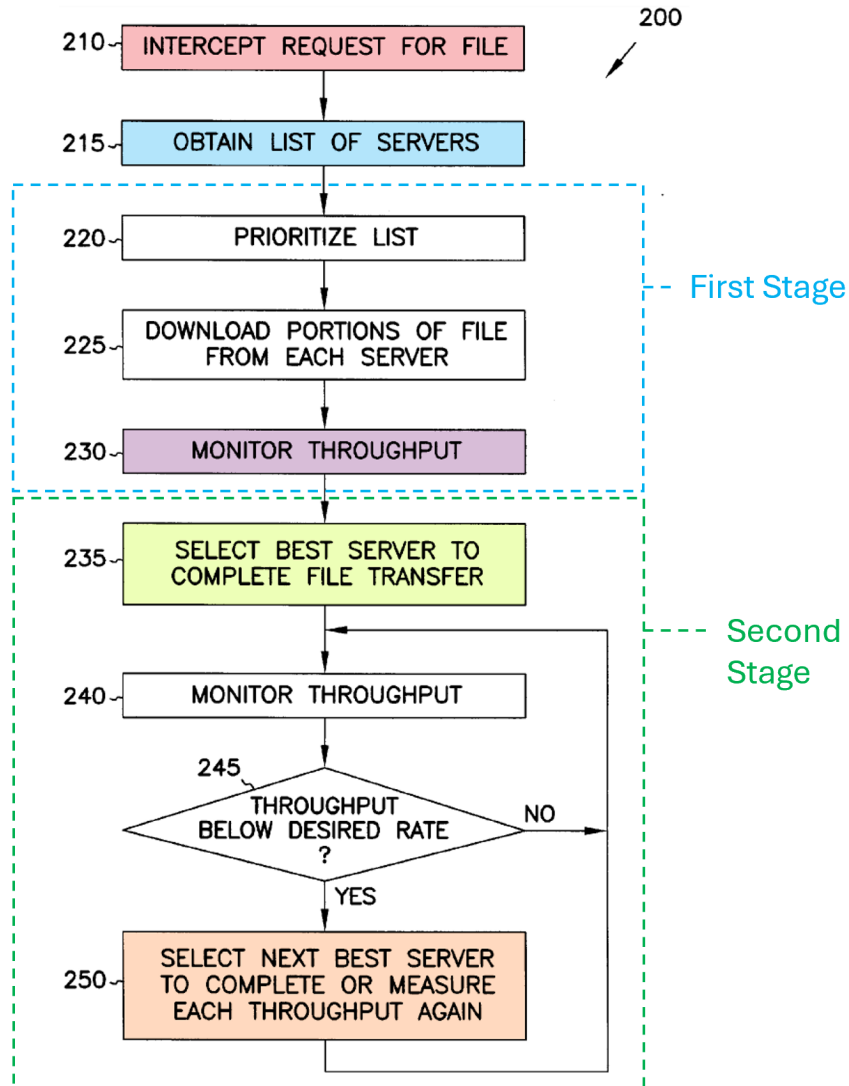


FIG. 2

(EX-1008 (Young), Fig. 2.¹)

1. Claim 1

a. Preamble

44. The preamble recites “[a] method of downloading digital content to be rendered.” Young discloses a method for downloading digital media files for display

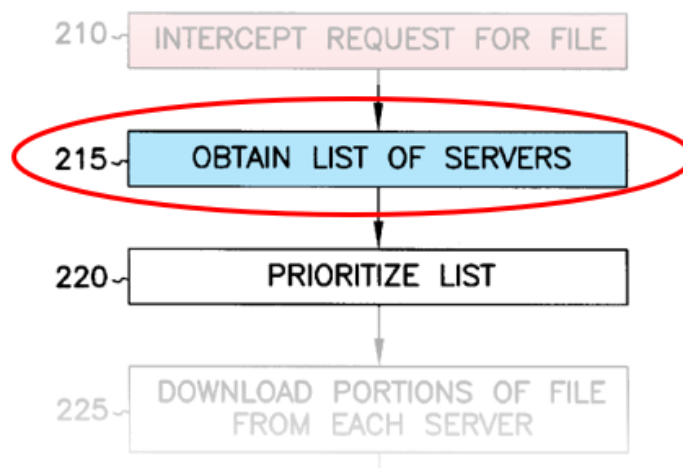
¹ Figures in this Declaration may be colored and/or annotated for clarity.

including routing media content requests to an optimal server based on performance statistics. (EX-1008 (Young), Abstract, 3:66-4:5.) Accordingly, Young discloses the preamble.

b. Element 1[a]: Downloading a List of Content Servers

45. Element 1[a] recites “downloading from a network accessible server to a client device a list of content servers that are capable of serving requested digital content.” Young discloses or renders obvious this claim element.

46. Young’s client computer contains software for accessing media content and an “applet” that identifies servers containing the requested content. (EX-1008 (Young), 3:66-4:38.) Young’s applet obtains a list of content servers capable of serving the requested content, as shown at step 215:



(*Id.*, Fig. 2 (excerpt); *id.*, 4:16-21 (applet may “automatically” “obtain a list of servers”), 4:28-30 (applet “obtains the list of possible servers”), 3:66-4:5, 1:66-2:3, claim 7 (“obtains a list of servers having a copy of [the] desired file”).) The list is

downloaded from the network accessible server. (*Id.*, 2:1-3 (list “may be hidden text in an hypertext markup language (HTML) page, or may actually be provided by a link on a server”), 4:28-30 (list obtained “from the server identified by the initial link”).)

47. Accordingly, Young discloses or renders obvious downloading from a network accessible server (e.g., server identified by initial link) to a client device a list of content servers that are capable of serving requested digital content (e.g., a list of servers that contain the desired content). Thus, Young discloses or renders obvious claim element 1[a].

c. Element 1[b]: Tracking Service Level Statistics

48. Element 1[b] recites “tracking service level statistics for the content servers in the list of content servers.” Young discloses or renders obvious this claim element.

49. Young prioritizes the list of servers (step 220) by measuring the latency (response time) of each server. (EX-1008 (Young), 4:31-38, Fig. 2.) Latency is measured by sending a “ping” to each server on the list and “keeping track of the amount of time for each server to respond.” (*Id.*) Young then downloads a portion of the requested file from each server in the list (step 225) and measures the throughput of each server during the download (step 230). (*Id.*, 4:39-57, 2:5-13, Fig. 2.) Each server’s ping is used to improve the measured throughput’s accuracy and

“obtain a better indication of true bit rate.” (*Id.*, 4:41-45.) Young then selects the best server to download the rest of the requested file (step 235). (*Id.*, 4:54-57, 2:5-13, Fig. 2.)

50. Young continues to track the selected server’s throughput (step 240) and determines a “desired [throughput] rate” for it. (EX-1008 (Young), 4:58-5:3.) The desired rate is a minimum threshold for server performance and is a percentage of the server’s throughput (determined at step 230). (*Id.*, 5:1-6.) If the throughput of the selected server falls below the desired rate (step 245), a second server (as determined from steps 225-235) is selected (step 250). (*Id.*, 4:60-62, 2:16-22.) The download continues using the second server as its throughput is monitored. (*Id.*, 4:60-65.)

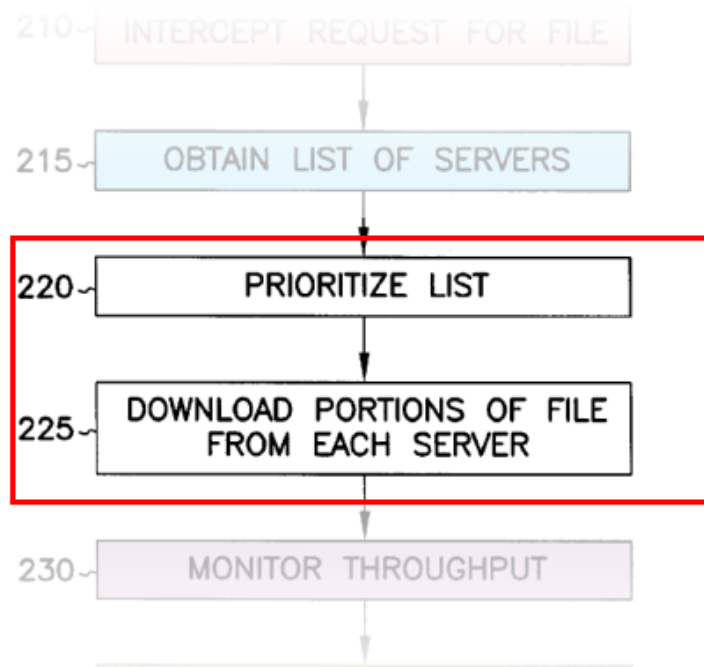
51. The service level statistics (e.g., ping/latency, throughput, and bit rate) of each server are tracked by the applet. For example, ping is tracked to provide the preliminary ranking and further to obtain a “better indication of true bit rate.” (EX-1008 (Young), 4:41-45.) Additionally, throughput and bit rate are tracked to rank servers, calculate the “desired rate” for selected servers, and select the next best server if necessary. (*Id.*, 4:40-57, 5:1-9.)

