

Declaration of Christopher M. Schmandt in Support of
Petition for *Inter Partes* Review of
U.S. Patent No. 8,606,819 B2

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC and YOUTUBE, LLC
Petitioners

v.

ROBOCAST, INC.
Patent Owner

Case IPR2023-00594
U.S. Patent No. 8,606,819 B2
Issue Date: December 10, 2013

Title: AUTOMATED CONTENT SCHEDULER AND DISPLAYER

DECLARATION OF CHRISTOPHER M. SCHMANDT

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I, Christopher M. Schmandt, declare as follows:

I. INTRODUCTION AND QUALIFICATIONS

A. Qualifications and Experience

1. I have recently retired from my position as a Principal Research Scientist at the Media Laboratory at Massachusetts Institute of Technology (“M.I.T”), after 40 years of employment by M.I.T. In that role, I also served as faculty for the M.I.T. Media Arts and Sciences academic program. I have more than 40 years of experience in the field of Media Technology, and was a founder of the M.I.T. Media Laboratory.

2. I received my Bachelor of Science degree in Electrical Engineering and Computer Science from M.I.T. in 1978, and my Master of Science degree in Visual Studies (Computer Graphics), also from M.I.T. I had been employed at M.I.T. since 1980, initially at the Architecture Machine Group, which was an early computer graphics research lab. In 1985, I helped found the Media Laboratory and continued to work there until my retirement. I ran a research group titled “Living Mobile.” My research spanned distributed communication and collaborative systems, with an emphasis on multi-media and user interfaces; I have more than 70 published conference and journal papers and one book in these fields.

3. In my faculty position, I taught courses and directly supervised student

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research and theses at the Bachelors, Masters, and Ph.D. level. I oversaw the Masters and Ph.D. thesis programs for the entire Media Arts and Sciences academic program. Based on the above experience and qualifications, I have a solid understanding of the knowledge and perspective of a person of ordinary skill in this technical field since at least 1980.

4. In the course of my nearly 40 years of research at MIT, I conceived of and helped implement, with my students, a number of hyper-media systems which are analogous to the invention claimed in the '819 patent. The earliest of these, Gaze Orchestrated Dynamics, dated from 1982, and provided an eye gaze driven user interface to browse a network of linked video snippets; this included managing and synchronizing a separate digital audio track for simultaneous presentation as a navigational cue.

5. I built a number of systems oriented toward voice access to information, often over a telephone connection. In these cases, the content consisted of text and/or audio material, with most voice user interfaces providing a serialized default path through the content. Consider a unified voice / text message system (Voiced Mail, 1982 and Phone Slave, 1983). A visual user interface to email typically presents headers for all the new messages simultaneously, and a user clicks on what they wish to hear. But when the content is audio, the interaction is by necessity

serialized, with the system providing a default path of reading or playing messages in some order. Of course in this situation the user maintains some control over the presentation, and can always change the time spent on each message by interrupting (the equivalent to clicking on a control button in a GUI). Additionally, as we learned that users quickly gain facility in understanding synthetic speech, each user could independently control the playback speed, and hence time on each message, of both the synthetic and recorded audio content.

6. Although any individual presentation in such systems follows a given path, the content nodes are in fact a network, and can be traversed along different paths. For example, a user may request only urgent messages, in which a new path is calculated to present those messages first, or messages from a particular sender, or a particular date.

7. Another example of a complex network of nodes was non-real-time direction giving (Direction Assistance, 1987) in which the content nodes were literally each street intersection in Cambridge, MA, with the content consisting of instructions for a driver. This system was built so a user could take notes while listening, before starting to drive, and as we learned that people take notes at very different speeds, voice control of the pause between each piece of directions was added, for flexible flow. Systems such as these also exhibit search, in that the user

specifies a destination address, and the system calculates a route (i.e. a path through the intersections) for presentation. We also incorporated much of the same logic into one of the earliest real-time spoken driving direction systems (Back Seat Driver, 1988) in which temporal presentation takes on the added burden of calculating the proper time to speak based on driving speed, and sometimes needs to merge two direction turns into a single presentation to give adequate warning.

8. Hyperspeech (1993) used a more conventional hypertext model, only each content node was an audio recording by a particular speaker. The recordings were collected automatically by the system phoning the talent, asking questions, and recording answers. A user's path through the linked content recordings was then chosen according to a question, or series of questions, a Hyperspeech caller would ask. I also worked with the Unix cron facility, which is used for scheduling tasks to occur at specified times. I also extended the crontab file functionality to support recurring events, and built speech and graphical user interfaces around the resulting extended crontab functionality (Caltalk, 1990).

9. The above are representative examples of projects from my research group which involved hypertext-like systems analogous to the '819 patent for navigating through a set of information using one or more paths.

10. My Curriculum Vitae is attached as **Exhibit A**.

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11. I have been retained by counsel for Petitioners to provide my expert opinion in connection with the above-captioned proceeding as set forth herein.

B. Materials Considered

12. The analysis that I provide in this Declaration is based on my education, research, and experience, as well as the documents I have considered. In forming my opinions, I have read and considered U.S. Patent No. 8,606,819 B2 (“’819 patent”) [EX1001] and its prosecution history. I have cited to the following documents in my analysis below:

Exhibit No.	Description of Document
1001	U.S. Patent No. 8,606,819 B2 to Damon Torres (filed Apr. 18, 2012, issued Dec. 10, 2013) (“’819” or “’819 patent”)
1003	U.S. Patent No. 5,634,062 to Takeshi Shimizu et al. (filed October 20, 1994, issued May 27, 1997) (“Shimizu”)
1004	Excerpts from Robert C. Benedict, Jr., <i>Using Harvard Graphics 2 for Windows</i> (1993) (“Benedict”)
1005	Excerpts from David Fox & Troy Downing, <i>HTML Web Publisher’s Construction Kit</i> (1995) (“Fox”)
1007	U.S. Patent No. 5,347,632 to Robert Filepp et al. (filed July 28, 1989, issued September 13, 1994) (“Filepp”)

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Exhibit No.	Description of Document
1008	Catherine Guinan et al., <i>Information Retrieval from Hypertext Using Dynamically Planned Guided Tours</i> , Proceedings of the ACM Conference on Hypertext (Nov. 1992), pp.122-130 (“Guinan”)
1009	U.S. Patent No. 6,486,895 B1 to George G. Robertson et al. (filed September 8, 1995, issued November 26, 2002) (“Robertson”)
1014	U.S. Patent No. 5,715,445 to Mark A. Wolfe (filed June 5, 1995, issued February 3, 1998) (“Wolfe”)
1015	U.S. Patent No. 5,740,549 to James P. Reilly et al. (filed June 12, 1995, issued April 14, 1998) (“Reilly”)
1016	U.S. Patent No. 5,217,119 to Dale Hollingsworth (filed June 4, 1992, issued June 8, 1993) (“Hollingsworth”)
1017	U.S. Patent No. 5,884,056 to David A. Steele et al. (filed December 28, 1995, issued March 16, 1999) (“Steele”)
1018	U.S. Patent No. 5,913,040 to Yuval Rakavy et al. (filed August 22, 1995, issued June 15, 1999) (“Rakavy”)
1020	Excerpts from <i>Microsoft Press Computer Dictionary</i> (2d ed. 1994)
1023	Claim Construction Order issued in <i>Robocast, Inc. v. Microsoft Corp.</i> , No. 1:10-cv-01055 RGA (D. Del.) and <i>Robocast, Inc. v. Apple Inc.</i> , No. 1:11-cv 00235 RGA (D. Del.), dated June 28, 2013
1024	Prosecution history of U.S. Patent No. 7,155,451 B1
1025	Prosecution history of U.S. Patent No. 8,606,819 B2
1026	Prosecution history of U.S. Patent No. 8,965,932 B2
1027	Prosecution history for U.S. Patent Appl. Serial No. 08/922,063

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Exhibit No.	Description of Document
1028	Prosecution history for U.S. Provisional Patent Appl. Serial No. 60/025,360

II. PERSON OF ORDINARY SKILL IN THE ART

13. I understand that, under the patent laws in effect before the America Invents Act (“AIA”) of 2011, an assessment of claims of a patent filed before the AIA took effect should be undertaken from the perspective of a person of ordinary skill in the art as of the earliest claimed priority date (i.e., the “time the invention was made”). I have preliminarily for purposes of my Declaration only assumed that date to be September 3, 1996, the filing date of the earliest application to which the ’819 patent claims priority (provisional application no. 60/025,360).¹

14. I have also been advised that to determine the appropriate level of a person having ordinary skill in the art, the following factors may be considered: (1) the types of problems encountered by those working in the field and prior art

¹ I express no opinion on whether the ’819 patent is actually entitled to the benefit of the provisional application to which it claims priority (60/025,360). This issue is not relevant here because all of the prior art references relied upon predate that date. In the event entitlement to the provisional filing date may later become relevant, for example based on arguments later presented by Patent Owner, I reserve my right to provide opinions on that issue at that time.

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solutions thereto; (2) the sophistication of the technology in question, and the rapidity with which innovations occur in the field; (3) the educational level of active workers in the field; and (4) the educational level of the inventor.

15. The '819 patent states that it generally relates to “computer networks, and specifically to a method of sequencing and scheduling web pages, via a suite of software applications.” ('819, 1:23-25.)

16. In my opinion, a person of ordinary skill in the art as of September 1996 would have possessed a bachelor's degree in electrical engineering, computer science, or similar field, with at least two years of experience in developing and implementing network-based computer systems, such as systems for storing and retrieving information over the Internet or communicating using the Web. A person could also have qualified as a person of ordinary skill in the art with some combination of (1) more formal education (such as a master's of science degree) and less technical experience, or (2) less formal education and more technical or professional experience. I am also informed that, in an earlier *inter partes* review proceeding involving related U.S. Patent No. 8,965,932, Patent Owner proposed the following articulation of the level of ordinary skill in the art:

A person of ordinary skill in the art at the time of the invention would have the equivalent of a four-year degree from an accredited institution

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(usually denoted as a B.S. degree) in computer science, computer engineering or the equivalent, and experience with, or exposure to, topics in computer networking, multimedia, and web systems. A person of ordinary skill in the art would also have approximately 3-5 years of professional experience with these topics. Additional graduate education could substitute for professional experience, while significant experience in the field might substitute for formal education.

For purposes of my analysis, Patent Owner's proposed articulation is not meaningfully different from mine, and therefore my analysis, opinions and conclusions in my Declaration would not change if Patent Owner's articulation were applied.

17. My opinions regarding the level of ordinary skill in the art are based on, among other things, my over 40 years of experience in the field of computer science, my understanding of the basic qualifications that would be relevant to an engineer or scientist tasked with investigating methods and systems in the relevant area, and my familiarity with the backgrounds of colleagues, co-workers, and employees, both past and present.

18. Although my qualifications and experience exceed those of the hypothetical person having ordinary skill in the art defined above, my analysis and opinions regarding the '819 patent have been based on the perspective of a person

of ordinary skill in the art as of September 1996.

III. STATEMENT OF LEGAL PRINCIPLES

A. Claim Construction

19. I understand that a purpose of claim construction is to determine what a person of ordinary skill in the art would have understood the claim terms to mean. Claim terms are generally given their ordinary and customary meaning, which is the meaning that the term would have to a person of ordinary skill in the art in question as of the effective filing date.

20. I understand that the person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification. I understand that the patent specification, under the legal principles, has been described as the single best guide to the meaning of a claim term, and is thus highly relevant to the interpretation of claim terms. And I understand for terms that do not have a customary meaning within the art, the specification usually supplies the best context of understanding the meaning of those terms.

21. I further understand that other claims of the patent in question, both asserted and unasserted, can be valuable sources of information as to the meaning of a claim term. Because the claim terms are normally used consistently throughout

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the patent, the usage of a term in one claim can often illuminate the meaning of the same term in other claims. Differences among claims can also be a useful guide in understanding the meaning of particular claim terms.

22. I understand that the prosecution history can further inform the meaning of the claim language by demonstrating how the inventors understood the invention and whether the inventors limited the invention in the course of prosecution, making the claim scope narrower than it otherwise would be. Extrinsic evidence, such as dictionaries, may also be consulted in construing the claim terms.

23. I understand that, in *Inter Partes* Review (IPR) proceedings, a claim of a patent shall be construed using the same claim construction standard that would be used to construe the claim in a civil action filed in a U.S. district court (which I understand is called the “*Phillips*” claim construction standard), including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.

24. I have been instructed by counsel to apply the “*Phillips*” claim construction standard for purposes of interpreting the claims in this proceeding, to the extent they require an explicit construction. The description of the legal principles set forth above thus provides my understanding of the “*Phillips*” standard

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as provided to me by counsel.

25. I understand that certain terms appearing in the challenged claims have been the subject of district court claim constructions in previous litigations (involving related U.S. Patent No. 7,155,451 B1 (“’451 patent”), which shares a near-verbatim written description with the ’819 patent) involving Apple Inc. and Microsoft Corporation. I have reviewed a document called “**Claim Construction**,” dated June 28, 2013, which states that it is a claim construction order from the District of Delaware issued in *Robocast, Inc. v. Microsoft Corp.*, No. 10-1055 RGA and *Robocast, Inc. v. Apple Inc.*, No. 11-235 RGA, which provides constructions for various terms recited in the challenged patents. I will identify those constructions in my analysis in **Part V** below. For purposes of my analysis here, I do not believe express claim constructions are necessary because the prior art renders the claims obvious under the claim constructions adopted by the district court or any other reasonable construction.

B. Obviousness

26. I understand that a patent claim is obvious if, as of the effective filing date, it would have been obvious to a person having ordinary skill in the field of the technology (the “art”) to which the claimed subject matter belongs.

27. I understand that the following factors should be considered in

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analyzing obviousness: (1) the scope and content of the prior art; (2) the differences between the prior art and the claims; and (3) the level of ordinary skill in the pertinent art. I also understand that certain other facts known as “secondary considerations” such as commercial success, unexplained results, long felt but unsolved need, industry acclaim, simultaneous invention, copying by others, skepticism by experts in the field, and failure of others may be utilized as indicia of nonobviousness. I understand, however, that secondary considerations should be connected, or have a “nexus,” with the invention claimed in the patent at issue.

28. I understand that a reference qualifies as prior art for obviousness purposes when it is analogous to the claimed invention. The test for determining what art is analogous is: (1) whether the art is from the same field of endeavor, regardless of the problem addressed, and (2) if the reference is not within the field of the inventor’s endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved.

29. I understand that a person of ordinary skill in the art is assumed to have knowledge of all prior art. I understand that one skilled in the art can combine various prior art references based on the teachings of those prior art references, the general knowledge present in the art, or common sense. I understand that a motivation to combine references may be implicit in the prior art, and there is no

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requirement that there be an actual or explicit teaching to combine two references. Thus, one may take into account the inferences and creative steps that a person of ordinary skill in the art would employ to combine the known elements in the prior art in the manner claimed by the patent at issue. I understand that one should avoid “hindsight bias” and ex post reasoning in performing an obviousness analysis. But this does not mean that a person of ordinary skill in the art for purposes of the obviousness inquiry does not have recourse to common sense.

30. I understand that when determining whether a patent claim is obvious in light of the prior art, neither the particular motivation for the patent nor the stated purpose of the patentee is controlling. The primary inquiry has to do with the objective reach of the claims, and that if those claims extend to something that is obvious, then the entire patent claim is invalid.

31. I understand one way that a patent can be found obvious is if there existed at the time of the invention a known problem for which there was an obvious solution encompassed by the patent’s claims. I understand that a motivation to combine various prior art references to solve a particular problem may come from a variety of sources, including market demand or scientific literature. I understand that a need or problem known in the field at the time of the invention can also provide a reason to combine prior art references and render a patent claim invalid for

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obviousness. I understand that familiar items may have obvious uses beyond their primary purpose, and that a person of ordinary skill in the art will be able to fit the teachings of multiple prior art references together like the pieces of a puzzle. I understand that a person of ordinary skill is also a person of at least ordinary creativity. I understand when there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this finite number of predictable solutions leads to the anticipated success, I understand that the invention is likely the product of ordinary skill and common sense, and not of any sort of innovation. I understand that the fact that a combination was obvious to try might also show that it was obvious, and hence invalid, under the patent laws. I understand that if a patent claims a combination of familiar elements according to known methods, the combination is likely to be obvious when it does not more than yield predictable results. Thus, if a person of ordinary skill in the art can implement a predictable variation, an invention is likely obvious. I understand that combining embodiments disclosed near each other in a prior art reference would not ordinarily require a leap of inventiveness.

32. I understand that obviousness may be shown by demonstrating that it would have been obvious to modify what is taught in a single piece of prior art to

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create the patented invention. Obviousness may also be shown by demonstrating that it would have been obvious to combine the teachings of more than one item of prior art. I understand that a claimed invention may be obvious if some teaching, suggestion, or motivation exists that would have led a person of ordinary skill in the art to combine the invalidating references. I also understand that this suggestion or motivation may come from the knowledge of a person having ordinary skill in the art, or from sources such as explicit statements in the prior art. I understand that when there is a design need or market pressure, and there are a finite number of predictable solutions, a person of ordinary skill may be motivated to apply common sense and his skill to combine the known options in order to solve the problem.

33. I understand the following are examples of approaches and rationales that may be considered in determining whether a piece of prior art could have been combined with other prior art or with other information within the knowledge of a person having ordinary skill in the art:

- (1) Some teaching, motivation, or suggestion in the prior art that would have led a person of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention;
- (2) Known work in one field of endeavor may prompt variations of it for use in the same field or a different field based on design incentives or other

market forces if the variations would have been predictable to a person of ordinary skill in the art;

(3) Combining prior art elements according to known methods to yield predictable results;

(4) Applying a known technique to a known device, method, or product ready for improvement to yield predictable results;

(5) Applying a technique or approach that would have been “obvious to try” (choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success);

(6) Simple substitution of one known element for another to obtain predictable results; or

(7) Use of a known technique to improve similar products, devices, or methods in the same way.

34. I understand that, when determining whether a claimed combination is obvious, the correct analysis is not whether one of ordinary skill in the art, writing on a blank slate, would have chosen the particular combination of elements described in the claim. Instead, I understand the correct analysis considers whether one of ordinary skill, facing the wide range of needs created by developments in the field of endeavor, would have seen a benefit to selecting the combination claimed.

35. I understand that the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference. The test for obviousness, in other words, is not whether the references could be physically combined but whether the claimed inventions are rendered obvious by the teachings of the prior art as a whole.

IV. THE '819 PATENT

A. Overview of the Specification

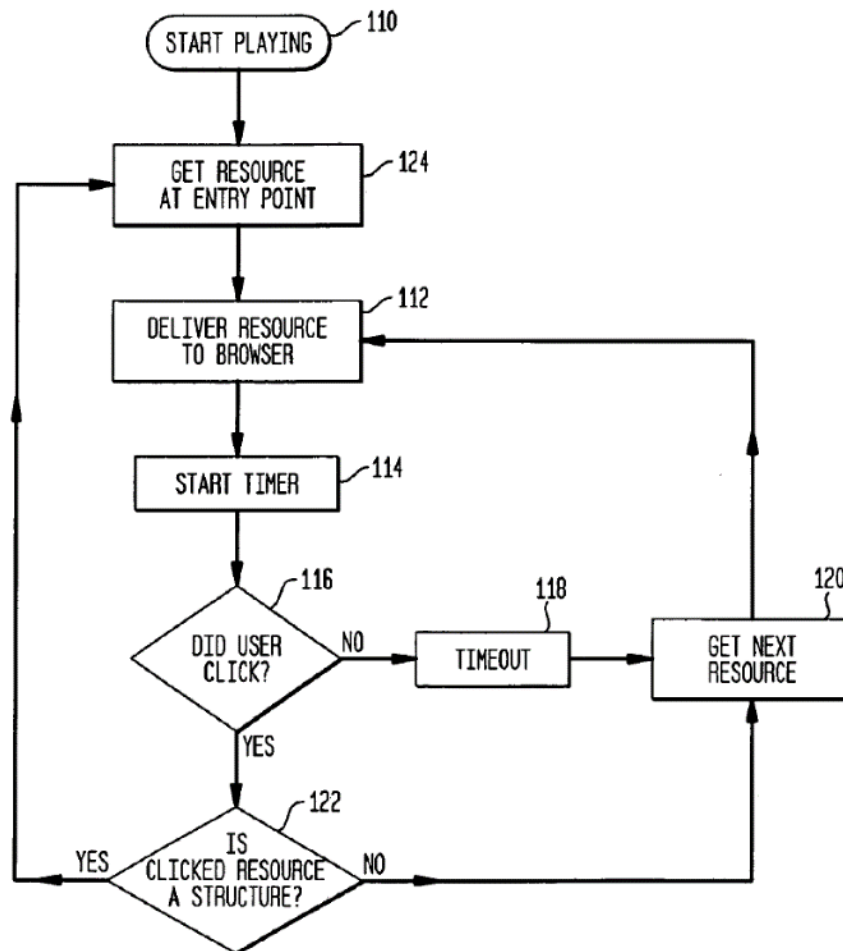
36. The '819 patent, entitled “Automated Content Scheduler and Displayer,” states that it generally relates to “computer networks, and specifically to a method of sequencing and scheduling web pages, via a suite of software applications.” ('819, 1:23-25.)

37. The '819 patent acknowledges that the Internet was already well-known and had “grown tremendously” with the popularization of the World Wide Web. ('819, 1:29-32.) The patent explains that various technology standards relating to the Web were popularized including Hypertext Transfer Protocol (“HTTP”), Hypertext Markup Language (“HTML”) and Uniform Resource Locators (“URLs”). ('819, 1:41-44.) Using these and other technologies, the patent states that web browser software provided an environment that “proved to be very popular” and led to the web’s “mass adoption.” ('819, 1:63-66.) The patent further

acknowledges known web technologies for a user to automatically receive personalized information updates both by selecting content sources from a list and by using collected user interest profiles. ('819, 2:17-22, 2:30-37.)

38. The '819 patent describes methods for a user to be automatically presented with content of a series of resources, such as web pages, using what the patent calls a “show structure.” ('819, 2:59-63.) A “show structure” contains a set of nodes, each node “represent[ing] a resource such as a web page, an executable file, or a data file stored at a predetermined location and accessed via its corresponding address.” ('819, 2:61-65.) Each node includes both an address from which the content may be accessed and an indication of the duration for which the content will be presented. ('819, 3:30-35.) A show structure defines one or more paths through the set of nodes. ('819, 3:10-11.) Figure 4 of the '819 patent, reproduced below, outlines how a user may either “on-the-fly” interactively navigate the arrangement of resources specified by the show structure (*e.g.*, steps 116 and 122) or, much like traditional broadcast television or an automatic slideshow, “simply watch[] a series of pre-edited resources” (*e.g.*, steps 114-118):

FIG. 4
RoboSurf



(’819, Fig. 4; *see also id.*, 3:16-22, 11:5-36.) The ’819 patent explains that a show structure itself can be generated in a number of ways, including manually by a user collecting URLs, or automatically in connection with providing results to a user’s search query. (’819, 8:24-28, 11:61-12:3.) I discuss additional aspects of the ’819 patent in my analysis of the claims below.

B. The Challenged Claims

39. This Declaration addresses claims 1-23 and 25-30 of the '819 patent.

Independent claim 1 is representative and recites:

1. A method for providing content via a communications network on a user's computer, obtained from a plurality of resources in an organized arrangement comprising the steps of:
 - [a] creating a show structure of nodes, each node identifying a resource from a plurality of accessible resources, at least some of which are network accessible resources;
 - [b] without requiring user input, automatically accessing a plurality of said network accessible resources identified by a corresponding node;
 - [c] causing content corresponding to each of said accessed resources to be automatically accessed and presented through said user's computer in accordance with said show structure such that during said presentation of at least some of said content from said accessed resources, at least some of said other network accessible resources are being accessed,
 - [d] wherein said step of creating further comprises the step of providing interactively variable duration information, representing the duration that said content corresponding to said accessed resource is presented so as to enable a user to vary said duration; and
 - [e] causing advertisement content to be presented to said user in connection

with said automatic presentation of said content through said user's computer.

('819, 17:43-67 (Claim 1; bracketed notation (e.g., [a]) added).)

40. I address the claims further in my detailed analysis in **Part V** below.

V. APPLICATION OF THE PRIOR ART TO CHALLENGED CLAIMS

41. I have reviewed and analyzed the prior art references and materials listed in **Part I.B** above. In my opinion the claims of the '819 patent would have been obvious to a person of ordinary skill in the art based on the following combinations of the prior art.

Ground	Claims	Basis for Challenge Under § 103
1	1-15, 23, 25-28	Shimizu, Fox, Benedict, Wolfe, Filepp
2	16-22	Shimizu, Fox, Benedict, Wolfe, Filepp, Guinan
3	22	Ground 2 Prior Art with Robertson
4	13, 29	Ground 1 Prior Art with Rakavy
5	30	Ground 1 Prior Art with Reilly

42. I am informed by counsel that each of the references cited in the grounds above qualifies as prior art to the challenged claims because each reference was filed and/or published before the earliest filing date of the '819 patent (September 3, 1996).

A. Brief Summary of Prior Art

1. References Common to All Grounds

(a) Shimizu (EX1003)

43. **Shimizu**, U.S. Patent No. 6,534,062, is entitled “System for Managing Hypertext Node Information and Link Information.” I am informed that Shimizu qualifies as prior art because it was filed on October 20, 1994, which is before the earliest priority date of the challenged claims.

44. As its title indicates, Shimizu discloses a system for managing information about nodes and links in a “hypertext” system. “Hypertext” generally refers to a way of organizing and presenting information in which information is presented with links or references (commonly referred to as “hyperlinks”) to other information. Shimizu explains that “[h]ypertext apparatuses were first developed as a system capable of holding information in units called nodes, of displaying character information held by the nodes, and of linking a plurality of nodes as desired.” (Shimizu, 1:17-20.) As Shimizu observes, although **hypertext** systems could present textual information, they also supported many other types of information such as images, sounds, and motion pictures. (Shimizu, 1:23-29.)

45. Hypertext systems were well-known since at least the 1980s and, by the priority date, were exceedingly popular. An early example of a well-known and

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commercially available hypertext-based system was “HyperCard” from Apple Computer, Inc., which allowed users to organize information into virtual “stacks” of “cards,” which could be hyperlinked. Another example of a “hypertext” system common by the mid-1990s – and no doubt the most widely known example by the priority date – was the World Wide Web. The Web provides an example of a hypertext system because web pages can present text, graphics, and/or other types of information and can include hyperlinks to other pages. (Fox, EX1005, pp.8-10 (describing the Web as an example of a hypertext system).)

46. Figure 1 of Shimizu depicts an exemplary hypertext system with a number of nodes and links:

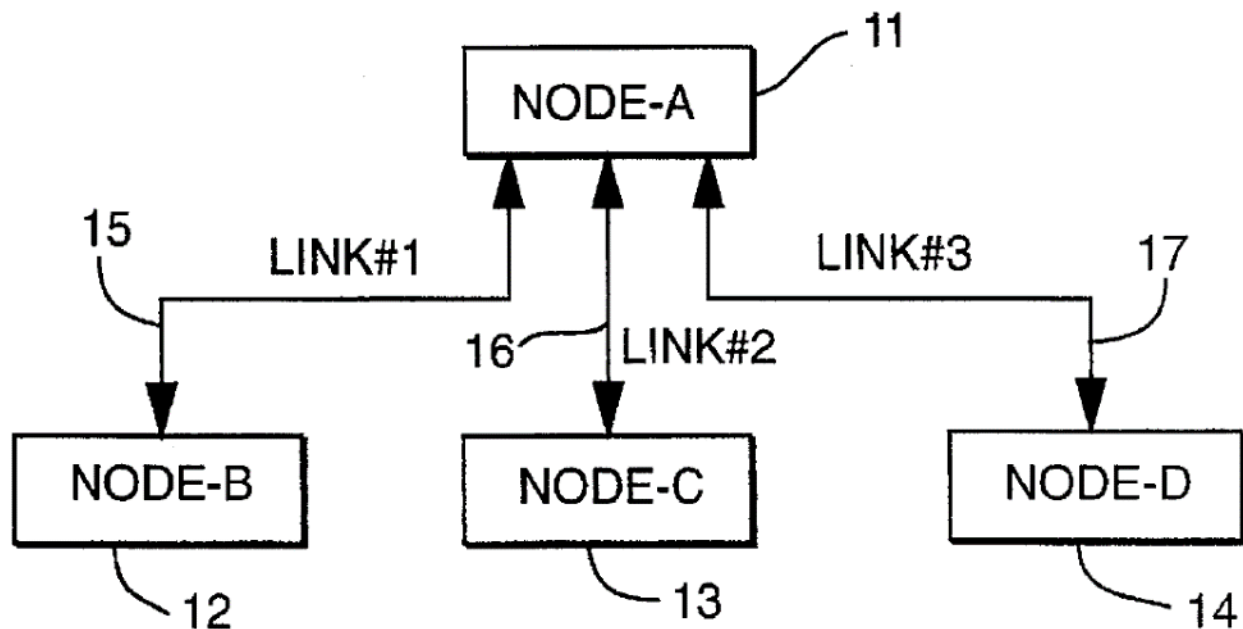


FIG. 1

(Shimizu, Fig. 1.) The hypertext arrangement depicted in Figure 1 shows Node-A through Node-D (11, 12, 13, and 14) and links 15, 16, and 17. Node-A 11 has three links 15, 16, and 17 to Node-B, Node-C, and Node-D, respectively. (Shimizu, 1:56-60.) “Link information is held by each node.” (Shimizu, 1:61.) “In the example above, the access from node A 11 is made first to node B 12 then to node C 13 and to node D 14, in the order in which the first link information 21 (link #1), second link information 22 (link #2), and third link information 23 (link #3) are read out consecutively.” (Shimizu, 2:21-26.)