52. Young therefore discloses or renders obvious tracking service level statistics (e.g., ping, throughput, and/or bit rate) for the content servers in the list of content servers. Thus, Young discloses or renders obvious claim element 1[b].

d. Element 1[c]: Selecting a First Content Server

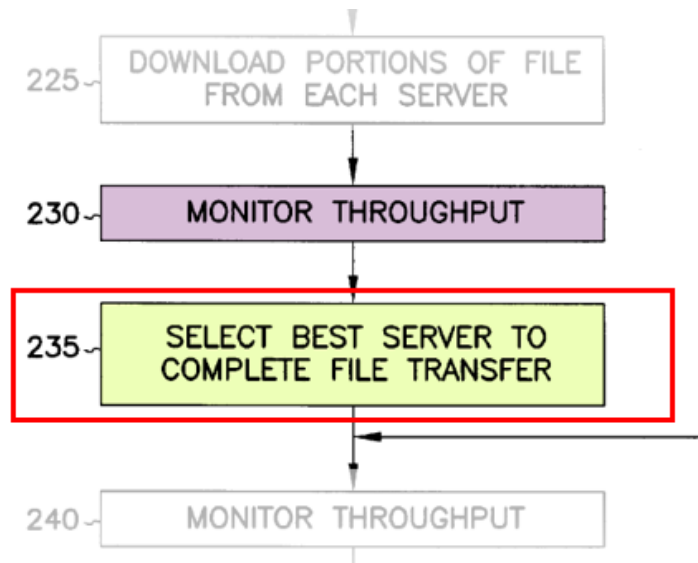
53. Element 1[c] recites “selecting a first content server to serve the requested digital content from the list of content servers in dependence upon the service level statistics.” Young discloses this claim element.

54. First, Young prioritizes the servers on the list using service level statistics (e.g., ping) and downloads a portion of the requested file from each server on the list starting with the “highest priority server” (step 225):



(EX-1008 (Young), Fig. 2 (excerpt), 4:39-40, 2:10-13, 5:10-19, 4 :31-38, claim 11.)

Next, Young selects the “best server” for downloading the rest of the requested file (step 235):



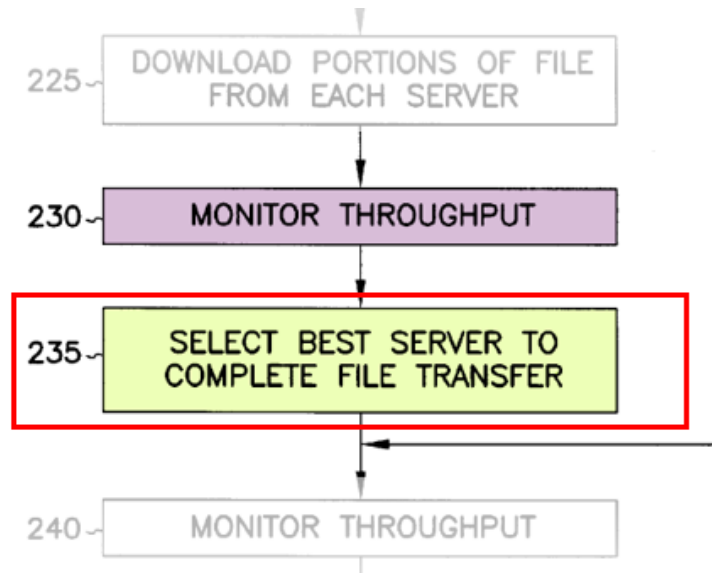
(*Id.*, Fig. 2 (excerpt), 4:54-57 (the “highest throughput server which is selected as the optimal server”), 5:10-19, claim 11 (“selecting an optimal server”).) This server is selected based on the service level statistics, e.g., throughput, ping, and bit rate. (*Id.*; *id.*, 4:39-57 (tracking service level statistics and selecting “the optimal server” based on the statistics); *see* ¶¶48-52, above.)

55. Accordingly, Young discloses selecting a first content server (“best server” at step 235) to serve the requested digital content from the list of content servers in dependence upon the service level statistics (e.g., ping, throughput, and/or bit rate). Thus, Young discloses claim element 1[c].

e. Element 1[d]: Downloading a First Segment

56. Element 1[d] recites “downloading a first segment of the requested digital content from the first content server to the client device for rendering.” Young discloses this claim element in two ways.

57. First, Young discloses downloading, in the Second Stage, a portion of the multimedia file from the first server, i.e., the “server which is selected as the optimal server.” (EX-1008 (Young), 4:54-57, 5:10-28, claim 11 (download desired file); *see* ¶¶48-55, above.)



(EX-1008 (Young), Fig. 2 (excerpt).)

58. Second, Young also discloses downloading, in the First Stage, a portion of the requested media from each of the servers on the list. (EX-1008 (Young), Fig. 2 (step 225), 4:39-46; *see* ¶¶53-55, above.)

59. In either case, the downloaded segments are displayed on Young’s client. (See EX-1008 (Young), 3:66-4:5 (PC with “common browser application which is used to access and *properly display* information stored on a network” that “contains multimedia data[.]” (emphasis added)), 4:5-67.)

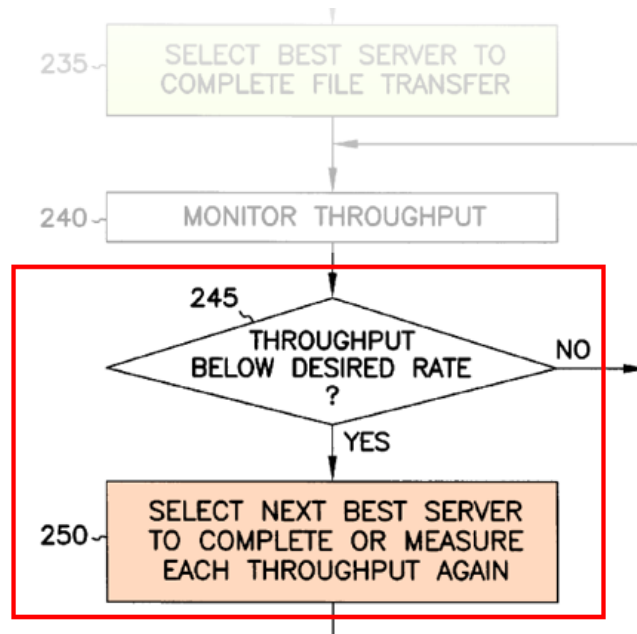
60. Accordingly, Young discloses or renders obvious downloading a first segment of the requested digital content (the portion downloaded at step 235 or step 225) from the first content server (optimal or best server selected at step 235) to the client device for rendering (e.g., display). Thus, Young discloses or renders obvious claim element 1[d].

f. Element 1[e]: Selecting a Second Server

61. Element 1[e] recites “in the event of a degradation in service from the first content server, selecting a second content server to replace the first content server in serving the requested digital content from the list of content servers in dependence upon the service level statistics, wherein the server replacement is imperceptible to a user of the client device.” Young discloses or renders obvious this claim element.

62. Young discloses that, “[i]f the performance [of the optimal server] falls below a desired rate ..., a different server may be selected.” (EX-1008 (Young), 4:60-65; *id.*, claims 7 (“monitoring the throughput of the selected optimal server and selecting a new optimal server if the throughput falls below a desired level”), 11, 20.) The second server may be the “next server on the previously generated performance ranked list” or “the performance of each server may be redetermined.” (*Id.*) Thus, this second server is selected based on the tracked service level statistics (e.g., ping, throughput, bit rate, and/or a percentage of the throughput). (*Id.*, 4:58-62, 5:1-

6; *see* ¶¶48-52, above.) The selection of the second server, based on service degradation, is shown in Figure 2:



(EX-1008 (Young), Fig. 2 (excerpt).)

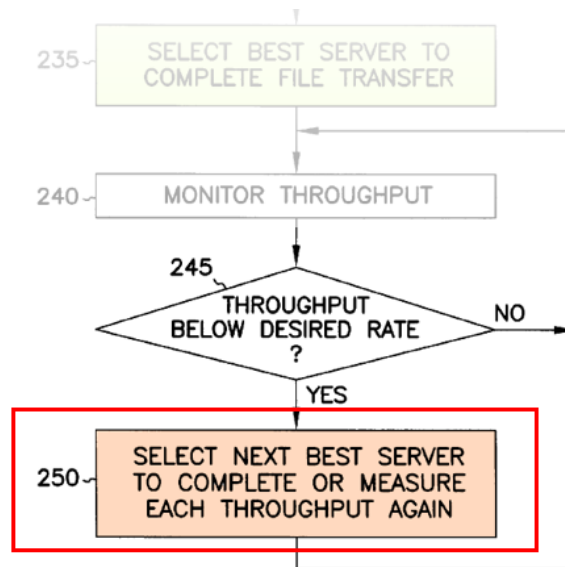
63. A person of ordinary skill in the art would have understood that the server replacement is imperceptible to a user of the client device because the server replacement process is automated and designed to optimize download speed for purposes of achieving an uninterrupted rendering to a client. (*Id.*, 5:33-38.) I also note that the '488 patent admits that the claimed “imperceptible” server replacement was “customarily used” in the industry. (EX-1001 ('488 patent), 10:47-54 (“This server replacement occurs in the same manner that is customarily used That is, the transaction is retried following the server replacement process without the upper levels of client software logic or the user becoming aware that it has occurred.”).)

64. Accordingly, Young discloses or renders obvious, in the event of a degradation in service from the first content server (e.g., performance of the optimal server falling below a desired rate), selecting a second content server to replace the first content server in serving the requested digital content from the list of content servers (e.g., selecting the next best server in the performance ranked list or as determined by measuring server performance again) in dependence upon the service level statistics (e.g., ping, throughput, bit rate, and/or a percentage of the throughput), wherein the server replacement is imperceptible to a user of the client device. Thus, Young discloses or renders obvious claim element 1[e].

g. Element 1[f]: Downloading a Second Segment

65. Element 1[f] recites “downloading a second segment of the requested digital content from the second content server to the client device for rendering.” Young discloses or renders obvious this claim element in two ways.

66. First, Young discloses that, after selecting a second server (“next best server” in step 250 of Figure 2), the client downloads the remaining segments of the multimedia content from that server:



(EX-1008 (Young), Fig. 2 (excerpt); *id.*, 4:60-5:6, 5:10-28.)