47. Shimizu focuses on techniques for managing and keeping track, in a

hypertext system, of (a) node information and (b) link information. (Shimizu, 1:8-15.) Node information can include “not only characters but also monochromatic and color images, sounds and motion pictures.” (Shimizu, 1:23-28.) Two key components of Shimizu, for purposes of my analysis, are node information management part 5 and link information management part 6 shown in Figure 10:

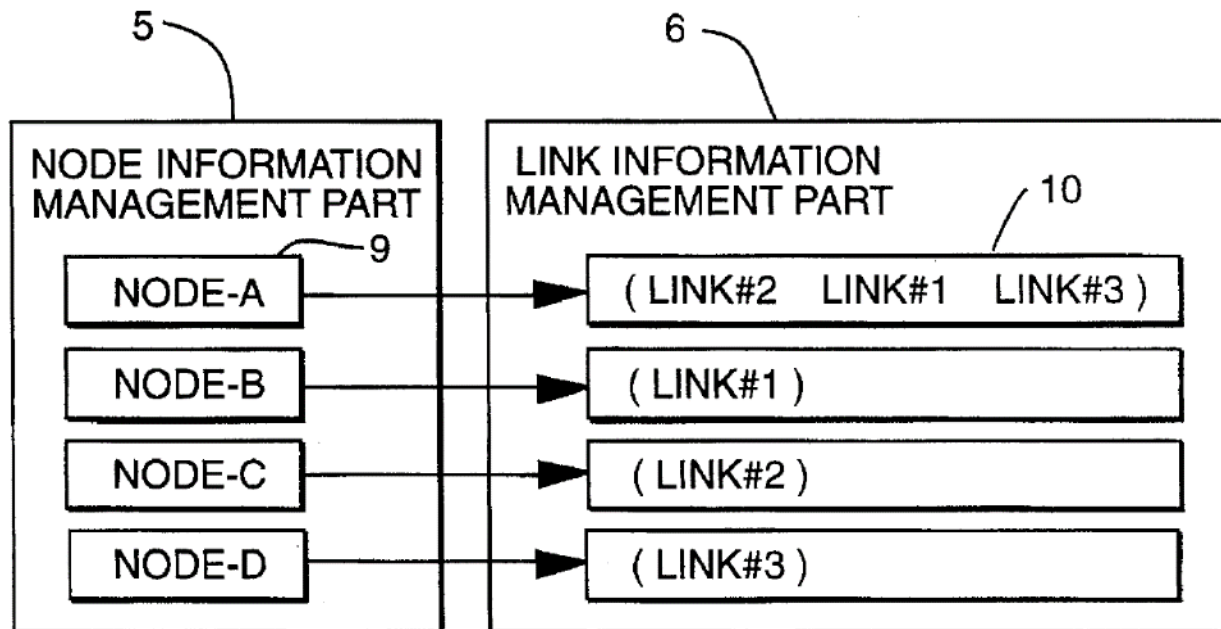


FIG. 10

(Shimizu, Fig. 10.) Node information management part 5, shown on the left above, “manages a plurality of node information structures holding the information about each node.” (Shimizu, 6:31-33.) Node information management part 5 manages node information structures for each node, each structure specifying information about the node. Figure 6 shows an exemplary node information structure 9:

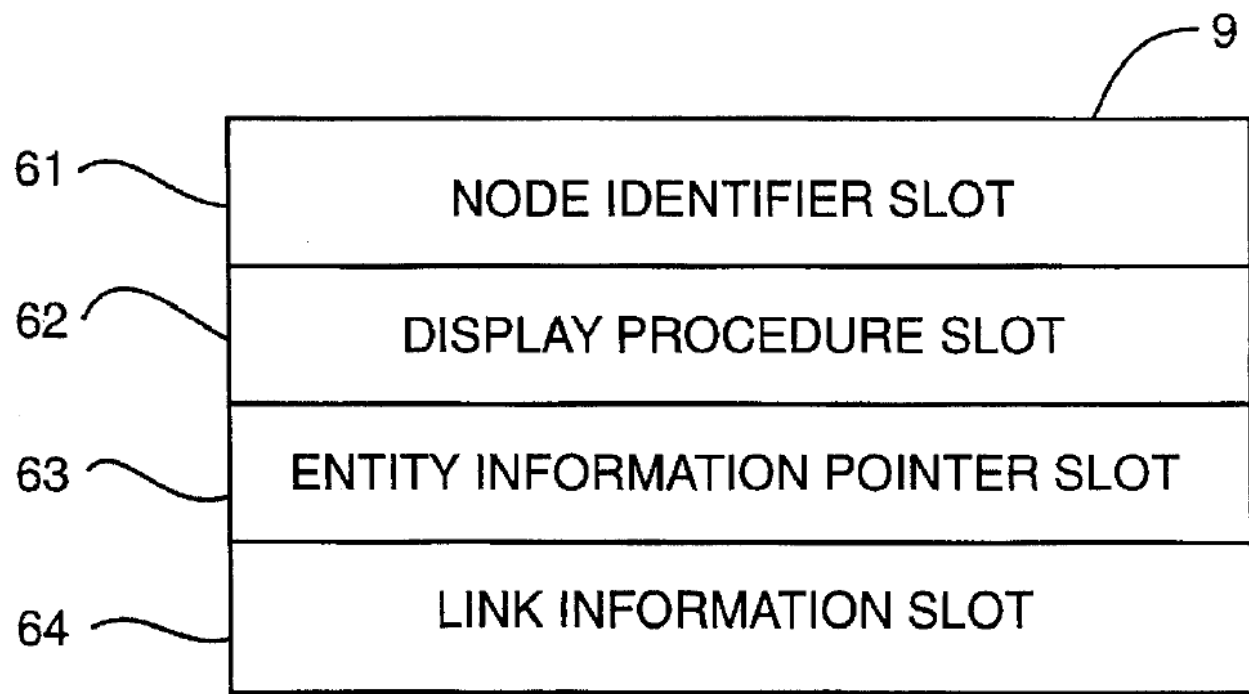


FIG. 6

(Shimizu, Fig. 6.) Node information structure 9 holds a number of members including, as shown, node identifier slot 61, display procedure slot 62, entity information pointer slot 63, and link information slow 64. As Shimizu explains:

The node identifier slot 61 is used to identify uniquely this node information structure within the system. The display procedure slot 62 retains the pointer pointing to a procedure program function used when the node in question is to be displayed on the screen. The entity information pointer slot 63 retains the pointer pointing to the entity information to be displayed by the node in question. The entity information thus pointed to may be a character string, image

information, motion pictures or sounds. The link information slot **64** retains, in a list format data constitution, the pointer pointing to the link information structure for holding the link information.

(Shimizu, 6:50-62.)

48. Figure 10 above also shows, on the right, link information management part **6**, which “manages a plurality of link information structures defining the relations between the nodes.” (Shimizu, 6:33-35.) As its name implies, the link information structure specifies information about a link associated with a node. Figure 7 shows a “link information structure managed by the link information management part **6**.”

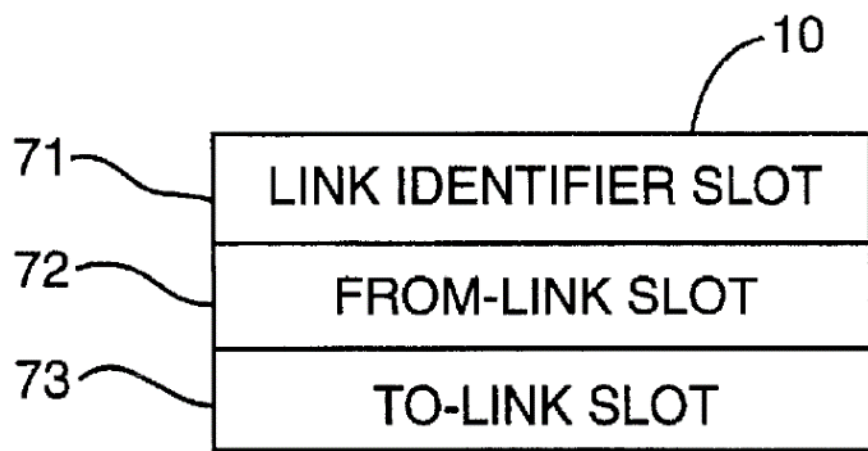


FIG. 7

(Shimizu, Fig. 7.) Link information structure **10** as shown in Figure 7 includes a

link identifier slot **71**, a from-link slot **72**, and a to-link slot **73**. Shimizu explains:

The link identifier slot **71** is used to identify uniquely this link information structure within the system. The from-link slot **72** retains the pointer pointing to the node information structure of, say, the node A when a link is set illustratively to link the node A to the node B. The to-link slot **73** retains the pointer pointing to the node information structure of the node B when, as in the example above, a link is set to link the node A to the node B.

(Shimizu, 7:1-9.)

49. Shimizu goes on to explain how the system uses the node and link information structures discussed above to present the nodes to the user in a particular order as indicated by the link information. Figure 8 shows a user interface screen for presenting node content to the user:

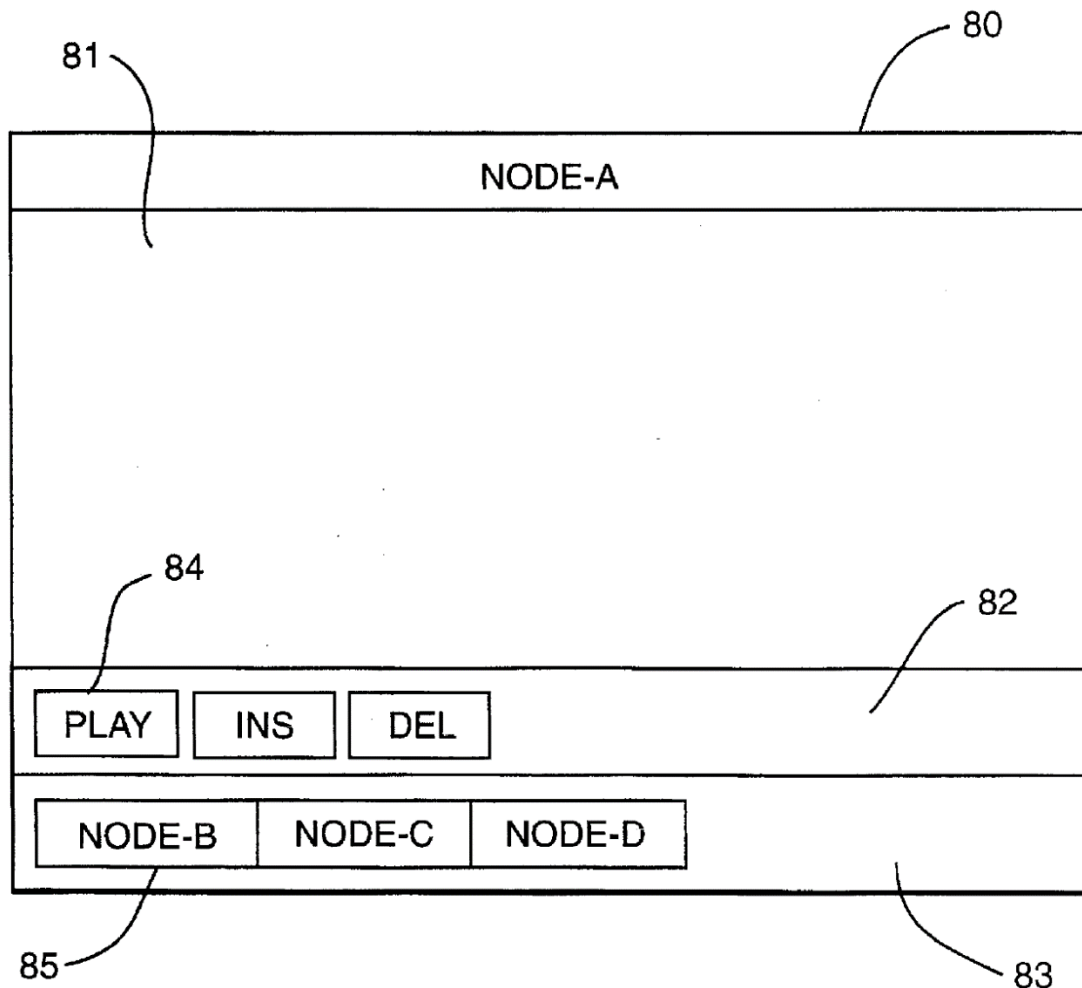


FIG. 8

(Shimizu, Fig. 8, 7:12-14 (“FIG. 8 is a view of a typical user interface screen display provided by an application program running on the embodiment.”).) When the user presses PLAY in Figure 8 (one of buttons **84**), the content associated with the current node (in this case NODE-A) is displayed in area **81** of window **80**. (Shimizu, 8:11-25, 8:49-59.) Figure 8 also includes display area **83** that “displays, in a left-justified manner and according to the link information order, icons **85** representing each of

the nodes linked starting from the current node.” (Shimizu, 7:30-33.) The node content displayed to the user, as mentioned, can include textual character strings, images, sounds, and motion pictures. (Shimizu, 8:52-59.)

50. Shimizu further discloses that node content is accessed and presented on the user’s computer in a continuous sequential fashion, one node after another, without requiring any input from the user beyond an initial click of the PLAY button. “The contents of the linked nodes are displayed in the order set by the link information.” (Shimizu, 8:15-16; *see also id.*, 8:67-9:4 (“In step **105** [of Figure 11], the next node information is reproduced in accordance with the next link information. The processing above is carried out so that the node C Is displayed followed by node B and node D, in accordance with the order of the link information.”).)² As Shimizu further explains, nodes can be displayed and switching to the next node can occur at predetermined intervals:

As described, the hypertext apparatus of the invention offers a user interface capable of putting into a desired order the links between the nodes to be managed and of manipulating the established link order. This makes it easy to create illustratively an application program

² Unless otherwise noted, all underlining appearing in quotes from prior art references was added for emphasis.

allowing the display of node contents to be switched in a desired order
and at predetermined intervals on the hypertext apparatus.