67. Second, Young discloses downloading, in the First Stage, a second segment (“portion”) of the requested content from the second server. (EX-1008 (Young), 4:45-57, Fig. 2 (step 225).) For example, Young’s first, and likely fastest, server would download a first segment of the content in the First Stage. (*Id.*; *see also id.*, 4:31-38 (disclosing prioritizing servers before downloading portions in step 225).) The later ranked servers would all download subsequent portions of the content (e.g., the second prioritized server would download a portion, the third prioritized server would download a portion, and so on). (*Id.*) The first server would then be selected in the Second Stage (step 235) to continue the download of the requested content. (See ¶¶53-55, above.) If the first server experienced a sufficient degradation in service, one of the later-prioritized servers would then continue the download. (See ¶¶61-64, above.) That later-prioritized server would have already downloaded

a second segment of the requested content in the First Stage (step 225).

68. The downloaded segments (portions) are then rendered on Young’s client PC. (*See* ¶¶56-60, above.)

69. Thus, Young discloses or renders obvious claim element 1[f].

h. Element 1[g][i]: Digital Media Stream Including First and Second Segments

70. Element 1[g][i] recites “wherein the requested digital content is a digital media stream that includes the first and second segments.” Young discloses or renders obvious this claim element.

71. Young discloses downloading requested “information” containing “multimedia data” via a network (e.g., the Internet). (EX-1008 (Young), 3:66-4:10.) Young further discloses downloading different segments of a requested multimedia data from different servers. (*Id.*, Abstract, 1:59-63, 4:51-57, 4:58-5:9, 5:19-21, Fig. 2 (step 225 (“download portions of file from each server”)); *see* ¶¶56-60, 65-69, above.) A person of ordinary skill in the art would have understood Young’s “multimedia data” to include a media stream with multiple segments. (*Id.*)

72. Accordingly, Young discloses or renders obvious requested digital content that is a digital media stream (e.g., requested information comprising multimedia data) that includes the first and second segments (e.g., first and second portions). Thus, Young discloses or renders obvious claim element 1[g][i].

i. Element 1[g][ii]: First Library Server

73. Element 1[g][ii] recites “wherein the first content server is a first library server having the digital media stream stored thereon.” Young discloses or renders obvious this claim element.

74. As I discuss above, Young discloses that the servers on the performance ranked list store content including the requested content (e.g., digital media stream) (see ¶¶45-47, 70-72, above) and that the client computer can download the requested content from them (see ¶¶56-60, 65-69, above). Accordingly, a person of ordinary skill in the art would have understood Young’s servers to be library servers. Thus, Young discloses or renders obvious claim element 1[g][ii].

j. Element 1[g][iii]: Second Library Server

75. Element 1[g][iii] recites “wherein the second content server is a second library server having a copy of the digital media stream stored thereon.” Young discloses or renders obvious this claim element.

76. As I discuss above, Young discloses that each server in the performance ranked list, and therefore the second server in the list, stores a copy of the requested digital media stream. (See ¶¶73-74, above.) Thus, Young discloses or renders obvious claim element 1[g][iii].

77. Accordingly, for at least the reasons I discuss above, Young renders claim 1 obvious as a whole.

2. Claim 2

78. Claim 2 depends from claim 1 and further recites “wherein the service level statistics include operational service levels.” Young discloses or renders obvious the additional claim element of claim 2.

79. As I discuss above, Young discloses tracking service level statistics relating to the operation of each server including latency, throughput, and bit rate. (*See* ¶¶48-52, above; *see also* EX-1008 (Young), Abstract (tracking statistics “as the file is downloaded”), 2:5-18, 4:39-54, claims 1, 4-7, 11.) A person of ordinary skill in the art would have understood these as operational service level statistics.

80. Thus, Young discloses or renders obvious the additional claim element of claim 2.

81. Accordingly, for at least the reasons I discuss above, Young renders claim 2 obvious as a whole.

3. Claim 3

82. Claim 3 depends from claim 1 and further recites “wherein the service level statistics include data throughput levels.” Young discloses the additional claim element of claim 3.

83. As I discuss above, Young discloses tracking “throughput measurements.” (*See* ¶¶48-52; *see also* EX-1008 (Young), Abstract, 5:1-9, claims 1, 4, 5, 7, 11, 15, 16, 20-22.) Thus, Young discloses or renders obvious the additional claim

element of claim 3.

84. Accordingly, for at least the reasons I discuss above, Young renders claim 3 obvious as a whole.

4. Claim 5

85. Claim 5 depends from claim 1 and further recites “wherein the service level statistics are updated during the downloading of the first segment.” Young discloses or renders obvious the additional claim element of claim 5 in two ways.

86. First, Young discloses that while “a first portion of the file” is downloaded from a server, “[t]he throughput of such server is tracked [], such as by a bits per second indication.” (EX-1008 (Young), 4:39-45; *see also id.*, claims 7 (“monitoring the throughput of the selected optimal server”), 11, 20, 21 (“monitoring the throughput as the selected optimal server downloads the rest of the file”); *see* ¶¶48-52, above.) A person of ordinary skill in the art would have understood that Young’s throughput is updated during the downloading of the first segment in the First Stage. (*Id.*) Second, during the Second Stage, Young discloses monitoring (and therefore updating) the performance of the optimal server. (*Id.*) To the extent the segment downloaded by the optimal server in the Second Stage comprises the “first segment,” this limitation is also disclosed in the Second Stage alone, or in combination with the First Stage. (*Id.*) Thus, Young discloses or renders obvious the additional claim element of claim 5.

87. Accordingly, for at least the reasons I discuss above, Young renders claim 5 obvious as a whole.

5. Claim 6

a. Element 6[a]: Rendering Segments

88. Claim 6 depends from claim 1. Element 6[a] recites “further comprising successively rendering the first and second segments on the client device without re-constructing the digital content.” Young discloses or renders obvious this claim element.

89. As I discuss above, Young discloses or renders obvious downloading first and second segments to a client device (e.g., computer) for rendering. (*See* ¶¶44, 56-60, 65-69, above.) The segments are accessed using a conventional computer with “a common browser application which is used to access and properly display information” such as “multimedia data.” (EX-1008 (Young), 3:66-4:7.) Thus, a person of ordinary skill would have understood that the first and second segments may be rendered on the client device (e.g., computer) in the web browser.

90. Young further discloses downloading consecutive segments of content by downloading a first segment from a first server and selecting a second server for “continuation of the transmission” (e.g., for downloading a second segment). (EX-1008 (Young), 4:58-67; *see* ¶¶56-60, 65-69, above.) At least because Young never discloses reconstructing the digital content, a person of ordinary skill in the art

would have understood that the first and second segments may be rendered on Young’s client without reconstructing the content.

91. Thus, Young discloses or renders obvious claim element 6[a].

b. Element 6[b]: No Interruption in Rendering

92. Element 6[b] recites “wherein the server replacement does not cause an interruption in the successive rendering of the first and second segments.” Young discloses or renders obvious this claim element.

93. I note that the ’488 patent admits that this limitation was known. (EX-1001 (’488 patent), 10:47-54 (“This server replacement occurs in the same manner that is customarily used That is, ... without the upper levels of client software logic or the user becoming aware that it has occurred.”).)

94. Young discloses or renders obvious that the server replacement does not cause an interruption in the successive rendering of the first and second segments for the reasons I discuss above regarding the server replacement being imperceptible. (See ¶¶61-64, above.) Thus, Young discloses or renders obvious claim element 6[b].

95. Accordingly, for at least the reasons I discuss above, Young renders claim 6 obvious as a whole.

6. Claim 7

96. Claim 7 depends from claim 1 and further recites “wherein the first content server consists of one or more server devices.” Young discloses the

additional claim element of claim 7.

97. As I discuss above, Young discloses a “highest priority server” from which a portion of a file is downloaded. (*See* ¶¶53-55, above.) Accordingly, Young discloses a first content server consisting of one or more server devices. (EX-1008 (Young), 1:16-22 (“several computers, referred to as servers”).) Thus, Young discloses the additional claim element of claim 7.

98. Accordingly, for at least the reasons I discuss above, Young renders claim 7 obvious as a whole.

7. Claim 8

99. Claim 8 depends from claim 1 and further recites “further comprising tracking service level statistics related to a connection established between the client device and the first content server.” Young discloses the additional claim element of claim 8.

100. Young’s service level statistics (e.g., ping/latency, throughput, and bit rate) relate to a connection established between the client device and the content server. (*See* ¶¶48-55, 61-64, above.) And, after selecting an optimal server as the first content server (*see* ¶¶53-55, above), Young’s applet continues to track service level statistics related to the connection between the client device and the optimal server to detect when performance falls below a desired rate and to reprioritize the servers. (EX-1008 (Young), 4:58-67 (“The throughput may further be monitored at

240 from the optimal server because performance may change over time[.]”), 5:1-11; *see* ¶¶48-52, 61-64, above.) Thus, Young discloses the additional claim element of claim 8.

101. Accordingly, for at least the reasons I discuss above, Young renders claim 8 obvious as a whole.

8. Claim 9

102. Claim 9 depends from claim 1 and further recites “wherein the requested digital content includes audio content, audio/video content, video content, text content, static image content, moving image content, user-entered content, advertising content, or a combination thereof.” Young discloses or renders obvious the additional claim element of claim 9.

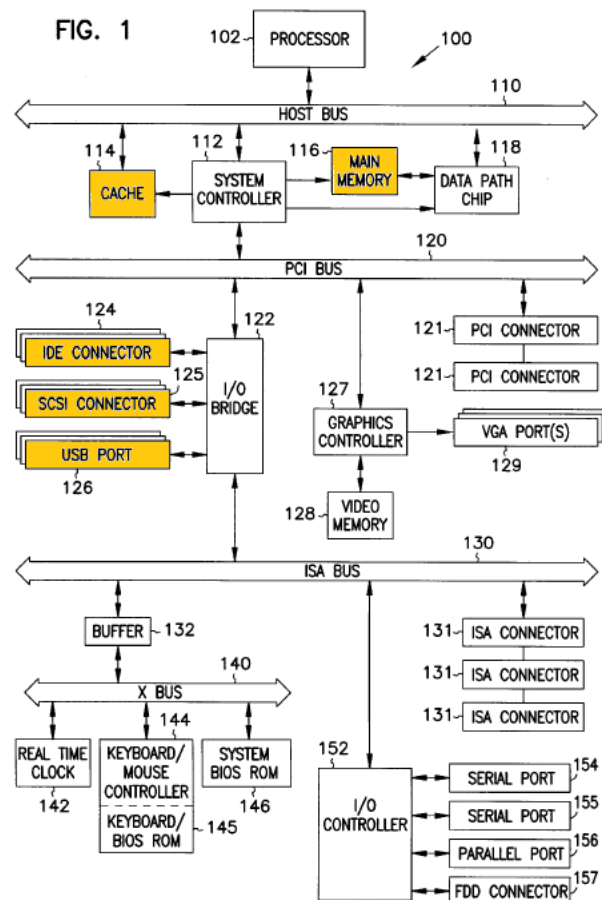
103. Young’s requested digital content comprises “multimedia data,” which a person of ordinary skill in the art would have understood to include audio content, audio/video content, video content, text content, static image content, and/or moving image content. (EX-1008 (Young), 3:66-4:7.) Thus, Young discloses or renders obvious the additional claim element of claim 9.

104. Accordingly, for at least the reasons I discuss above, Young renders claim 9 obvious as a whole.

9. Claim 10

105. Independent claim 10 recites substantially the same limitations as claim 1, but recites “[a] non-transitory computer-readable storage medium having stored thereon instructions which, when executed by a processor of a computing device, cause the computing device to” perform the method steps of claim 1.

106. Young discloses a “personal computer system” including an applet “stored on computer readable medium such as cache 114, main memory 116 or disk drives which are coupled to IDE connector 124, SCSI connector 125 or USB port 126”, as depicted in Figure 1:



(EX-1008 (Young), Fig. 1, 2:54-55, 5:29-41.) Young’s personal computer system including the applet comprises a “non-transitory computer readable storage medium” that includes instructions for performing the steps described in claim 10. (*Id.*, 2:48-53, 3:66-5:44, claims 20-22, 24.) Thus, Young discloses or renders obvious claim 10’s preamble.

107. I have compared the elements in claim 10 to the elements in claim 1. As shown, the actions recited in claim 10 mirror the method steps recited in claim 1. The table below demonstrates how the elements correspond. As I discuss above for claim 1, Young discloses or renders obvious the actions recited in claim 10. (See ¶¶44-77, above.)

	Claim 10		Claim 1
10[pre]	A non-transitory computer-readable storage medium having stored thereon instructions which, when executed by a processor of a computing device, cause the computing device to:	1[pre]	A method of downloading digital content to be rendered, comprising:
10[a]	<i>download from a network accessible server a list of content servers that are capable of serving requested digital content;</i>	1[a]	<i>downloading from a network accessible server to a client device a list of content servers that are capable of serving requested digital content;</i>
10[b]	<i>track service level statistics for the content servers in the list of content servers;</i>	1[b]	<i>tracking service level statistics for the content servers in the list of content servers;</i>
10[c]	<i>select a first content server to serve the requested digital content from the list of content</i>	1[c]	<i>selecting a first content server to serve the requested digital content from the list of content</i>

	Claim 10		Claim 1
	<i>servers in dependence upon the service level statistics;</i>		<i>servers in dependence upon the service level statistics;</i>
10[d]	<i>download a first segment of the requested digital content from the first content server for rendering;</i>	1[d]	<i>downloading a first segment of the requested digital content from the first content server to the client device for rendering;</i>
10[e]	<i>in the event of a degradation in service from the first content server, select a second content server to replace the first content server in serving the requested digital content from the list of content servers in dependence upon the service level statistics, wherein the server replacement is imperceptible to a user of the client device; and</i>	1[e]	<i>in the event of a degradation in service from the first content server, selecting a second content server to replace the first content server in serving the requested digital content from the list of content servers in dependence upon the service level statistics, wherein the server replacement is imperceptible to a user of the client device; and</i>
10[f]	<i>download a second segment of the requested digital content from the second content server for rendering;</i>	1[f]	<i>downloading a second segment of the requested digital content from the second content server to the client device for rendering;</i>
10[g]	<i>wherein the requested digital content is a digital media stream that includes the first and second segments, wherein the first content server is a first library server having the digital media stream stored thereon, and wherein the second content server is a second library server having a copy of the digital media stream stored thereon.</i>	1[g]	<i>wherein the requested digital content is a digital media stream that includes the first and second segments, wherein the first content server is a first library server having the digital media stream stored thereon, and wherein the second content server is a second library server having a copy of the digital media stream stored thereon.</i>

108. Accordingly, for at least the reasons I discuss above, Young renders claim 10 obvious as a whole.

10. Claims 11-12 and 14-18

109. Claims 11-12 and 14-18 depend from claim 10 and recite the same limitations as claims 2-3 and 5-9, respectively. Accordingly, claims 11-12 and 14-18 would have been obvious in view of Young for the reasons I discuss above regarding claims 2-3 and 5-9. (*See* ¶¶78-104, above.)

B. Claims 1-3, 5-12, and 14-18 Would Have Been Obvious in View of Young and Yoshimura.

110. As I discuss above, Young discloses or renders obvious each limitation of claims 1-3, 5-12, and 14-18. (*See* ¶¶44-109, above.) For at least those reasons and the reasons I discuss below, those claims would also have been obvious in further view of Yoshimura. I incorporate my above discussion of Young here, and only discuss claim elements for which Yoshimura is relevant in combination with Young. Yoshimura discloses a content delivery network (“CDN”) with a plurality of servers where different segments of a media stream can be downloaded from different servers. (EX-1006 (Yoshimura), 1779-80, Fig. 1.) Yoshimura’s servers are selected and change based on changing conditions (e.g., when a mobile client moves to a different location, a new “best” server may be selected to continue the download). (*Id.*)

1. Claim 1

a. Elements 1[d], 1[f], and 1[g][i]

111. Element 1[d] recites “downloading a first segment of the requested digital content from the first content server to the client device for rendering.” Element 1[f] recites “downloading a second segment of the requested digital content from the second content server to the client device for rendering.” Element 1[g][i] recites “wherein the requested digital content is a digital media stream that includes the first and second segments.” I understand the patent owner may argue that these claim elements require the content to be stored on the server in segments. In that case, it would have been obvious to store Young’s content as a plurality of segments in view of Yoshimura.

112. Yoshimura discloses a CDN that divides digital media content streams into multiple digital files, with each file containing a segment of the content:

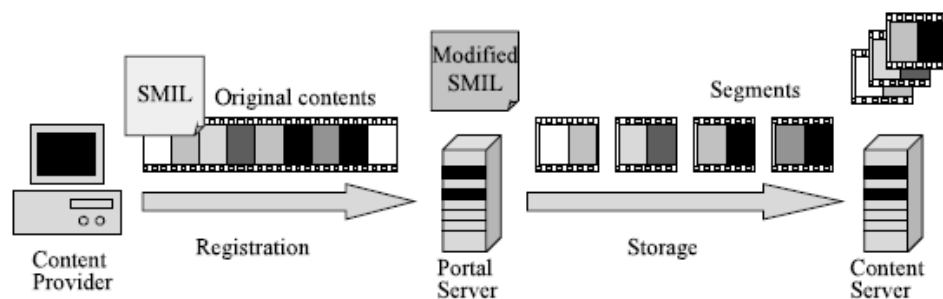


Fig. 3 Content segmentation and SMIL modification at portal server.

(EX-1006 (Yoshimura), Fig. 3; *id.*, 1780.) Yoshimura provides an example in which an audio file “content-A.mp4” is segmented and stored as three audio files (“content-

A-{1,2,3}.mp4”). (*Id.*, 1780-81.) The segmented audio files are provided to the content servers. (*Id.*, 1780, Fig. 3.)

113. A person of ordinary skill would have been motivated to segment the media content in Young’s system, and to store the segmented media stream on the servers as a plurality of audio files as taught by Yoshimura, for many reasons.

114. First, Yoshimura teaches that “dividing content into several segments ... leads to efficient cache memory and network resource utilization.” (EX-1006 (Yoshimura), 1780.) A person of ordinary skill would have been motivated to segment the multimedia content described in Young to achieve these benefits.

115. Second, Young recognizes that download “performance may change over time for very large files.” (EX-1008 (Young), 4:59-60.) Yoshimura explains that content segmentation is “effective especially for large streaming content.” (EX-1006 (Yoshimura), 1780.) Thus, a person of ordinary skill would have been motivated to segment Young’s media files, especially larger ones, to reduce download times and reduce the likelihood that the selected server’s performance decreases during such downloads.

116. Third, segmenting media content was widely known and supported, as the ’488 patent admits. (*See* ¶¶36-37, above.) Accordingly, storing Young’s media stream as multiple segments represents the simple substitution of one known element (audio content stored as multiple segments) for another (one large, unsegmented file)

to obtain predictable results (more efficient storage and faster content delivery). This combination represents using a known technique (storing media stream as segments) to improve a similar device and method (Young’s multimedia CDN) in the same way. Similarly, this combination applies a known technique (storing segmented media content) to a known device and method (Young’s CDN) that is ready for improvements and yields predictable results.

117. Because content segmentation was well known and widely used (*see* ¶¶36-37, above), a person of ordinary skill would have reasonably expected success in segmenting Young’s media stream (as taught by Yoshimura).

b. Element 1[e]

118. Element 1[e] recites “in the event of a degradation in service from the first content server, selecting a second content server to replace the first content server in serving the requested digital content from the list of content servers in dependence upon the service level statistics, wherein the server replacement is imperceptible to a user of the client device.” As I discuss above, Young discloses or renders obvious this claim element. (*See* ¶¶61-64, above.)