(Shimizu, 9:60-66.) I will provide more information about Shimizu in my discussion
of the claim limitations below.

(b) Benedict (EX1006)

51. **Benedict** is a book entitled *Using Harvard Graphics Version 2 for Windows*. I am informed that Benedict qualifies as prior art because it was published before the earliest priority date of the challenged claims.

52. Benedict describes a software program known as Harvard Graphics that provided functionality similar, in some respects, to well-known business presentation programs such as Microsoft PowerPoint. (Benedict, p.1 (“Harvard Graphics for Windows is a program designed for creating business presentations.”).) Harvard Graphics allowed users to create a “presentation” that included a series of slides. (Benedict, p.24 (“A *presentation* is a collection of slides stored in computer memory in a file on your hard disk.”) (italics in original).)

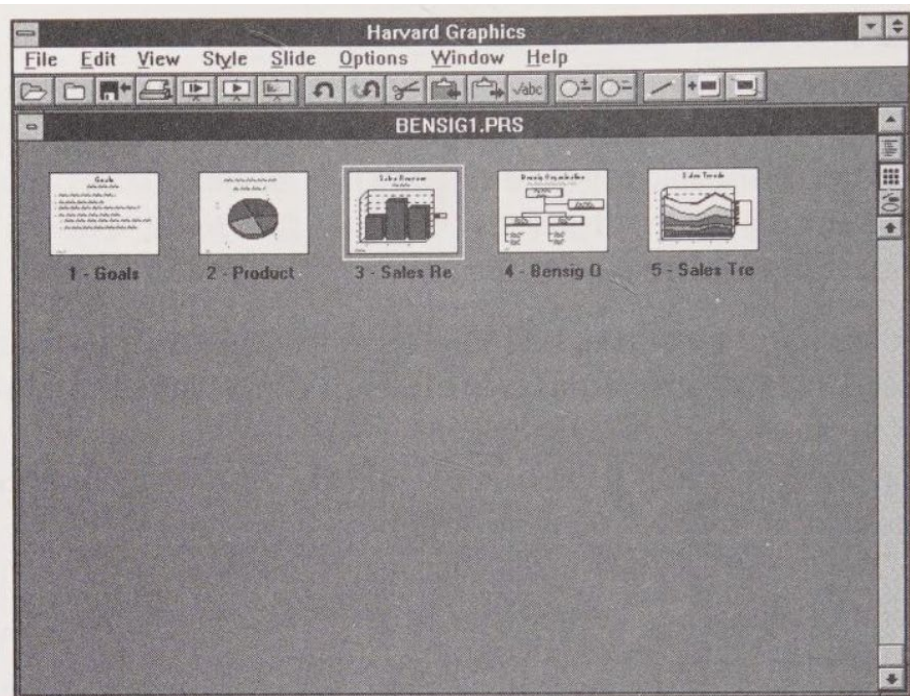
53. Benedict also discloses features for viewing a presentation (referred to as a “ScreenShow”), for example, by displaying slides in a specified sequential order. “As you create and enhance presentations, you can use the ScreenShow feature to evaluate your work. ScreenShows are on-screen presentations in which

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the program displays each slide in order.” (Benedict, p.19.) Benedict further discloses a feature known as “HyperShows” in which slides in a ScreenShow can include hypertext-like links allowing the user to jump to other slides in the ScreenShow via on-screen hyperlinks. (Benedict, pp.442-453.)

54. Benedict describes a number of features for creating presentations, including adding new slides and specifying their content. (Benedict, pp.32-42.) Benedict also describes a “Slide Sorter” feature that displays icons for each slide in the presentation and allows the user to manipulate the order in which they will appear in the presentation:

Fig. 2.18
The Slide Sorter
window.



(Benedict, p.44, Fig. 2.18; *see also id.*, p.43 (“Figure 2.18 shows the Slide Sorter

displaying five slides. The Slide Sorter represents these slides as scaled down images.”).) The exemplary presentation above in Figure 2.18 includes five numbered and ordered slides (e.g., “1 - Goals,” “2 - Product,” “3 - Sales Revenue,” etc.). The user can reorder slides in a presentation by simply clicking on a slide with its mouse and dragging the slide to a new position. (Benedict, p.44.) “When you release the mouse button, the slide appears in its new location, and the other slides adjust to make room for the relocated slide.” (Benedict, p.44.)

55. Benedict discloses additional features (known as “ScreenShow Effects”) that allow the user to customize the display of the presentation. (Benedict, pp.438-442.) As shown in Figure 17.1 of Benedict, one of these ScreenShow Effects features allows the user to specify how long a particular slide in a presentation will be displayed before moving to the next slide:

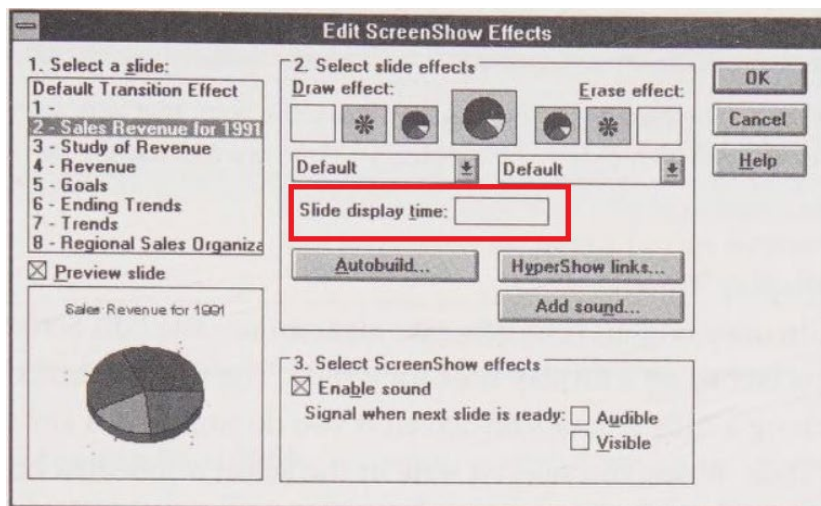


Fig. 17.1
The Edit
ScreenShow
Effects dialog box.

(Benedict, p.439, Fig. 17.1 (red box added).) The portion in the red box, as shown

above, allows the user to specify how long the selected slide will be displayed:

The display time determines how long a slide remains on-screen if you do not press a key to move to the next slide...

The default for the time is blank because Harvard Graphics continues to display the slide until you press a key. You can set a display time, however, by typing a time in the Slide display time: text box. You can enter the time in seconds or in minutes and seconds separated by a colon. Entering 23, for example, sets the display time to 23 seconds; entering 1:30 sets the display time to 1 minute and 30 seconds.

(Benedict, p.440 (*italics in original*).) Benedict explains that, using this feature, the user can create “self-running” presentations in which slides advance automatically after a specified period, without requiring user action:

Creating Self-Running Presentations

Self-running presentations automate your ScreenShow by displaying the slides for a specified length of time before the next slide appears—pressing a key is not necessary. At the end of the presentation, a HyperShow link causes the ScreenShow to start over from the beginning. The presentation continues until you press the Escape key. To create a self-running presentation, you must set the display time for the slides and create the link that begins the presentation again.

(Benedict, p.453 (**boldface in original**).)

56. I will provide more details about Benedict in my discussion of the claim

limitations below.

(c) Fox (EX1005)

57. **Fox** is a book entitled *HTML Web Publisher's Construction Kit*. I am informed that Fox qualifies as prior art because it was published before the earliest priority date of the challenged claims.

58. Fox covers a number of topics relating to the World Wide Web and how it works, including how to navigate the Web using Internet web browsers and how to create customized websites. (Fox, pp.xxiv-xxv.) Fox explains that, as is well-known today, “[a] Web page can be anything you imagine it to be: a hypertext document, graphics, sound, animation, tabular data, software files, a discussion group, a search index, a specialized program, and more.” (Fox, p.8; *see also id.*, p.9 (“The World Wide Web uses hypertext to link all its pages together.”).) Fox explains, as was well-known to ordinarily skilled artisans, that each resource on the web is identified by a Uniform Resource Locator (URL). (Fox, p.13; *see also id.*, pp.326-327 (describing IMG tag for identifying an image file).)

59. My Declaration relies on Fox primarily to demonstrate that it would have been obvious to implement the hypertext system described in Shimizu, along with the additional features of Benedict upon which I rely in this Declaration, in the form of a web-based hypertext application. For example, Fox confirms that web-

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based techniques can be used to create sequential presentations akin to a slide show, similar to Shimizu and Harvard Graphics. For example, Fox discloses a technique in which a web page, after a specified amount of time, can cause the web browser to “refresh” and load another web page, which can be used to create slide show-type presentations of web content:

To load up a different document after a set amount of seconds, simply specify a full URL using the URL attribute. For example, to load the page at *http://www.smartpants.edu/sample.html*, after a minute, use the following markup as the first line of your HTML document:

```
<META HTTP-EQUIV="Refresh" CONTENT=60  
URL= http://www.smartpants.edu/sample.html>
```

You can use this trick to flip between two documents, animate a sequence of images, or create an automatic slide show of many Web pages.

(Fox, p.316 (italics in original; underlining added).) The concept of “refreshing” a web page was well-known to those familiar with web browsers, and was a common feature of many websites. Refreshing was commonly used to load an updated version of the *currently displayed* web page, but as shown above, the <META> tag used for this feature can specify the URL of any web page, including a different web page. In the example from Fox above, the <META> tag tells the web browser to “refresh” after 60 seconds by switching to a different web page located at

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<http://www.smartpants.edu/sample.html>. I will provide more detail about Fox in my discussion of the claim limitations below.

(d) Wolfe (EX1014)

60. **Wolfe**, U.S. Patent No. 5,715,445, is entitled “Document Retrieval System Employing a Preloading Procedure.” I am informed that Wolfe qualifies as prior art because it states on its face that it was filed on June 7, 1995 (claiming priority as a continuation to an application filed September 2, 1994), before the earliest priority date of the challenged claims.

61. My Declaration relies on Wolfe for limitations of the challenged independent claims reciting the ability to access resources while other resources are being presented. Claim 1, for example, recites “**during said presentation of at least some of said content from said accessed resources, at least some of said other network accessible resources are being accessed.**”

62. This claimed feature recites nothing more than a well-known technique, commonly referred to as “pre-fetching” or “pre-loading,” in which a computer fetches or loads data *before* the point in time when the data is actually needed. When the computer *later* needs that requested data, it can utilize it immediately because it has already been fetched or loaded.

63. Pre-loading was a commonly used technique for reducing delays

associated with presenting information to a user. For example, Benedict discloses a feature in which Harvard Graphics can prepare for the display of a subsequent slide during the display of a current slide, and notify the user when the next slide is ready for display:

Signalling [sic] for the Next Slide. Depending on the power and speed of your computer, Harvard Graphics may need time to prepare the next slide in the presentation before displaying it. The Signal when next slide is ready: options in the Edit ScreenShow Effects dialog box enable you to activate an audible signal (a beep) and visual signal (a small arrow in the bottom right corner of your screen) to indicate when the next slide is ready.

(Benedict, p.441 (boldface in original).) Benedict confirms that “Harvard Graphics may need time to prepare the next slide in the presentation before displaying it” (*id.*), but by preparing the next slide during the time the user is viewing the current slide, the next slide can be displayed when needed without unnecessary delay.

64. In my opinion, as I will explained below, Benedict renders obvious claim limitations reciting that “**during said presentation of at least some of said content from said accessed resources, at least some of said other network accessible resources are being accessed,**” because during the presentation of the content resources of a current slide, the resources in at least a subsequent slide are

being accessed in order to “prepare the next slide in the presentation before displaying it.” (Benedict, p.441.) But Benedict does not disclose its internal details about how the next slide pre-loading technique works, and for this reason, I have also cited to **Wolfe**, which discloses a system for pre-loading information while the user is viewing other information.

65. Wolfe explains that a set of documents can be identified for the user, for example, by using the results of a search query. (Wolfe, 1:53-57 (“Whatever querying technique is used, a search engine uses the query [to] define a class of documents within the database, and locates each of the documents within the class. The user then browses the search results by ‘paging through’ one or more of the search documents.”).) Wolfe laments that “today’s database systems are plagued by the problem of slow document retrieval.” As Wolfe explains:

Consequently, today’s database systems are plagued by the problem of slow document retrieval. After a query is processed and search documents are identified, the user begins browsing the search results by studying the first view (or screen of information) from one of the search documents. The user then either “pages-down” to the next view within the same document, or moves to another search document. Each of these moves requires that new information be retrieved from the database before it can be displayed on the screen. Since the retrieval time is substantial... the database system is slow in responding to the

user's request for the information.

(Wolfe, 2:1-12.) Wolfe addresses this issue through a preloading technique in which, while the user views certain information, other information the user will likely to need at a later point is loaded:

This need can be satisfied by effectively utilizing the time the user spends studying the information on the display screen. In a database system (or document retrieval system) in one embodiment of the present invention, information that the user is likely to eventually request is preloaded into memory while the user is viewing other information. The present invention takes advantage of the fact that it is possible to accurately predict the information that the user will eventually request be shown on the display. The present invention also takes advantage of the fact that the time that the user spends viewing displayed information is often sufficient to advantageously preload a substantial amount of information.

(Wolfe, 2:23-35.) Although an exemplary embodiment in Wolfe involves an on-line legal database, Wolfe makes clear that his techniques are broadly applicable to any type of documents that can be retrieved and presented to the user. (Wolfe, 4:20-23 (“But a ‘document’ need not only be text—it could be a picture, video clip, or information in another format, such as might be available in a multimedia encyclopedia.”).) Wolfe also makes clear that his techniques are applicable to both

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single-user databases as well as networked databases accessible by multiple users simultaneously. (Wolfe, 3:60-4:8.)

66. As I will explain below, Wolfe explains that preloading is particularly appropriate in a scenario in which the system can predict what information the user will subsequently require. (Wolfe, 2:23-35.) The systems of Shimizu and Benedict clearly present such a scenario, as explained, because nodes are presented to the user in a predetermined (and thus predictable) sequence based on the link information. Wolfe thus provides a clear advantage in the sense that, during the duration between sequential nodes when the user is reviewing the content, the system can prepare for the display of the next node. I will provide more detail about Wolfe in my discussion of the claim limitations below.

(e) Filepp (EX1007)

67. **Filepp**, U.S. Patent No. 5,347,632, is entitled “Reception System for an Interactive Computer Network and Method of Operation.” I am informed that Filepp qualifies as prior art because it was filed on July 28, 1989 and issued on September 13, 1994, before the earliest priority date of the challenged claims.