119. Yoshimura teaches that the purpose of segmenting media files is to allow for the playback of the segments “seamlessly.” (EX 1006 (Yoshimura), 1785.) Particularly in view of this teaching, a person of ordinary skill would have been motivated to implement Young’s CDN, with segmented media streams as taught by

Yoshimura, such that the downloading of content and replacement of servers “is imperceptible to a user” and provides for “seamless” rendering.

120. Thus, Young and Yoshimura together render obvious claim element 1[e].

121. Accordingly, for at least the reasons I discuss above, Young and Yoshimura render claim 1 obvious as a whole.

2. Claims 6 and 15

a. Elements 6[a] and 15[a]

122. Claims 6 and 15 depend from claims 1 and 10, respectively. Elements 6[a] and 15[a] each recite “further comprising successively rendering the first and second segments on the client device without re-constructing the digital content.” Young and Yoshimura disclose or render obvious these claim elements.

123. As I discuss above for claim 1, it would have been obvious to store Young’s digital content as a plurality of segments in view of Yoshimura. (*See* ¶¶111-117, above.)

124. Yoshimura further discloses downloading and successively rendering segments of media content individually without reconstructing the media content. (EX-1006 (Yoshimura), 1785 (dividing media content into “four segments” and “receiv[ing] and play[ing] back the subsequent segments seamlessly”); *see also id.*, 1779 (“streaming segments are scheduled to be pre-fetched just before clients

request the segment”), 1780 (client can determine “which segments are the next to the segments currently served”).) Thus, a person of ordinary skill would have understood that each segment is rendered without reconstructing the media content. Rather, each individual file is downloaded and rendered on its own.

125. Thus, Young and Yoshimura disclose or render obvious claim elements 6[a] and 15[a].

b. Elements 6[b] and 15[b]

126. Elements 6[b] and 15[b] recite “wherein the server replacement does not cause an interruption in the successive rendering of the first and second segments.” As I discuss above, Young discloses or renders obvious these claim elements. (*See* ¶¶61-64, 92-95, above.)

127. Moreover, Yoshimura teaches that the purpose of segmenting media files is to allow for the playback of the segments “seamlessly.” (EX-1006 (Yoshimura), 1785.) Particularly in view of this teaching, a person of ordinary skill would have been motivated to implement Young’s CDN, with segmented media streams as taught by Yoshimura, such that the downloading of content and replacement of servers “does not cause an interruption in the successive rendering” of the media segments, but instead provides for “seamless” rendering.

128. Thus, Young and Yoshimura disclose or render obvious claim elements 6[b] and 15[b].

129. Accordingly, for at least the reasons I discuss above, Young and Yoshimura render claims 6 and 15 obvious as a whole.

3. Claim 10

130. Independent claim 10, like claim 1, also recites downloading segments from different servers. (*See* ¶107, above.) Thus, Young and Yoshimura disclose the claim elements of claim 10 for the same reasons I discuss above for claim 1. (*See* ¶¶44-77, 111-121, above.) Accordingly, for at least the reasons I discuss above, Young and Yoshimura render claim 10 obvious as a whole.

C. Claims 2, 4, 11, and 13 Would Have Been Obvious in View of Young and Freedman or Young, Yoshimura, and Freedman.

131. Claims 2, 4, 11, and 14 depend from claims 1 or 10. As I discuss above, Young and/or Yoshimura disclose or render obvious each limitation of claims 1, 2, 10, and 11. (*See* ¶¶44-81, 105-109, 111-121, 130, above.) For at least those reasons and the reasons I discuss below, claims 2, 4, 11, and 13 would also have been obvious in further view of Freedman. I incorporate my above discussion of Young and Yoshimura here.

1. Claims 2 and 11

132. Claim 2 depends from claim 1 and further recites “wherein the service level statistics include operational service levels.” Claim 11 depends from claim 10 and recites the same limitation. Freedman discloses the additional claim element of claims 2 and 11.

133. Freedman discloses a CDN that collects performance statistics related to the “quality of service” of client-server connections and routes client requests to servers that are selected based on the performance statistics. (EX-1016 (Freedman), Abstract, ¶¶[0009]-[0013].) Freedman tracks a wide range of statistics including “the number of bytes transmitted, the duration of connection (including the duration of each phase of the connection), loss seen in the connection, latency between client and server as measured and used, variance in latency ..., the maximum/average measurements of the size of the network connection between the client and server, [and] overall and instantaneous throughput,” as well as the “the time the first packet on the connection was received ... or sent,” the “[n]umber of packets received ... [and] sent,” the “[n]umber of duplicate packets sent,” the “Max Smooth Round Trip Time ... [and] Min Smooth Round Trip Time during the connection.” (*Id.* ¶¶[0030]-[0045].) Freedman also discloses tracking the “[t]ime spent in each phase” of the connection. (*Id.* ¶¶[0046]-[0053].) This data can be “generated by any convenient mechanism” on a “per-connection” basis and tracked “at a configurable interval (e.g., once per second).” (*Id.* ¶[0060].)

134. Because the statistics Freedman tracks relate to the quality of service of Freedman’s servers when in operation, a person of ordinary skill in the art would have understood them to include operational service levels. Thus, Freedman discloses the additional claim element of claims 2 and 11.

135. It would have been obvious to combine Young and Freedman to track service level statistics as taught in Freedman in Young’s system, and a person of ordinary skill would have been motivated to do so, for several reasons.

136. First, Young suggests doing so because it teaches selecting a “best” server to provide requested content. (EX-1008 (Young), Abstract.) A person of ordinary skill would have been motivated to track service level information as taught by Freedman to obtain “detailed information about the quality of the connections” in order to better identify a best server in Young’s system. (EX-1016 (Freedman) ¶¶[0029]-[0030].)

137. Second, Young sought to “provide[] improved information regarding the best server from which to obtain a desired file” and thereby “download files quickly.” (EX-1008 (Young), 2:23-26.) A person of ordinary skill would have understood that tracking additional service level statistics as taught by Freedman to more accurately select a best server would further these goals.

138. Third, because gathering service level statistics for servers connected on a network was widely known and expressly disclosed by Freedman, tracking service level statistics as taught by Freedman in Young’s system represents nothing more than a simple addition of one known element (Freedman’s service level statistics) to another (Young’s service level statistics) to obtain predictable results (improved selecting of a best server). (See ¶¶33-35, above.) Similarly, this combination

represents nothing more than using a known technique (tracking service level statistics as taught by Freedman) to improve a similar device and method (Young's system and server selection) in the same way (e.g., tracking additional statistics and improved server selection). (*Id.*) Moreover, this combination applies a known technique (tracking service level statistics) to a known device and method (Young's system and server selection method) that is ready for improvement and yields predictable results (e.g., tracking additional statistics and improved server selection). (*Id.*)

139. For these same reasons, a person of ordinary skill would have had a reasonable expectation of success in combining Young and Freedman. A person of ordinary skill would have also had a reasonable expectation of success because both Young and Freedman track service level statistics and use the tracked statistics to determine what server a client request should be directed to. (EX-1008 (Young), Abstract, 1:6-8, 1:57-2:22, 4:31-5:9; EX-1016 (Freedman), Abstract, ¶¶[0009]-[0014], [0021]-[0022], [0024]-[0025], [0027]-[0029], Figs. 2-3, claims 1, 5-8, 10-13, 15-19.)

140. Accordingly, for at least the reasons I discuss above, Young and Freedman or Young, Yoshimura, and Freedman render claims 2 and 11 obvious as a whole.

2. Claims 4 and 13

141. Claim 4 depends from claim 1 and further recites “wherein the service level statistics include connection metrics or disconnection metrics.” Claim 13 depends from claim 10 and recites the same limitation. Young and Freedman disclose the additional claim element of claims 4 and 13.

142. As I discuss above, Young and Freedman each disclose tracking service level statistics for connections between a client device and a server. (See ¶¶48-52, 132-140, above.) For example, Young tracks the latency, throughput, and bit rate, and detects when a failure condition occurs (e.g., throughput dropping below a threshold). (See ¶¶48-52, above.) And, Freedman discloses tracking additional information including timing information of a connection (e.g., when a connection was made, the time in each phase of the connection, and when it disconnected) and performance information such as the amount of data transmitted in total and at a given time, latency, connection size and throughput. (See ¶¶132-140, above.) Accordingly, a person of ordinary skill would have understood that Young and Freedman track connection metrics and disconnection metrics. It would have been obvious to use Freedman’s connection/disconnection metrics in Young’s system for the reasons I discuss above. (*Id.*) A person of ordinary skill also would have had a reasonable expectation of success in doing so for the reasons I discuss above. (*Id.*)

143. Accordingly, for at least the reasons I discuss above, Young and Freedman or Young, Yoshimura, and Freedman render claims 4 and 13 obvious as a whole.

D. Claims 1, 4-10, and 13-18 Would Have Been Obvious in View of Leighton.

1. Claim 1

a. Preamble

144. The preamble recites “[a] method of downloading digital content to be rendered.” Leighton discloses a system for providing requested web content to a requesting client device. (EX-1032 (Leighton), 2:26-31.) Leighton’s web content is digital content because the web content is, “e.g., images, audio, video, or the like” that is stored as digital files on servers. (*Id.*, 5:23-26.) And, a person of ordinary skill would have understood that Leighton’s web content is downloaded to a client device when accessed. (*Id.*, 1:16-34 (well known to access “files (e.g., text, graphics, images, sound, video, etc.)” over the Internet), 3:17-37 (“server [] serves the object back to the client”), 12:53-62 (redirecting to a new server mid-stream is “especially helpful for audio and video downloads”).) Accordingly, Leighton discloses or renders obvious the preamble.

b. Element 1[a]: Downloading a List of Content Servers

145. Element 1[a] recites “downloading from a network accessible server to a client device a list of content servers that are capable of serving requested digital content.” Leighton discloses or renders obvious this claim element.

146. When Leighton’s client requests an embedded object “(e.g., text, graphics, image, sound, video, etc.),” a DNS server provides the client with a list of ghost servers (also called hosting servers) that host the requested content. (EX-1032 (Leighton), 3:17-37, 3:57-65 (“the top level DNS server returns a list of low-level DNS servers”), 12:13-16, 12:18-25 (“The low level DNS servers ... [return] a list of [server] names”), 5:54-57 (functionality of top-level and low-level DNS servers can be implemented on a single server), 10:36-41 (DNS server provides server list).) Leighton’s ghost servers are content servers because they store media content that clients request. (*Id.*, 3:5-7, 2:59-62, 12:37-39, 6:26-30, 5:42-6:3, claim 1.) And, Leighton’s ghost servers are capable of serving requested digital content. (*Id.*, 3:5-7 (“The actual content to be served is preferably supported on a set of hosting servers (sometimes referred to as ghost servers).”), 3:27-37 (“Embedded objects for the page preferably are served from particular hosting servers identified by the top- and low-level DNS servers.”).)

147. Leighton therefore discloses or renders obvious downloading from a network accessible server to a client device a list of content servers (e.g., ghost server

list) that are capable of serving requested digital content (e.g., embedded web content). Thus, Leighton discloses or renders obvious claim element 1[a].

c. Element 1[b]: Tracking Service Level Statistics

148. Element 1[b] recites “tracking service level statistics for the content servers in the list of content servers.” Leighton discloses or renders obvious this claim element.

149. Leighton discloses tracking service level statistics using top- and low-level DNS servers. (EX-1032 (Leighton), 10:1-11 (network map “determines where to direct the request” and “is updated continually based on network conditions and traffic”), 11:7-11 (table of ghost servers “is continually updated based on network conditions and traffic in such a way to [e]nsure load balancing and fault tolerance”), 11:35-37 (“low-level DNS servers monitor the various ghost servers to take into account their loads”), 10:54-11:6, 11:21-26.) Leighton further explains that this functionality can be implemented on the client instead of a separate server. (*Id.*, 5:54-57 (DNS functionality may be separated into a “hierarchy” and implemented on remote servers or client), 9:57-59, 12:53-67 (client software monitors the status of the network).)

150. Leighton therefore discloses or renders obvious tracking service level statistics (e.g., network conditions, network traffic, and ghost server loads) for the

content servers (e.g., ghost servers) in the list of content servers (e.g., list of ghost servers). Thus, Leighton discloses or renders obvious claim element 1[b].

d. Element 1[c]: Selecting a First Content Server

151. Element 1[c] recites “selecting a first content server to serve the requested digital content from the list of content servers in dependence upon the service level statistics.” Leighton discloses or renders obvious this claim element.

152. Leighton discloses selecting a ghost server “close to the client machine, that is not overloaded, and that is most likely to already have ... the required file.” (EX-1032 (Leighton), 5:37-41.) Leighton selects such a server from the list of ghost servers using maps and lookup tables that are based on service level statistics. (*See* ¶¶148-150, above; EX-1032 (Leighton), 5:54-57 (DNS functionality may be separated and implemented on server or client), 10:54-61 (“low level DNS server ... is responsible for returning the IP address of one of the ghost servers 36 on the network”), 11:35-37 (“The low-level DNS servers monitor the various ghost servers to take into account their loads while translating virtual ghost names into real addresses.”), 12:8-13.)

153. Accordingly, Leighton discloses or renders obvious selecting a first content server (e.g., ghost server) to serve the requested digital content from the list of content servers (e.g., list of ghost servers) in dependence upon the service level statistics (e.g., using mappings based on collected statistics such as network

conditions, traffic, and ghost server loads). Thus, Leighton discloses or renders obvious claim element 1[c].

e. Element 1[d]: Downloading a First Segment

154. Element 1[d] recites “downloading a first segment of the requested digital content from the first content server to the client device for rendering.” Leighton renders obvious this claim element.

155. Leighton discloses downloading digital content such as audio and video to a client device for rendering. (EX-1032 (Leighton), 2:64-67 (“content is automatically sent to the location where it is requested”), 4:17-22 (“embedded objects are served from the hosting servers ... to the client machine that initiated the request”), 5:23-32 (content includes “images, audio, video, or the like”), 12:26-56, 12:59-62 (media player); *see* ¶144, above.) Leighton therefore discloses this limitation because downloading requested content (e.g., audio or video) is downloading at least a first segment of the requested content.

156. To the extent the claim requires the content to be stored on the server in segments, it would have been obvious to store Leighton’s web content (e.g., audio and video) as a plurality of segments that can be downloaded individually, as was well known and conventional. (EX-1001 (’488 patent), 2:16-18; *see* ¶¶36-37, above.) Accordingly, it would have been obvious, and a routine design choice, to store Leighton’s audio and video content in segments. And, Leighton discloses

downloading a first segment of content before switching servers and downloading a second segment of content. (*See* EX-1032 (Leighton), 12:53-62 (when downloading “audio and video,” “the user can be directed to an alternate server in mid-stream”).)

157. Thus, Leighton renders obvious claim element 1[d].

f. Element 1[e]: Selecting a Second Server

158. Element 1[e] recites “in the event of a degradation in service from the first content server, selecting a second content server to replace the first content server in serving the requested digital content from the list of content servers in dependence upon the service level statistics, wherein the server replacement is imperceptible to a user of the client device.” Leighton discloses or renders obvious this claim element.

159. Leighton discloses selecting a second content (ghost) server from the list when “it is deemed that the client’s connection can be improved by changing the server.” (EX-1032 (Leighton), 12:59-67; *id.* (“user can be directed to an alternate server in mid-stream”); *id.*, 12:53-55 (performance “improved by dynamically changing the server to which a client is connected based on changing network conditions”).) Leighton also discloses selecting a second server (e.g., “buddy” server) “if the ghost goes down.” (*Id.*, 13:1-4, 12:18-25 (if buddy system fails, client contacts “one of the other ghosts on the list”).) A person of ordinary skill in the art would have understood that “the client’s connection can be improved by changing

the server” in the event of a degradation in service from the first content server. And, Leighton selects a second ghost server by using maps and lookup tables that are based on service level statistics, as I discuss above. (See ¶¶151-153, above.)

160. Additionally, Leighton’s system automatically selects a second server for improved performance without notifying or requiring input from a user of the client device. (EX-1032 (Leighton), 12:18-25, 12:53-67, 13:1-4.) Accordingly, Leighton’s server replacement is imperceptible to a user of the client device.

161. Leighton therefore discloses or renders obvious, in the event of a degradation in service from the first content server (e.g., when the client’s connection to a ghost server can be improved), selecting a second content server (e.g., second ghost server or “buddy” server) to replace the first content server (e.g., first ghost server) in serving the requested digital content (e.g., web content) from the list of content servers (e.g., ghost server list) in dependence upon the service level statistics (e.g., using mappings based on collected statistics such as network conditions, traffic, and ghost server loads), wherein the server replacement is imperceptible to a user of the client device (e.g., automatically selecting a second ghost server without notifying or requesting input from a user). Thus, Leighton discloses or renders obvious claim element 1[e].

g. Element 1[f]: Downloading a Second Segment

162. Element 1[f] recites “downloading a second segment of the requested digital content from the second content server to the client device for rendering.” Leighton renders obvious this claim element.

163. Leighton discloses that the user can be “directed to an alternate server in mid-stream.” (EX-1032 (Leighton), 12:53-67; *id.*, 12:53-55 (change server), 13:1-4 (second “buddy” server).) The downloaded content is rendered on the client device, such as a media player. (See ¶¶154-157, above.) And, it would have been obvious for the stream to comprise multiple segments that can be individually downloaded. (*Id.*) Thus, downloading the remainder of the stream from a second server would include downloading a second segment of the requested digital content as claimed.

164. Accordingly, Leighton renders obvious downloading a second segment of the requested digital content (e.g., a chunk in the second portion of content) from the second content server (e.g., alternate ghost server) to the client device for rendering. Thus, Leighton renders obvious claim element 1[f].

h. Element 1[g][i]: Digital Media Stream Including First and Second Segments

165. Element 1[g][i] recites “wherein the requested digital content is a digital media stream that includes the first and second segments.” Leighton discloses or renders obvious this claim element.

166. Leighton discloses that the requested web content can be a digital media stream (e.g., audio or video stream). (EX-1032 (Leighton), 12:53-67.) And, Leighton renders obvious that such content includes the first and second segments (e.g., first and second chunks), as I discuss above. (See ¶¶154-157, 162-164.) Thus, Leighton discloses or renders obvious claim element 1[g][i].

i. Element 1[g][ii]: First Library Server

167. Element 1[g][ii] recites “wherein the first content server is a first library server having the digital media stream stored thereon.” Leighton discloses or renders obvious this claim element.

168. Leighton’s ghost servers are library servers because they store media content that clients request. (EX-1032 (Leighton), 3:5-7, 2:59-62, 12:37-39, 6:26-30, 5:42-6:3, claim 1.) Leighton therefore discloses or renders obvious that the first content server (e.g., ghost server) is a first library server having the digital media stream (e.g., requested content such as audio or video) stored thereon. Thus, Leighton discloses or renders obvious claim element 1[g][ii].

j. Element 1[g][iii]: Second Library Server

169. Element 1[g][iii] recites “wherein the second content server is a second library server having a copy of the digital media stream stored thereon.” Leighton discloses or renders obvious this claim element.