68. My Declaration cites Filepp primarily for limitations of certain claims reciting display of “**advertisement content**” (claims 1, 16, 23), a “**persistent content window**” (claims 5, 23), and displaying “**targeted**” advertising and

advertising content in accordance with “**a user’s profile**” (claims 8, 26-27). Filepp discloses an “interactive computer system that enables a user to display desired information, such as news, financial and cultural information, and perform desired transactional services, such as banking and shopping, through any of a plurality of types of personal computers.” (Filepp, Abstract.) Filepp was originally assigned to Prodigy Services Company, an early provider of interactive on-line services that competed with companies such as America Online (AOL) before widespread adoption of the Web.

69. The interactive system in Filepp displays “pages” to the user, with each page divided into a series of partitions as shown in Figure 3a:

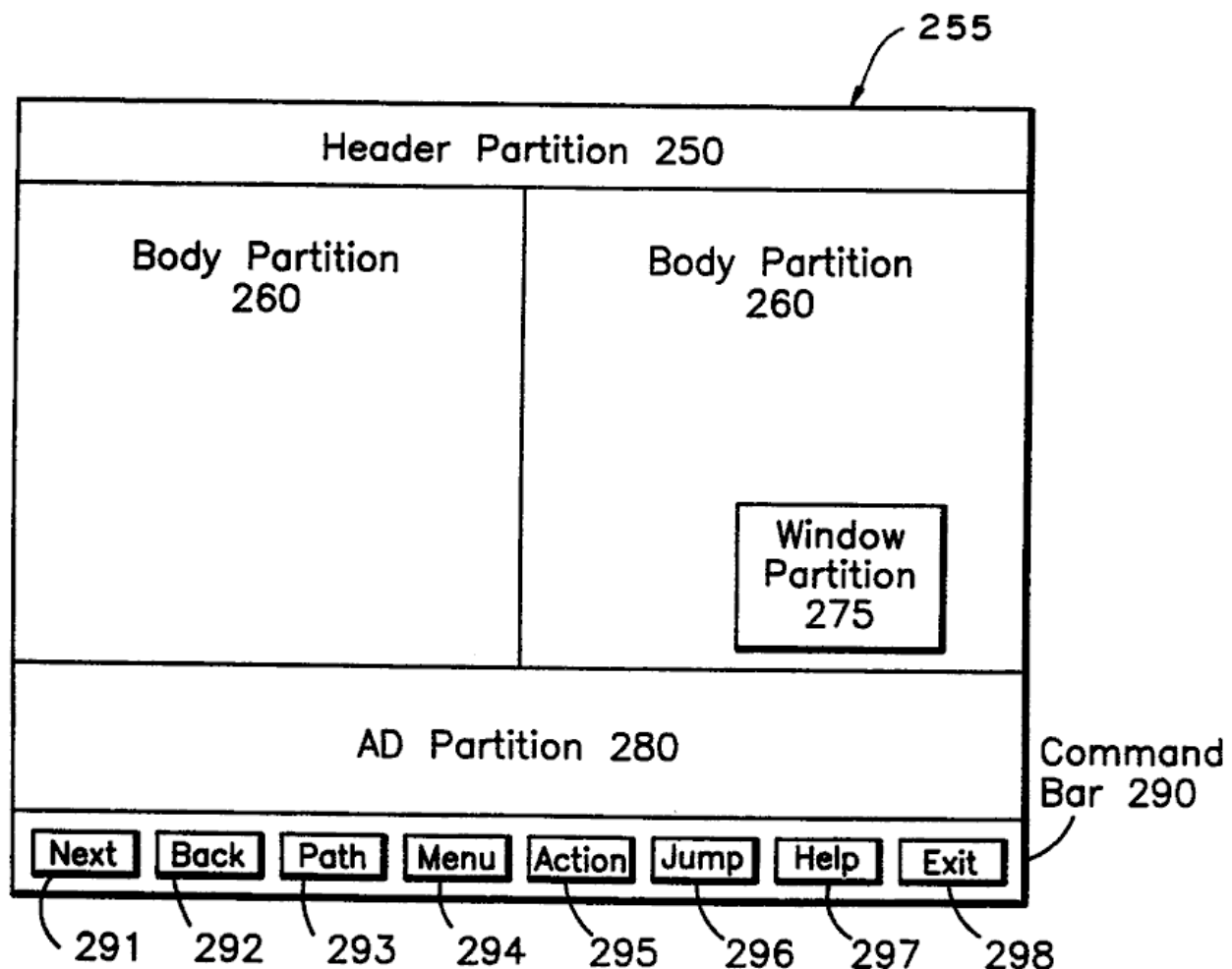


FIG. 3a

(Filepp, Fig. 3a.) “With reference to FIG. 3a, each page **255** is formatted into page partitions **250**, **260**, **280**, and **290** (not to be confused with applications partitions).”

(Filepp, 8:68-9:3.) Header partition **250** “typically conveys information on the page’s topic or sponsor,” and body partitions **260** and window partition **275** “gives the information and transactional content of the page.” (Filepp, 9:10-16.) AD

partition **280**, as its name implies, displays advertisements provided over the network. (Filepp, 9:27-30, 9:30-34 (“Advertisements **280** may be presented to the user on an individual basis from queues of advertisements that are constructed off-line by business system **130**, and sent to file server **205** where they are accessible to each RS **400**.”), 12:64-66.) AD partition **280** provides an example of a “**persistent content window**” because it provides a persistent window on the screen devoted to the display of a particular type of content (*i.e.* advertising).

70. With respect to the particular advertisements that can be displayed to the user, they may be selected based on user profile information such as information about the user’s past activities or its demographic information, ZIP code, etc.:

Individual queues of advertisements are constructed based upon data collected on the partitioned applications that were accessed by a user, and upon events the user generated in response to applications. The data are collected and reported by RS **400** to a data collection co-application in file server **205** for later transmission to business system **130**. In addition to application access and use characteristics, a variety of other parameters, such as user demographics or postal ZIP code, may be used as targeting criteria. From such data, queues of advertisements are constructed and targeted to either individual users or to sets of users who fall into certain groups according [sic; to] such parameters.

(Filepp, 9:35-47.) I will provide more information about Filepp in my discussion of

the claim limitations below.

2. Additional References

(a) Guinan (EX1008)

71. **Guinan** is an article entitled “Information Retrieval from Hypertext Using Dynamically Planned Guided Tours.” I am informed that Guinan qualifies as prior art to the challenged claims because it was published before the earliest priority date of the challenged claims.

72. My Declaration relies on Guinan primarily for independent claim 16, which recites the steps of “receiving a request for an online search from a remote user,” followed by “providing a plurality of search results and their corresponding resource locators in response to said request.” As explained in more detail below, Guinan discloses a technique for (a) allowing a user to enter a natural language search query and then (b) searching for hypertext nodes in response to the query to create a “guided tour” for the user. (Guinan, pp.124-125.)

73. Guinan explains “[i]n using any hypertext system an end-user or browser will encounter many technical problems that have been well-documented elsewhere,” such as “disorientation and the quality of the information retrieved by the user from the hypertext.” (Guinan, p.122, §1.) This problem with hypertext was well-known and, as acknowledged in Fox, one of the key reasons the industry

adopted on-line searching in the Web context. (Fox, pp.10-11 (“Hypertext makes it easy to get lost... [W]hat if you want to find pages dealing with a specific topic? Luckily, the Web is full of indexes. An index is a special Web page that allows you to type in a search term or keyword. The index then spits out a list of Web pages matching your search.”).)

74. Guinan states that, to address problems of hypertext systems:

We propose a method for dynamically generating a guided tour through a hypertext in response to a user’s query which will plan a tour through a hypertext covering all the nodes the system believes relevant to the user’s information need as expressed in a natural language query, which eases disorientation problems by using the guided tour metaphor... and which takes advantage of typing of information links in the hypertext to present the nodes on the tour in a logical fashion. Effectively we extend the guided tour metaphor by including the information retrieval features... and we add in logical sequencing of nodes on the tour to complete the process.

(Guinan, p.123, §1 (Introduction).)

75. The first step in the proposed method is for the user to enter a “natural language” search query. (Guinan, p.124, §3.) The hypertext nodes are then searched for keywords matching the query, which are scored using a weighting algorithm. (*Id.*; see also *id.*, p.129, §6 (“*Finding information*: When the user enters a search

query in the form of a natural language statement it is matched to the nodes in the hypertext using standard information retrieval techniques.”) (*italics in original*.) Guinan explains that, in weighting hypertext nodes, search terms that appear less frequently throughout the collection are given more weight, and as such, hypertext nodes containing more of these less frequent terms are given higher weights. (*Id.*) Hypertext nodes are also weighted based on the number of connections they have to other nodes. (*Id.*) Hypertext nodes must satisfy a threshold value to be included in the tour. (Guinan, p.125 (“All nodes whose weight is greater than or equal to this cut-off or threshold value would be selected for inclusion in the tour.”).)

76. Once matching hypertext nodes have been identified, a guided tour is assembled. “At this stage, the nodes for the guided tour have been dynamically chosen in response to a user’s query and some form of logical ordering has to be imposed on the selected tour nodes.” (Guinan, p.125, §3.) Guinan discloses an ordering procedure that takes into account linking relationships between the matching nodes. (*Id.*) “This procedure is followed until every node selected for inclusion in the tour has been positioned correctly relative to each other node in the tour.” (*Id.*)

77. Guinan identifies several advantages of her guided tour technique. For example, “[u]sers don’t need to worry about getting lost or confused in the hypertext

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as all they need to do is follow the tour which is generated in response to their query.”
(Guinan, p.129, §6.) I will provide more information about Guinan in my discussion
of claim 22 below.

(b) Robertson (EX1009)

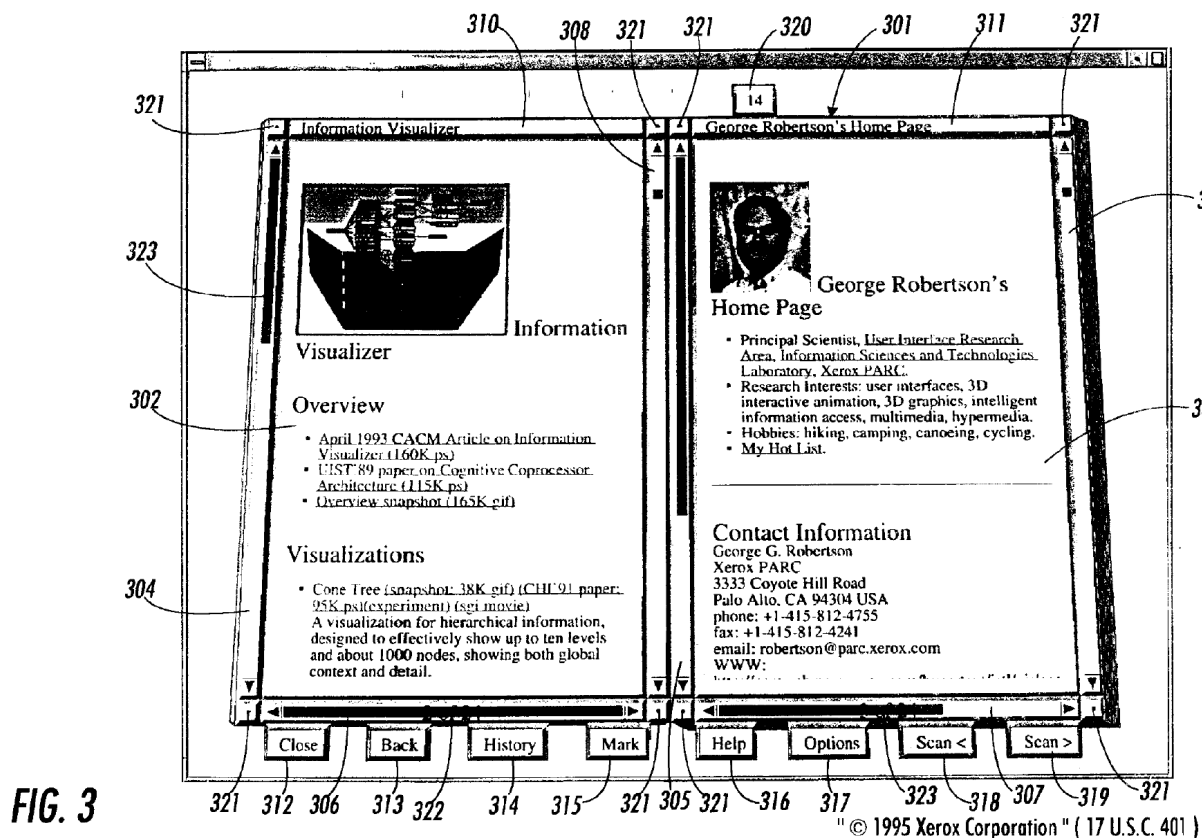
78. **Robertson**, U.S. Patent No. 6,486,895 B1, is entitled “Display System
for Displaying Lists of Linked Documents.” I am informed that Robertson qualifies
as prior art because it was filed on September 8, 1995, before the earliest priority
date of the challenged claims.

79. My Declaration cites Robertson primarily for two purposes. First, my
Declaration cites Robertson for limitations of claim 22 reciting “**presentation of
content from at least two nodes presented simultaneously.**”

80. Robertson discloses “[a] display system for displaying lists of linked
documents,” in which “[a]n example of linked documents are hyper-text documents
in a hyper-text system,” such as the Apple HyperCard system. (Robertson, 3:24-
27.) Robertson explains that his currently preferred embodiment uses “lists of linked
documents obtained from the portion of the Internet known as the World Wide Web
(hereafter the Web).” (Robertson, 2:33-36.)