170. As I discuss above, the ghost server selected as a second (e.g., alternate or buddy) ghost server contains a copy of the requested content so that the client device can continue to download the requested content using the second ghost server (*see* ¶¶158-164, above) and Leighton’s ghost servers are library servers (*see* ¶¶167-168, above). Therefore, Leighton discloses or renders obvious that the second content server (e.g., alternate or buddy ghost server) is a second library server having a copy of the digital media stream (e.g., requested content such as audio or video) stored thereon. Thus, Leighton discloses or renders obvious claim element 1[g][iii].

171. Accordingly, for at least the reasons I discuss above, Leighton renders claim 1 obvious as a whole.

2. Claim 4

172. Claim 4 depends from claim 1 and further recites “wherein the service level statistics include connection metrics or disconnection metrics.” Leighton renders obvious the additional claim element of claim 4.

173. Leighton discloses “monitor[ing] the performance of the client’s connection” to ghost servers to “dynamically chang[e] the server to which a client is connected.” (EX-1032 (Leighton), 12:53-67.) Leighton also discloses monitoring a client’s connection with a ghost server to detect “failure condition[s]” that cause the client to select a second ghost server. (*Id.*, 3:62-65, claim 4; *see also id.*, 12:13-25, 13:1-11.) Accordingly, it would have been obvious that the service level

statistics (e.g., collected statistics such as network and connection conditions, traffic, and ghost server loads) include connection metrics or disconnection metrics (e.g., metrics related to the performance of a client's connection and failure conditions) in view of Leighton. Thus, Leighton renders obvious the additional claim element of claim 4.

174. Accordingly, for at least the reasons I discuss above, Leighton renders claim 4 obvious as a whole.

3. Claim 5

175. Claim 5 depends from claim 1 and further recites “wherein the service level statistics are updated during the downloading of the first segment.” Leighton discloses or renders obvious the additional claim element of claim 5.

176. Leighton discloses continuously monitoring and updating service level statistics used by Leighton's DNS services for selecting ghost servers. (EX-1032 (Leighton), 10:1-11 (“The map preferably is updated continually based on network conditions and traffic.”), 11:7-11 (ghost server “table is continually updated based on network conditions and traffic in such a way to insure load balancing and fault tolerance”), 12:53-67 (continuously monitoring network conditions to “dynamically chang[e] the server to which a client is connected based on changing network conditions”).) A person of ordinary skill in the art would have understood that Leighton's service level statistics are updated during the downloading of the first

segment of media content because they are continually updated and also because Leighton discloses monitoring network conditions to change servers “mid-stream.” (*See id.*, 12:53-67.) Thus, Leighton discloses or renders obvious the additional claim element of claim 5.

177. Accordingly, for at least the reasons I discuss above, Leighton renders claim 5 obvious as a whole.

4. Claim 6

a. Element 6[a]: Rendering Segments

178. Claim 6 depends from claim 1. Element 6[a] recites “further comprising successively rendering the first and second segments on the client device without re-constructing the digital content.” Leighton discloses or renders obvious this claim element.

179. As I discuss above, Leighton renders obvious downloading a first and second segment of digital media content for rendering on a client device. (*See* ¶¶154-157, 162-164, above.) And a person of ordinary skill in the art would have understood that segments of Leighton’s content are successively rendered as each segment makes up part of the content. For example, Leighton explains that part of a media stream (e.g., a first segment) can be downloaded to a client device such as a media player, which a person of ordinary skill would have understood renders the segment, before a second segment is downloaded from a different ghost server when

a second server is selected “mid-stream.” (EX-1032 (Leighton), 12:53-67.) A person of ordinary skill would have also understood that the second segment is then rendered by the media player without reconstructing the digital content. (*Id.*)

180. Thus, Leighton discloses or renders obvious claim element 6[a].

b. Element 6[b]: No Interruption in Rendering

181. Element 6[b] recites “wherein the server replacement does not cause an interruption in the successive rendering of the first and second segments.” Leighton renders obvious this claim element.

182. Leighton discloses selecting a second ghost server automatically to improve the client’s connection to the server hosting the requested content and to avoid interruptions. (EX-1032 (Leighton), 2:64-67 (“content is automatically sent to the location where it is requested”), 10:42-53 (fault tolerance designed to “minimize[] the overall latency experienced by clients”), 13:1-11 (selecting a buddy ghost server “so that service is not interrupted”), 12:13-25 (DNS servers automatically provide “a list of [ghost server] names” and, “[i]f for some reason the primary fault tolerance method for the ghosts (known as the Buddy system...) fails, the client browser will contact one of the other ghosts on the list.”); *see also id.*, 10:34-41, 10:54-61, 11:7-10, 11:35-59, 12:13, claim 6; *see* ¶¶158-161, above.) Thus, a person of ordinary skill in the art would have understood that Leighton’s ghost server replacement does not cause an interruption in the successive rendering of the first and second

segments—rather it is designed to prevent such an interruption. Thus, Leighton renders obvious claim element 6[b].

183. Accordingly, for at least the reasons I discuss above, Leighton renders claim 6 obvious as a whole.

5. Claim 7

184. Claim 7 depends from claim 1 and further recites “wherein the first content server consists of one or more server devices.” Leighton discloses or renders obvious the additional claim element of claim 7.

185. Leighton discloses that “a given server used in [Leighton’s] framework 35 includes a processor, an operating system (e.g., Linux, UNIX, Windows NT, or the like), a Web server application, and a set of application routines ... implemented in software.” (EX-1032 (Leighton), 6:4-13.) Accordingly, Leighton discloses or renders obvious a first content server that consists of one or more server devices. Thus, Leighton discloses or renders obvious the additional claim element of claim 7.

186. Accordingly, for at least the reasons I discuss above, Leighton renders claim 7 obvious as a whole.

6. Claim 8

187. Claim 8 depends from claim 1 and further recites “further comprising tracking service level statistics related to a connection established between the client

device and the first content server.” Leighton discloses the additional claim element of claim 8 for the reasons I discuss above. (*See* ¶¶148-150, 172-174, above.)

188. Accordingly, for at least the reasons I discuss above, Leighton renders claim 8 obvious as a whole.

7. Claim 9

189. Claim 9 depends from claim 1 and further recites “wherein the requested digital content includes audio content, audio/video content, video content, text content, static image content, moving image content, user-entered content, advertising content, or a combination thereof.” Leighton discloses the additional claim element of claim 9.

190. Leighton discloses that the requested content includes “images, audio, video, or the like” (EX-1032 (Leighton), 5:23-26; *id.*, 12:53-59) and advertising content (*id.*, 8:17-19, 16:36-49). Thus, Leighton discloses the additional claim element of claim 9.

191. Accordingly, for at least the reasons I discuss above, Leighton renders claim 9 obvious as a whole.

8. Claim 10

192. As I discuss above, independent claim 10 recites substantially the same limitations as claim 1, but recites “[a] non-transitory computer-readable storage medium having stored thereon instructions which, when executed by a processor of a

computing device, cause the computing device to” perform the method steps of claim 1.

193. Leighton discloses that a “client” in Leighton’s system is “a personal computer ... that includes an operating system ... and that includes a Web browser ... having a Java Virtual Machine (JVM) and support for application plug-ins or helper applications” and “may also be a notebook computer, a handheld computing device (e.g., a PDA), an Internet appliance, or any other such device connectable to the computer network.” (EX-1032 (Leighton), 5:13-22.) Thus, Leighton discloses or renders obvious claim 10’s preamble.

194. The actions recited in claim 10 mirror the method steps recited in claim 1. (See ¶107, above.) As I discuss above for claim 1, Leighton discloses or renders obvious the actions recited in claim 10. (See ¶¶144-171, above.)

195. Accordingly, for at least the reasons I discuss above, Leighton renders claim 10 obvious as a whole.

9. Claims 13-18

196. Claims 13-18 depend from claim 10 and recite the same limitations as claims 4-9, respectively. Accordingly, claims 13-18 would have been obvious in view of Leighton for the reasons I discuss above regarding claims 4-9. (See ¶¶172-191, above.)

E. Claims 1, 4-10, and 13-18 Would Have Been Obvious in View of Leighton and Seed.

197. As I discuss above, Leighton discloses or renders obvious each limitation of claims 1, 4-10, and 13-18. (See ¶¶144-196, above.) For at least those reasons and the reasons I discuss below, those claims would also have been obvious in further view of Seed. I incorporate my above discussion of Leighton here, and only discuss claim elements for which Seed is relevant in combination with Leighton.

1. Claim 1 – Elements 1[d], 1[f], and 1[g][i]

198. Element 1[d] recites “downloading a first segment of the requested digital content from the first content server to the client device for rendering.” Element 1[f] recites “downloading a second segment of the requested digital content from the second content server to the client device for rendering.” Element 1[g][i] recites “wherein the requested digital content is a digital media stream that includes the first and second segments.” I understand the patent owner may argue that these claim elements require the content to be stored on the server in segments. In that case, it would have been obvious to store Leighton’s content as a plurality of segments in view of Seed.

199. Seed discloses a CDN that delivers digital content from servers to end-users (clients). (EX-1011 (Seed) ¶[0010] (“As used herein, an object includes, without limitation, an audio file ..., a video file..., an image file ... and any other software or data file or object.”).) Seed discloses that “objects can be *segmented* into

chunks” to “enhance the performance of the network.” (*Id.* ¶[0057] (emphasis added).) “By partitioning streams in this manner, a first part of an object can be served from edge servers quickly.” (*Id.*) The remaining chunks can also be stored on edge servers. (*Id.* ¶¶[0058] (“some or all of the objects may be permanently retained in edge server storage”), [0032].) Because Seed “partition[s] streams” by “segmenting” into “chunks” that can be stored and downloaded individually, Seed’s chunks represent segments of digital content. (*Id.* ¶¶[0057], [0010], [0054]; EX-1030 (Heckerman), 13:14-34.) And, the segments are downloaded for playback by the client device. (EX-1011 (Seed) ¶[0051].)