81. Robertson discloses a technique for displaying a web-based book that
presents the web pages in sequence. (Robertson, Abstract, 2:14-25.) “The list of

pages is displayed in a book metaphor, termed WebBook, on a computer controlled display system... When displayed, two active pages are displayed at one time.” (Robertson, 2:24-28.) Figure 3 of Robertson shows an exemplary WebBook view showing two web pages visible in a side-by-side fashion:



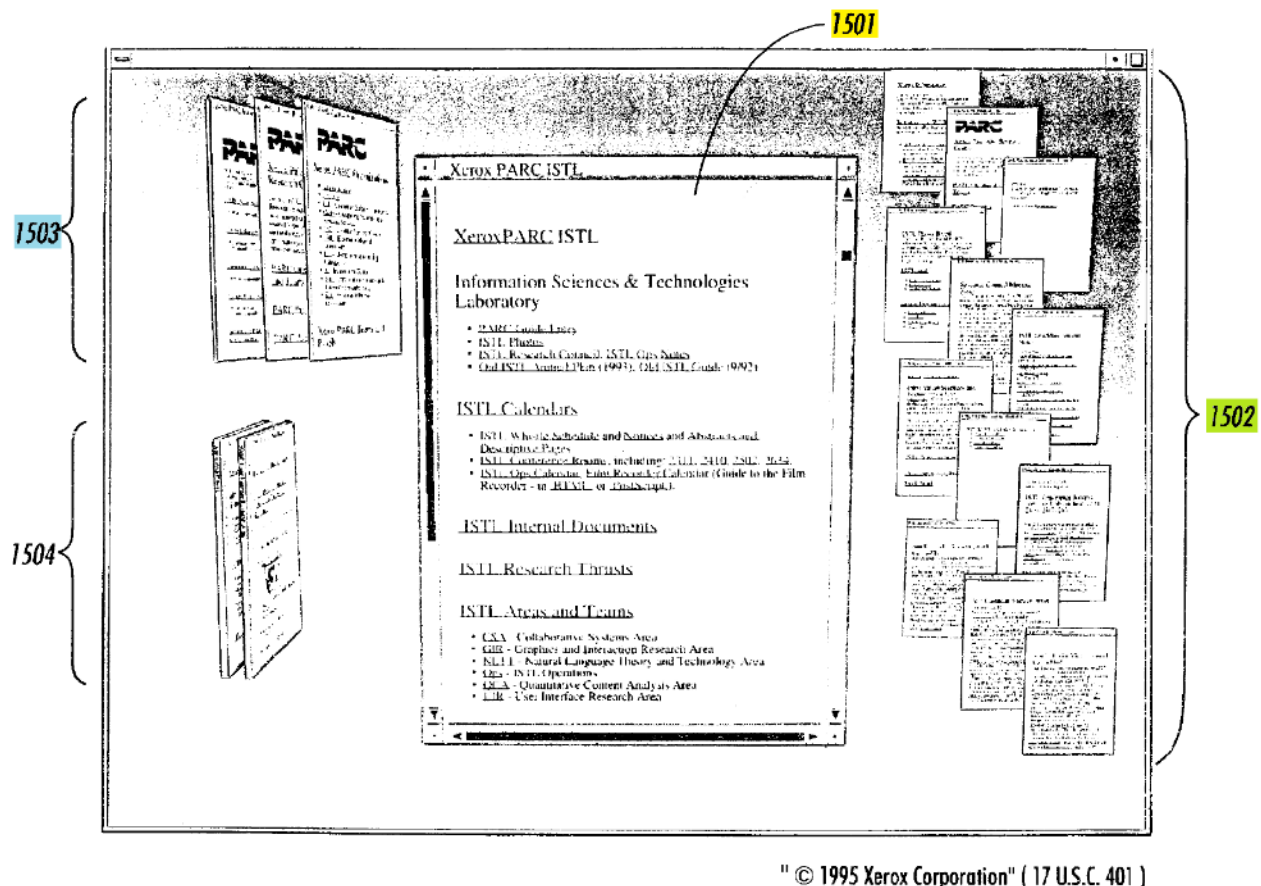
(Robertson, Fig. 3.) As explained in Robertson:

FIG. 3 is an illustration of a WebBook as displayed on a display. Referring to FIG. 3, the WebBook 301 is comprised of a first page 302 and a second page 303, each having an identical structure. The first page 302 is an instance of a left page and the second page 303 is an instance of a right page.

(Robertson, 6:15-19; *see also id.*, 6:28-30 (“The content and layout of the page is determined by the HTML macros defining the page.”).) Robertson explains that, in order to display web pages in a WebBook, each Web page is converted into a page object. (Robertson, 7:65-66.) “Each page is provided in the order in which it is to appear in the WebBook. Accordingly, each page object will represent either a left page or a right page in the WebBook.” (Robertson, 7:66-8:2.)

82. Robertson is also not limited to simply viewing two pages at the same time. Another embodiment shown in Figure 15 shows the ability to view “thumbnails” of potentially all of the pages in a WebBook:

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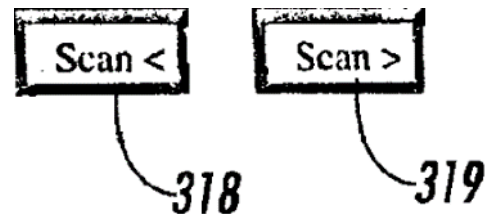


(Robertson, Fig. 15 (highlighting added).)

83. Figure 15 above shows a WebBook providing “a feature of a complete Web Browsing system.” (Robertson, 10:15-16.) Area 1501 in the center shows the current web page viewed by the user. (Robertson, 10:17-19.) Area 1503 to the left “contain[s] pages which have been viewed by the user.” (Robertson, 10:22-24.) Area 1502 on the right contains “a collection of ‘thumbnail’ images of pages,” which have “not yet been viewed by the user.” (Robertson, 10:19-22.) “As the user views pages and skips to different pages, the prior current page is moved to the area 1503.”

(Robertson, 10:24-26.) “It should be noted that the collection of pages, i.e. the current page **1501** and the pages in the areas **1502** and **1503** themselves may be pages from a WebBook.” (Robertson, 10:26-28.)

84. Robertson also discloses user interface features for controlling the WebBook display. These are shown on the bottom of Figure 3 above which shows “book control buttons” **312-319**. (Robertson, 6:30-57.) The two buttons on the far right side, “Scan <” **318** and “Scan >” **319** (shown at right), allow the user to automatically navigate backward or forward, respectively, through the web pages in a WebBook. “The button **318** labeled ‘Scan <’ provides for automatic scanning of pages to the lower numbered pages. The button **319** labeled ‘Scan >’ provides for automatic scanning of pages to the higher numbered pages.” (Robertson, 6:43-46.) “The scan operation will cause the pages to turn at a predetermined rate.” (Robertson, 9:5-6.) Figure 13 of Robertson discloses a user interface for adjusting the rate for the scan operation. (Robertson, 9:45-46.)



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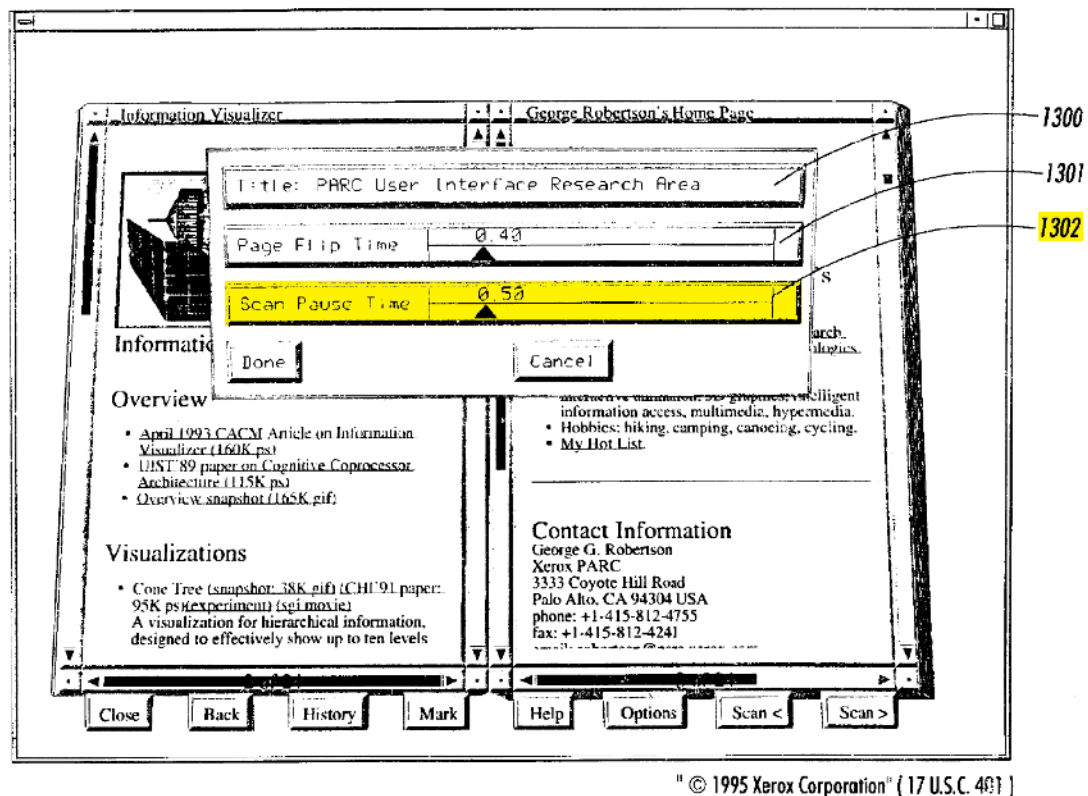


FIG. 13

"© 1995 Xerox Corporation" (17 U.S.C. 401)

(Robertson, Fig. 13 (highlighting added).)

85. User interface bar **1302** in Figure 13 allows the user to vary the scan pause time, which in this example is currently set to 0.50. (Robertson, 9:49-50, 9:57-58.) “The scan pause time refers to a pause in between page turns during a scan operation.” (Robertson, 9:50-51.) The user can decrease or increase the scan pause time by moving the indicator to the left or right. (Robertson, 9:53-58.) I will provide more information about Robertson in my discussion of the claim limitations below.

(c) Rakavy (EX1018)

86. **Rakavy**, U.S. Patent No. 5,913,040, is entitled “Method and Apparatus

for Transmitting and Displaying Information Between a Remote Network and a Local Computer.” I am informed that Rakavy qualifies as prior art because it was filed on August 22, 1995, before the earliest priority date of the challenged claims.

87. My Declaration relies on Rakavy for dependent claim 29, which depends from claim 28 and further recites “[a] **method as claimed in claim 28, wherein said targeting of said advertisement content is based on past skipping actions taken by said user on previously presented advertisement content, stored in said user profile.**” Benedict and Fox, both discussed above, disclose techniques for taking “**skipping actions**” taken by a user with respect to displayed content. For example, Benedict discloses that a user can take an action (such as pressing a key or activating a Next slide control) to skip the current slide during a self-running ScreenShow: “The display time determines how long a slide remains on-screen if you do not press a key to move to the next slide.” (Benedict, p.440; *see also id.*, p.443 (“Next slide... Moves to the next slide in the presentation”).) Fox similarly discloses that a series of web pages can include a “Next” button or link that the user can activate to move to the next page. (Fox, p.238 (“The [Next] button loads up the next page in the series, and the [Previous] button, naturally, loads up the previous page.”).) Filepp discloses that the targeting is based on past actions taken by the user, including “data collected on the partitioned applications that were

accessed by a user, and upon events the user generated in response to applications.”
(Filepp, 9:35-38.)

88. Although Benedict and Fox disclose “**skipping actions**” taken by a user with respect to displayed content, and Filepp discloses the use of past actions to select targeted advertisements, these references do not appear to disclose targeting “**based on past skipping actions taken by said user on previously presented advertisement content,**” as they do not appear to expressly disclose using past skipping actions to impact future selection of targeted advertisements. I have therefore cited these references in combination with Rakavy.

89. Rakavy discloses techniques for “selecting advertisements and other information from a computer network database based on user defined preferences and transmitting selected advertisements to the user. (Rakavy, Abstract.) In particular, Rakavy discloses an Advertising System Server **600** that stores user preference information. (Rakavy, 5:42-44.) User preference information can be specified in a number of ways, including the user directly choosing categories of informational content that interests them. (Rakavy, 3:34-37.) “The Advertising System Server **600** uses this information to select the next Advertisement **50** to be downloaded.” (Rakavy, 5:45-47; *see also id.*, .)

90. Rakavy further discloses that user interactions with advertisement can

also modify user preferences, for example, a user indicating that it does not wish to see a particular advertisement again:

In one embodiment of the invention, the Advertising Display Manager **210** allows users to respond to Advertisements **50** being presented by Selecting a user grading box which allows users to judge the Advertisements **50** on a scale from “do not show me this advertisement again” to “excellent.” This information may be used to modify the user preferences, and may also be incorporated into user feedback information and sent to the Advertising System Server **600** for use by the advertisers.

(Rakavy, 10:13-20.) In addition to user ratings about advertisements, the feedback information can include the “length of time an advertisement was displayed.”

(Rakavy, 12:53-65.) I will provide more details about Rakavy in my discussion of claim 29 below.

(d) Reilly (EX1015)

91. **Reilly**, U.S. Patent No. 5,740,549, is entitled “Information and Advertising Distribution System and Method.” I am informed that Reilly qualifies as prior art because it was filed on June 12, 1995, before the earliest priority date of the challenged claims.

92. My Declaration cites Reilly for dependent claim 30, which depends

from claim 26 and recites “**wherein targeted advertisement content is selected based on said content in said show structure of nodes.**” As noted previously, Filepp discloses a system for presenting targeted advertisement to the user based on the user’s past actions and characteristics such as demographics. (Filepp, 9:35-47.) But Filepp does not appear to expressly disclose the further ability to select targeted advertisement content based on the content in the nodes. But such a feature is disclosed by and rendered obvious in view of Reilly.

93. Reilly discloses a system for distribution information to users that match their interests, including news items and advertising information. (Reilly, 1:4-10.) A key feature of Reilly is that both news items and advertisements are placed in one or more categories or subcategories. An information server “stores and updates a database of information items and advertisements. The information items and advertisements are each categorized so that each has an associated information category.” (Reilly, 2:63-67; *see also id.*, 4:39-49 (assigning news stories to categories and sub-categories), 4:66-5:1 (advertisements).) Reilly further discloses that each user has a profile “that indicates which categories and subcategories of news stories are of interest to the subscriber.” (Reilly, 6:50-56.) Each category can include various subcategories, which “may relate to specific companies, geographic regions, specific sports and sports teams, and so on,

depending on the category.” (Reilly, 7:13-18.)

94. After the categories have been associated with a user, advertisements can be targeted to the user based on those categories of interest. “Each advertisement is displayed on subscribers’ workstations simultaneously with news items assigned to the same category as the advertisement.” (Reilly, 5:1-4; *see also id.*, 2:42-46 (“Another goal of the present invention is to categorize news stories and advertisements, and to display advertisements associated with each category at the same time that new stories associated with same category are displayed, thereby providing a ‘targeted’ audience for advertisers.”).)

95. Reilly thus discloses a technique in which targeted advertisement content is selected based on the content of the information (news items) that will be displayed at the same time as the advertisement. This is because the advertisement content is selected based on being in the same information category as the news item with which it is presented, and is thus based on the content of the news item. A news item that was selected because it relates to a particular sports team, for example, would have been accompanied by an advertisement relating to that team. The advertisement selection is thus based on the content of the news item.