200. Thus, Leighton and Seed render obvious downloading a first segment (e.g., a chunk) of the requested digital content (e.g., Leighton’s web content) from the first content server (e.g., ghost server) to the client device for rendering.

201. A person of ordinary skill in the art would have been motivated to combine the teachings of Leighton and Seed, and to store Leighton’s media objects as a plurality of segments that can be individually downloaded, for several reasons.

202. First, Leighton’s goal is to provide media content to clients “efficiently, effectively, and reliably,” and to “speed-up the delivery” of content. (EX-1032 (Leighton), 2:26-31; 2:43-45.) Seed teaches that segmentation “enhance[s] the performance of the network” and avoids providing entire objects unnecessarily (e.g., when users exit before an object is completely served). (EX-1011 (Seed) ¶[0057].)

A person of ordinary skill therefore would have been motivated to segment the content served in Leighton to obtain the benefits Seed describes.

203. Second, because segmenting media content was widely known, and given the similarities between Leighton's and Seed's CDN systems, storing Leighton's content as segments that can be individually downloaded represents merely a simple substitution of one known element (segmented media stream) for another (single-file media stream) to obtain predictable results (improved performance and ability to serve individual segments). (EX-1032 (Leighton), 2:26-67; EX-1011 (Seed) ¶¶[0057]; *see* ¶¶[36-37, above.]) This combination also uses a known technique (Seed's chunking) to improve a similar device and method (Leighton's CDN) in the same way. (*Id.*) Moreover, this combination applies a known technique (segmenting) to a known device and method (Leighton's CDN) that is ready for improvement and yields predictable results (enhancing network performance). (*Id.*)

204. Third, it would have been obvious to try storing Leighton's content as smaller segments (as taught by Seed) because it was one of a finite number of identified, predictable solutions for storing content on servers. Only two options existed for storing Leighton's content: (1) as a single file; or (2) as multiple segments. Both would have been obvious.

205. A person of ordinary skill would have reasonably expected success in storing Leighton's content in segments that can be individually downloaded, as

taught by Seed, because the systems and their purposes are similar, storing content as multiple smaller segments was known, and the modification would have been trivial. (See ¶¶36-37, above.) Accordingly, downloading a first and second segment of the requested digital content (e.g., a chunk of Leighton’s content) from the first and second content servers (e.g., ghost servers) to the client device for rendering would have been obvious in view of Leighton and Seed.

206. Accordingly, for at least the reasons I discuss above, Leighton and Seed render claim 1 obvious as a whole.

2. Claims 6 and 15

207. Claims 6 and 15 depend from claims 1 and 10, respectively. Elements 6[a] and 15[a] each recite “further comprising successively rendering the first and second segments on the client device without re-constructing the digital content.” Leighton and Seed disclose or render obvious these claim elements.

208. As I discuss above, Leighton and, optionally, Seed render obvious downloading a first and second segment of digital media content for rendering on a client device. (See ¶¶154-157, 162-164, 178-180, 198-206, above.)

209. Seed discloses that each chunk (segment) of media content can be accessed and rendered independently of other chunks. (EX-1011 (Seed) ¶[0057] (“[A] good percentage of requests for [] objects exit before the object is completely served. To exploit this kind of object usage and further enhance the performance of the

network, objects can be segmented into chunks[.] ... By partitioning streams in this manner, a first part of an object can be served from edge servers quickly[.]”); *see* ¶¶154-157, above.) Thus, a person of ordinary skill would have understood that each chunk can be downloaded and successively rendered independently, without reconstructing the content. Thus, Leighton and Seed disclose or render obvious claim elements 6[a] and 15[a].

210. As I discuss above, Leighton discloses or renders obvious claim elements 6[b] and 15[b]. (*See* ¶¶181-183, above.) Accordingly, for at least the reasons I discuss above, Leighton and Seed render claims 6 and 15 obvious as a whole.

3. Claim 10

211. Independent claim 10, like claim 1, also recites downloading segments from different servers. (*See* ¶107, above.) Thus, Leighton and Seed disclose the claim elements of claim 10 for the same reasons I discuss above for claim 1. (*See* ¶¶144-171, 198-206, above.) Accordingly, for at least the reasons I discuss above, Leighton and Seed render claim 10 obvious as a whole.

F. Claims 2-4 and 11-13 Would Have Been Obvious in View of Leighton and Freedman or Leighton, Seed, and Freedman.

212. Claims 2-4 and 11-13 depend from claims 1 or 10. As I discuss above, Leighton and/or Seed disclose or render obvious each limitation of claims 1, 4, 10, and 13. (*See* ¶¶144-174, 192-196, 198-206, 211, above.) For at least those reasons and the reasons I discuss below, claims 2-4 and 11-13 would also have been obvious

in further view of Freedman. I incorporate my above discussion of Leighton and Seed here.

1. Claims 2 and 11

213. Claim 2 depends from claim 1 and further recites “wherein the service level statistics include operational service levels.” Claim 11 depends from claim 10 and recites the same limitation. Freedman discloses the additional claim element of claims 2 and 11 for the reasons I discuss above. (*See* ¶¶132-140, above.)

214. A person of ordinary skill in the art would have been motivated to combine Leighton and Freedman to track service level statistics as taught in Freedman for use in Leighton’s system for several reasons.

215. First, Freedman suggests doing so because it explains that tracking service level statistics provides a “great deal of useful information” including “detailed information about the quality of the connections” of devices in a CDN that is useful to route client requests to an appropriate server. (EX-1016 (Freedman) ¶¶[0029]-[0030]; *id.* ¶¶[0009]-[0014].) A person of ordinary skill would have been motivated to track such information to improve Leighton’s CDN.

216. Second, Leighton sought to “speed-up the delivery” of content and to provide content “reliably and economically.” (EX-1032 (Leighton), 2:43-48, 2:26-31.) A person of ordinary skill would have understood that tracking service level statistics as taught by Freedman, and thereby providing more information to

Leighton's CDN for routing client requests to an appropriate server, would further these goals.

217. Third, because gathering service level statistics for servers in a CDN was widely known and expressly disclosed by Freedman, tracking service level statistics as taught by Freedman represents nothing more than a simple addition of one known element (Freedman's service level statistics) to another (Leighton's service level statistics) to obtain predictable results (improved routing of client requests in Leighton's CDN). (*See* ¶¶33-35, 132-140, above.) Similarly, this combination uses a known technique (tracking service level statistics as taught by Freedman) to improve a similar device and method (Leighton's CDN) in the same way (e.g., tracking additional statistics and improved routing). (*Id.*) Moreover, this combination applies a known technique (tracking service level statistics in a CDN) to a known device and method (Leighton's CDN) that is ready for improvement and yields predictable results (e.g., tracking additional statistics and improved routing). (*Id.*)

218. For these same reasons, a person of ordinary skill would have had a reasonable expectation of success in combining Leighton and Freedman. A person of ordinary skill would have also had a reasonable expectation of success because both Leighton and Freedman track service level statistics and use the tracked statistics to route client requests to an appropriate server in a CDN by using DNS services. (EX-1032 (Leighton), 3:17-37, 3:57-65, 5:54-57, 9:57-59, 10:1-11, 10:36-41, 10:51-

11:6, 11:7-11, 11:23-26, 11:35-37, 12:8-25, 12:53-67; EX-1016 (Freedman), Abstract, ¶¶[0009]-[0014], [0021], [0022], [0024]-[0025], [0027]-[0029], Figs. 2-3, claims 15, 19.)

219. Accordingly, for at least the reasons I discuss above, Leighton and Freedman or Leighton, Seed, and Freedman render claims 2 and 11 obvious as a whole.

2. Claims 3 and 12

220. Claim 3 depends from claim 1 and further recites “wherein the service level statistics include data throughput levels.” Claim 12 depends from claim 10 and recites the same limitation. Freedman discloses the additional claim element of claims 3 and 12.

221. Freedman discloses tracking “overall and instantaneous throughput” of servers in a CDN. (EX-1016 (Freedman) ¶[0030].) Thus, Freedman discloses the additional claim element of claims 3 and 12.

222. Accordingly, for at least the reasons I discuss above, Leighton and Freedman or Leighton, Seed, and Freedman render claims 3 and 12 obvious as a whole.

3. Claims 4 and 13

223. Claim 4 depends from claim 1 and further recites “wherein the service level statistics include connection metrics or disconnection metrics.” Claim 13

depends from claim 10 and recites the same limitation. Freedman discloses the additional claim element of claims 4 and 13 for the reasons I discuss above. (*See* ¶¶141-143, above.)

224. Accordingly, for at least the reasons I discuss above, Leighton and Freedman or Leighton, Seed, and Freedman render claims 4 and 13 obvious as a whole.

VII. SECONDARY CONSIDERATIONS OF NONOBVIOUSNESS

225. I am not aware of any secondary considerations of nonobviousness. If Patent Owner identifies any alleged evidence of secondary considerations in the future, I reserve the right to respond to that information.

VIII. CONCLUSION

226. For the foregoing reasons, it is my opinion that claims 1-18 of the '488 patent would have been obvious to a person of ordinary skill in the art at the time of the alleged invention in view of the prior art discussed above.

227. I reserve the right to supplement my opinions in the future to address or respond to any issues that the Patent Owner may raise, as well as new information including, but not limited to, any claim constructions advanced by the Patent Owner or adopted by the Board in the Institution Decision, and respond to any alleged secondary considerations as they become available to me.

Amazon.com, Inc. v. Audio Pod IP, LLC
Declaration of Ketan Mayer-Patel – U.S. Pat. No. 10,735,488

I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Executed on May 20th, 2025

at Durham, North Carolina.

A handwritten signature in black ink, appearing to read 'KMP', written over a horizontal line.

Professor Ketan Mayer-Patel, Ph.D.