96. I will provide more detail about Reilly in my discussion of claim 30 below.

B. Ground 1: Claims 1-15, 23, 25-28 Are Obvious Over Shimizu, Fox, Benedict, Wolfe, and Filepp

1. Claim 1

97. For reference, claim 1 recites:

1. A method for providing content via a communications network on a user's computer, obtained from a plurality of resources in an organized arrangement comprising the steps of:
 - [a] creating a show structure of nodes, each node identifying a resource from a plurality of accessible resources, at least some of which are network accessible resources;
 - [b] without requiring user input, automatically accessing a plurality of said network accessible resources identified by a corresponding node;
 - [c] causing content corresponding to each of said accessed resources to be automatically accessed and presented through said user's computer in accordance with said show structure such that during said presentation of at least some of said content from said accessed resources, at least some of said other network accessible resources are being accessed,
 - [d] wherein said step of creating further comprises the step of providing interactively variable duration information, representing the duration that said content corresponding to said accessed resource is presented so as to enable a user to vary said duration; and
 - [e] causing advertisement content to be presented to said user in connection

with said automatic presentation of said content through said user's computer.

('819, 17:43-67 (Claim 1; bracketed notation (e.g., [a]) added).)

98. The preamble of claim 1 recites “[a] method for providing content via a communications network on a user's computer, obtained from a plurality of resources in an organized arrangement....” It is unclear if the preamble of claim 1 recites a claim limitation, but even if it does, it is disclosed by the prior art.

99. Shimizu discloses a method of providing content on a user's computer for display, content such as text, pictures, motion pictures, etc.:

When the entity information (character string, image, sounds, motion pictures) is acquired from the node information entity management part **8**, the content of the acquired information is reproduced and displayed in the node content display area **81** of the window **80** by applying the program which is associated with the pointer in the display procedure slot 62 of the node information structure **9**.

(Shimizu, 8:52-59.) Figure 8 shows a user interface for presenting node content:

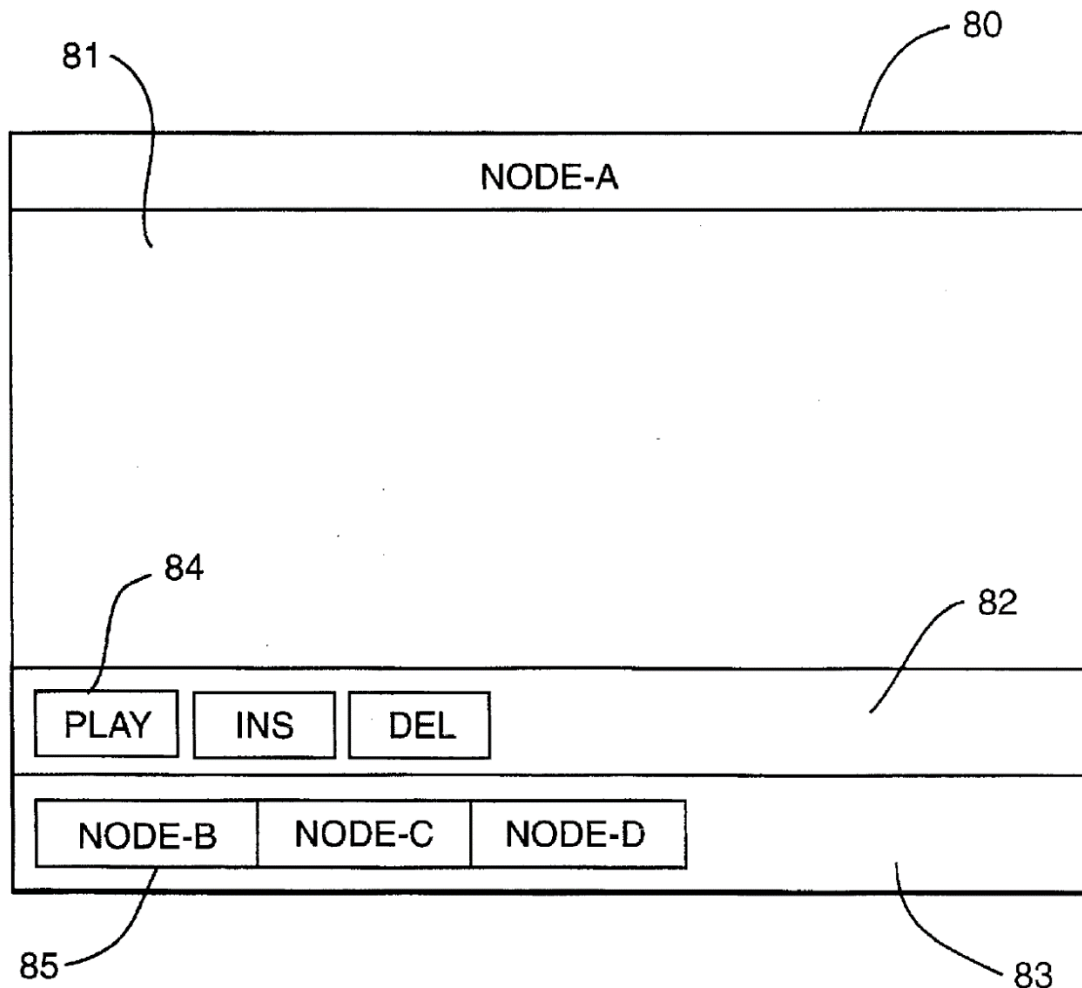


FIG. 8

(Shimizu, Fig. 8, 7:12-14 (“FIG. 8 is a view of a typical user interface screen display provided by an application program running on the embodiment.”).) As noted, when the user presses PLAY in Figure 8 (one of buttons 84), the content associated with the current node (in this case NODE-A) is provided to and displayed in area 81 of window 80. (Shimizu, 8:11-25, 8:49-59.) Shimizu therefore discloses “[a] **method for providing content... on a user’s computer,**” as recited.

100. The content in Shimizu is also “**obtained from a plurality of resources**,” as recited in the preamble. This is because the character strings, images, motion pictures, etc., in Shimizu are obtained from stored information (for example, in computer files), from which the content can be derived. It would have been obvious that the content in Shimizu is stored in files, as these are basic units of data storage in a computer system. (See *Microsoft Press Computer Dictionary* (2d ed. 1994), EX1020, p.164 (“**file** A complete, named collection of information, such as a program, a set of data used by a program, or a user-created document. A file is the basic unit of storage that enables a computer to distinguish one set of information from another.”).) As will be described in more detail for claim 1[a] below, Shimizu further discloses that, in order to display content associated with a particular node, the system uses an entity information pointer slot **63** for the node, which points to the particular content that will be retrieved and displayed to the user. (Shimizu, 6:55-57 (“The entity information pointer slot **63** retains the pointer pointing to the entity information to be displayed by the node in question.”).) As explained in Shimizu:

Step **107** accesses and reads the entity information linked by the entity information pointer of the node information structure designated by the pointer pointing to the acquired node. When the entity information

(character string, image, sounds, motion pictures) is acquired from the node information entity management part 8, the content of the acquired information is reproduced and displayed in the node content display area **81** of the window **80** by applying the program which is associated with the pointer in the display procedure slot **62** of the node information structure **9**.

(Shimizu, 8:49-59.) Shimizu thus discloses that the displayed content is “**obtained from a plurality of resources**,” with the resources corresponding to the sources of content identified by the entity information pointer **63**.

101. As will be explained in more detail below, under the proposed combination with **Fox**, it would have been obvious that the entity information pointer **63** could take the form of a Uniform Resource Locator (URL) pointing to a resource (web page, image, etc.) on the Web. (Fox, p.13 (“A *URL* (or *Universal Resource Locator*) is the address of a document, file, or other Internet resource... The World Wide Web gives every article, newsgroup, database, computer, file, or other Internet fragment its very own URL.”); *see also id.*, pp.326-327 (describing IMG tag identifying location of image resource).) As explained for claim 1[a] below, it would have been obvious under the proposed combination that the content would be obtained “**via a communications network**,” *i.e.*, the Internet.

102. Finally, Shimizu discloses providing content on a user’s computer “**in**

an organized arrangement,” as claimed. This is because the content of each node is presented in a particular order or sequence based on the sequencing of nodes:

The processing above is carried out so that the node C is displayed followed by node B and node D, in accordance with the order of the link information.

(Shimizu, 9:1-4.)

As described, the hypertext apparatus of the invention offers a user interface capable of putting into a desired order the links between the nodes to be managed and of manipulating the established link order. This makes it easy to create illustratively an application program allowing the display of node contents to be switched in a desired order and at predetermined intervals on the hypertext apparatus.

(Shimizu, 9:60-66; *see also id.*, 5:10-14.) Shimizu thus discloses providing and displaying content “**in an organized arrangement**” because, as noted above, node content is displayed in a user in a particular sequence as indicated by the link information.

(a) “**creating a show structure of nodes, each node identifying a resource from a plurality of accessible resources, at least some of which are network accessible resources;**” (Claim 1[a])

103. The proposed combination renders obvious this claim limitation. The “**show structure of nodes**” in Shimizu corresponds to a set of nodes and their links

or connections to other nodes, as explained in more detail below. Shimizu explains that node information management part **5** and link information management part **6** are used to create the show structure of nodes:

The node information management part **5** manages a plurality of node information structures holding the information about each node. The link information management part **6** manages a plurality of link information structures defining the relations between the nodes. The link order manipulation part **7** changes the order of a plurality of link information structures **10** referenced by the node information management part **5** under the directions of the program execution part **3**.

(Shimizu, 6:30-39.) A conceptual example of a show structure of nodes in Shimizu is shown in Figure 9:

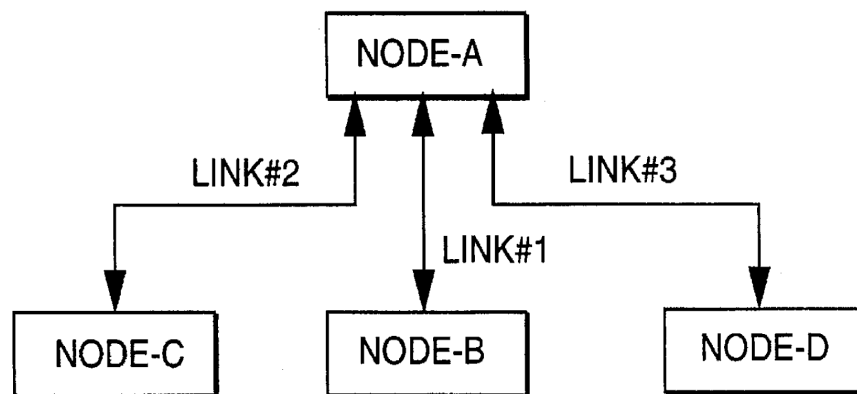


FIG. 9

(Shimizu, Fig. 9, 7:49-51 (“FIG. 9 is a conceptual view of typical nodes and links

and the relations in effect there between when the order of link information is changed.”).) In this example, NODE-B, NODE-C, and NODE-D are linked to NODE-A by LINK#1, LINK#2, and LINK#3, respectively. (Shimizu, 7:51-54.) In this example, therefore, NODE-A would be displayed first followed by NODE-C, NODE-B, and NODE-D. (Shimizu, 7:54-65.) Figure 10 shows a more concrete representation of the show structure from Figure 9:

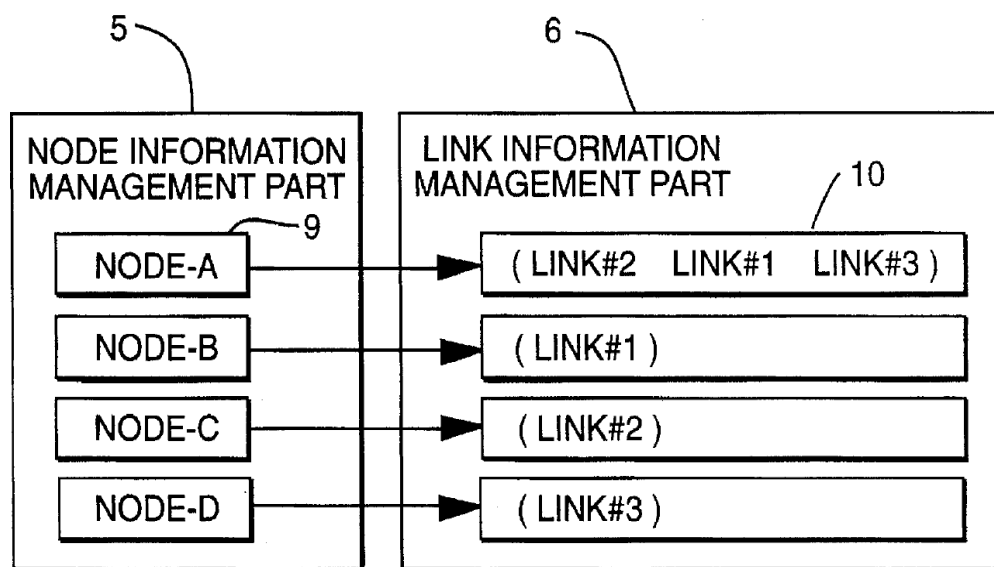


FIG. 10

(Shimizu, Fig. 10, 7:67-8:5 (“FIG. 10 is a schematic view of a typical data constitution in which the hypertext data of the nodes and links in FIG. 9 is stored in the node information management part and link information management part of the embodiment. As explained above, the node A is linked to the node C, node B and

node D, in that order.”.)

104. As explained for the preamble, the node and link information is stored, respectively, in node and link information structures. (Shimizu, Fig. 6 (node information structure), Fig. 7 (link information structure).) Shimizu thus discloses creating “**a show structure of nodes,**” which corresponds in Shimizu to an arrangement or set of nodes that define their associated content and their links to other nodes. With respect to the act of “**creating**” the claimed show structure, Shimizu discloses a number of techniques for adding new nodes and rearranging the order of existing nodes. (Shimizu, *e.g.*, 7:20-48, 9:5-59.) It would have been obvious to an ordinarily skilled artisan that the show structure in Shimizu was “**creat[ed]**,” as it must have been brought into existence in order to perform the node display and other functions described in Shimizu.

105. The proposed combination also discloses “**each node identifying a resource from a plurality of accessible resources.**” As noted, the node information management part 6 in Shimizu system holds information about individual nodes. Figure 6 shows an example of a node information structure 9:

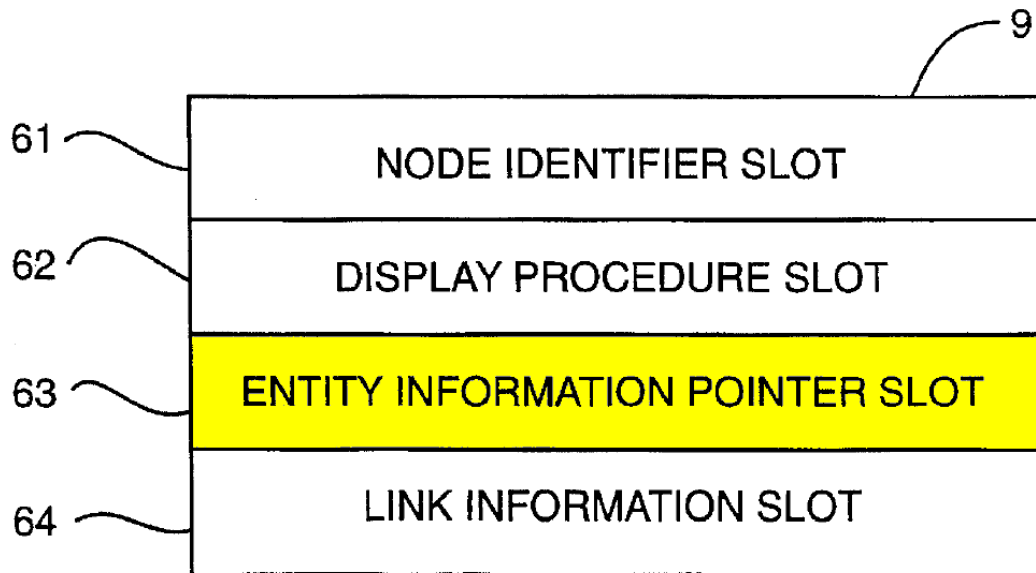


FIG. 6

(Shimizu, Fig. 6 (highlighting added), 6:44-45 (“FIG. 6 is a view showing members of a node information structure held by the node information management part 5.”).)

Entity information pointer slot **63** shown in yellow holds an identification of the resource associated with the node:

The entity information pointer slot **63** retains the pointer pointing to the entity information to be displayed by the node in question. The entity information thus pointed to may be a character string, image information, motion pictures or sounds.

(Shimizu, 5:55-59.) As noted previously, the system in Shimizu uses the entity information pointer to identify and retrieve the content of a node that will be displayed. (Shimizu, 8:49-59.) The nodes in Shimizu thus through its node

information identifies a particular content resource (e.g., entity information such as text, image, motion picture, sound, etc.) among a number of available resources.

106. It would have also been obvious based on Fox that “**at least some of which are network accessible resources,**” as recited at the end of claim 1[a]. Shimizu discloses that resources could have been stored on “primary storage” or “secondary storage” (e.g., Shimizu, 6:39-43, 2:49-53). The term “secondary storage” was commonly understood as referring to any storage other than the computer’s “primary storage,” i.e. its volatile storage such as the random access memory (RAM) directly accessible to the computer’s processor. (See *Microsoft Press Computer Dictionary* (2d ed. 1994), EX1020, p.351 (“**secondary storage** Any data storage medium other than a computer’s random access memory—typically, tape or disk. *Compare* primary storage”) (bold and italics in original), see also *id.*, p.314 (“**primary storage** Random access memory (RAM); the main general-purpose storage region to which the microprocessor has direct access. A computer’s other storage options, such as disks and tape, are called secondary storage or (sometimes) backing storage.”).) Accordingly, an ordinarily skilled artisan would have understood “secondary storage” includes a storage medium accessible through a network, and as such, it would have been obvious to an ordinarily skilled artisan based on Shimizu alone that content resources could have been accessible via

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a communications network. But Shimizu does not expressly disclose an example in which resources are expressly described as network accessible, so to remove any doubt about this issue, network accessible resources would have been obvious in further view of **Fox**.

107. Fox is a textbook describing various techniques for creating web pages. Fox confirms that a web page “can be anything you imagine it to be: a hypertext document, graphics sound, animation, tabular data, software files, a discussion group, a search index, a specialized program, and more.” (Fox, p.8; *see also id.*, p.9 (“The World Wide Web uses hypertext to link all its pages together.”).) As was well-known to ordinarily skilled artisans, the Web provided an example of a hypertext system. (Fox, EX1005, pp.8-10 (describing the Web as an example of a hypertext system).) As was basic knowledge to ordinarily skilled artisans, and even laypersons, each resource on the Web was identified by a Uniform Resource Locator (URL). (Fox, p.13 (“A *URL* (or *Universal Resource Locator*) is the address of a document, file, or other Internet resource... The World Wide Web gives every article, newsgroup, database, computer, file, or other Internet fragment its very own URL.”); *see also id.*, pp.326-327 (describing IMG tag identifying location of image resource).)

108. In fact, Fox makes clear that URLs could be used to identify resources

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to carry out the same functions as Shimizu, *i.e.*, to create sequential presentations such as the ordered hypertext display in Shimizu or the ordered show presentations in Benedict. For example, Fox discloses a technique in which a web page, after a specified amount of time, can cause the web browser to “refresh” and load another web page, which can be used to create slide show-type presentations of web content:

To load up a different document after a set amount of seconds, simply specify a full URL using the URL attribute. For example, to load the page at <http://www.smartpants.edu/sample.html>, after a minute, use the following markup as the first line of your HTML document:

```
<META HTTP-EQUIV="Refresh" CONTENT=60  
URL= http://www.smartpants.edu/sample.html>
```

You can use this trick to flip between two documents, animate a sequence of images, or create an automatic slide show of many Web pages.

(Fox, p.316 (italics in original; underlining added).) The concept of “refreshing” a web page was well-known (and remains well known) to those familiar with web browsers, and this was (and remains) a common feature of many websites. Refreshing was commonly used to load an updated version of the *currently displayed* web page, but as shown above, the <META> tag used for this feature can specify the URL of any web page, including a different web page. In the example from Fox above, the <META> tag tells the web browser to “refresh” after 60 seconds by

switching to the web page at <http://www.smartpants.edu/sample.html>. In any case, Fox confirms that it was known to use URLs to identify resources for a presentation system such as Shimizu combination in which the resources associated with a series of nodes are presented in a particular sequence and for a specified duration.

109. ***Rationale and Motivation to Combine (Shimizu with Fox):*** It would have been obvious to combine Shimizu with Fox, predictably resulting in the Shimizu system in which each node was associated with a resource identified by a URL, such a web page, image, or other Web resource. As a result, at least some of the resources “**are network accessible resources,**” *i.e.*, resources accessible over the Internet via a URL. To the extent each of the “**plurality of resources**” is further construed to require that each resource be located at a distinct website identified by a unique domain, this would also have been obvious as this is a built-in and well-known capability of URLs.³ (Fox, pp.15-16 (listing several examples of URLs for

³ I understand Patent Owner does not contend that the claims require that each of the “**plurality of resources**” refer to a resource at different website/domain, but in the event the claim is construed in this manner, I have explained in the text why this would have been obvious. It would have been obvious that the URLs that identify the plurality of resources could each have pointed to a different website/domain. (Fox, pp.15-16 (showing exemplary HTML URLs pointing to moolah.com, testlabs.edu, strange.org, and abc.123.com).)

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webpages at different website domains).) One of the components of a URL is the name of the server where the resource is located, typically expressed as a domain name (*e.g.*, “uspto.gov”). The use of URLs to identify resources on the Web would have been a straightforward adaptation; for example, entity information pointer slot **63** discussed above could have been readily adapted to hold one or more Uniform Resource Locators (URLs) identifying resources (web pages, images, etc.) on the Web. (Fox, p.13 (“The World Wide Web gives every article, newsgroup, database, computer, file or other Internet fragment its own URL.”), pp.326-327 (describing how to embed graphic files on a web page using IMG tags identifying the URL of images for display on the page).) This would have been a trivial adaptation, as the very purpose of a URL is to provide a pointer to a content resource to facilitate access by a web browser. For example, Shimizu explains that the node content information may be stored “in primary or secondary storage.” (Shimizu, 6:39-43.) A URL would have been a natural way to implement entity information pointer slot **63** because a URL provides a standardized and uniform way to identify the location of a file stored on the Internet or in local storage. (Fox, pp.15-17.)⁴

⁴ For example, with respect to local storage, a standard URL format (*i.e.*, file://) can be used to identify the location of a file on the user computer’s local storage.

110. Shimizu is an analogous reference in the same field of techniques for providing organized or sequenced presentation of content, and would have been reasonably pertinent to a number of problems facing the inventor. For example, Shimizu would have been reasonably pertinent to the problem of how to structure and organize information about nodes, in order to keep track of their associated content and the nodes to which they are linked. Similarly, Fox is an analogous reference because it falls within the field of techniques for organized or sequenced presentation of content and would have been reasonably pertinent to a number of problems facing the inventor. For example, Fox would have been reasonably pertinent to the problem of how to structure and present a series of Web resources in a particular order, and as noted, Fox also contains pertinent teachings for specifying a duration for the display using industry standard <META> HTML elements. Fox would also have been relevant to understanding the composition and function of URLs, which would have been reasonably pertinent to problems relating

(Fox, p.17 (“The file service is almost identical to the ftp service, but is a quicker way of retrieving local files. You can use file URLs to load and display sound, image, or text files....”).) URLs can also be used to identify a file on a remote server on the Internet, for example, by identifying its hostname in the URL. (Fox, p.14 (“The second part of most URLs is the full Internet address of the machine where the file is located.”).)

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to how to identify the location on the network of content resources associated with nodes.

111. An ordinarily skilled artisan would have been motivated to combine with Fox to take advantage of the growing popularity of the Web. The Background of the challenged patent, in fact, concedes that the web was “popularized in 1993.” (’819, 1:29-32.) The challenged patent further notes that companies such as Cisco and Boeing were already conducting “web-based sales in excess of one billion dollars,” with Dell having “sales in excess of \$1 million per day via their website.” (’819, 2:45-50.) As Fox confirms, ordinarily skilled artisans had recognized the enormous commercial potential of the Web and its ability to reach millions of potential users. (Fox, p.229.) Fox confirms, for example, that the Web can be used to “[p]ublish[] text, images, software, or any other computer file to a potential audience of millions.” (Fox, p.229; *see also id.*, p.316 (“Proofread your pages for spelling and grammar errors. The page will be seen by millions of adoring fans around the world.”), p.198 (“Money makes the world go round, and the same can be said for the World Wide Web. A huge chunk of the Web’s growth is due to large corporations and enterprising entrepreneurs hoping to turn the Web into tomorrow’s most lucrative medium.”).)

112. An ordinarily skilled artisan would thus have been motivated to adapt

the hypertext system based on Shimizu into a web-based system, among other reasons, to allow node content to be viewed by a potentially enormous number of users via their web browsers. An ordinarily skilled artisan developing a system based on the proposed combination would have wanted to avoid being left behind in the growing popularity of the Web, and thus, would have been motivated to adapt the system to support web-based resources.

113. As an additional but related motivation to combine, allowing node content to be identified using URLs as disclosed in Fox would also have expanded the universe of content that could have been incorporated into nodes. This is because, under the proposed combination, nodes could have identified any content on the Internet accessible via a URL, and thus, could have drawn from a massive universe of available content resources beyond the content stored on the user's local computer or the user's local area network.

114. An ordinarily skilled artisan would have had at least a reasonable expectation of success. As noted, the Web was well-known and identifying resources using URLs, as described in Fox, was straightforward if not trivial. Fox itself confirms URLs were already being used to identify resources for purposes of sequential presentation systems, as confirmed by the example from Fox discussed above that uses industry standard HTML <META> elements. (Fox, p.316.) The

disclosures of Shimizu and Fox would have provided more than sufficient details to have enabled an ordinarily skilled artisan to implement the proposed combination as described, without undue experimentation.

District Court’s Claim Constructions of
“Show Structure of Nodes” and
Duration Requirement

115. Before leaving the discussion of claim 1[a], I note that my mapping of Shimizu is also consistent with claim construction rulings in prior litigations. I am informed that “**show structure of nodes**” was defined in a previous litigation involving the related ’451 patent as “*a structure that is arranged for the display of content by specifying one or more paths through a plurality of nodes.*” I am further informed that “**node**” was defined as “*an identifier of a resource that includes an address to the resource and the duration for which the resource’s content is to be presented by default.*” It is not necessary for me to opine on the correctness of these constructions because, as I will show below, the prior art readily satisfies each of them. As discussed above, the node and link information in Shimizu identifies a set of nodes, the content associated with each node, and the links that specify the order in which the nodes are displayed. It would have been obvious that entity information pointer slot **63** part of the node information structure in Shimizu provides “*an address to the resource*” because it provides a pointer identifying the location of the

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content associated with the node. Ordinarily skilled artisans, in fact, frequently used the words “pointer” and “address” interchangeably. (See *Microsoft Press Computer Dictionary* (2d ed. 1994), EX1020, p.308 (“**pointer**... In programming and information processing, a variable that contains the memory location (address) of some data rather than the data itself.”).) Under the further combination with Fox, as explained above, each resource could have been identified by a Uniform Resource Locator (URL) pointing to the location of the resource (*e.g.* web page, image, etc.) on the Web. It was well-known that a URL provides another example of an address. (Fox, p. 13 (“A *URL* (or *Universal Resource Locator*) is the address of a document, file, or other Internet resource... The World Wide Web gives every article, newsgroup, database, computer, file, or other Internet fragment its very own URL.”).)

116. I note that the challenged patent itself does not specify any particular format or organization for the claimed “**structure**,” but rather, describes it as broadly referring to an arrangement containing a set of nodes. (’819, 2:61-65 (“This arrangement of resources, is defined as a ‘show structure’ or ‘structure,’ which contains a set of nodes. Each node represents a resource such as a web page, an executable file, or a data file stored at a predetermined location and accessed via its corresponding address.”).) The proposed combination similarly discloses a set that

includes an arrangement of nodes which are, as explained previously, defined by their node and link information.

117. I note that the prior litigation construction of “**node**” further requires that the node also include “*the duration for which the resource’s content is to be presented by default.*” I note that this concept is separately recited in claim 1[c] as the “**interactively variable duration information.**” Nevertheless, this requirement of the construction of “**node**” is rendered obvious by the proposed combination.

118. For example, Shimizu discloses a default display time (*i.e.*, a “predetermined” time or interval in which node content is displayed before proceeding to the next node):

It follows that, on the hypertext apparatus, it is necessary to set the items of link information with their order of display properly established beforehand. Only this procedure makes it possible to create an application program that may be displayed on the screen by reading, from primary or secondary storage and within a predetermined time, the node information held by the nodes that are linked sequentially starting from a particular node.

(Shimizu, 3:9-16.)

This makes it possible to build with ease an application program illustratively causing the display of the nodes to be switched in a specific order and at predetermined intervals.

(Shimizu, 5:11-14.) Shimizu also suggests the ability to vary the display duration between nodes by explaining that “[i]t is also possible to build with ease a system for arranging information that emphasizes temporal relations between nodes (e.g. chronological tables).” (Shimizu, 9:66-10:2.)

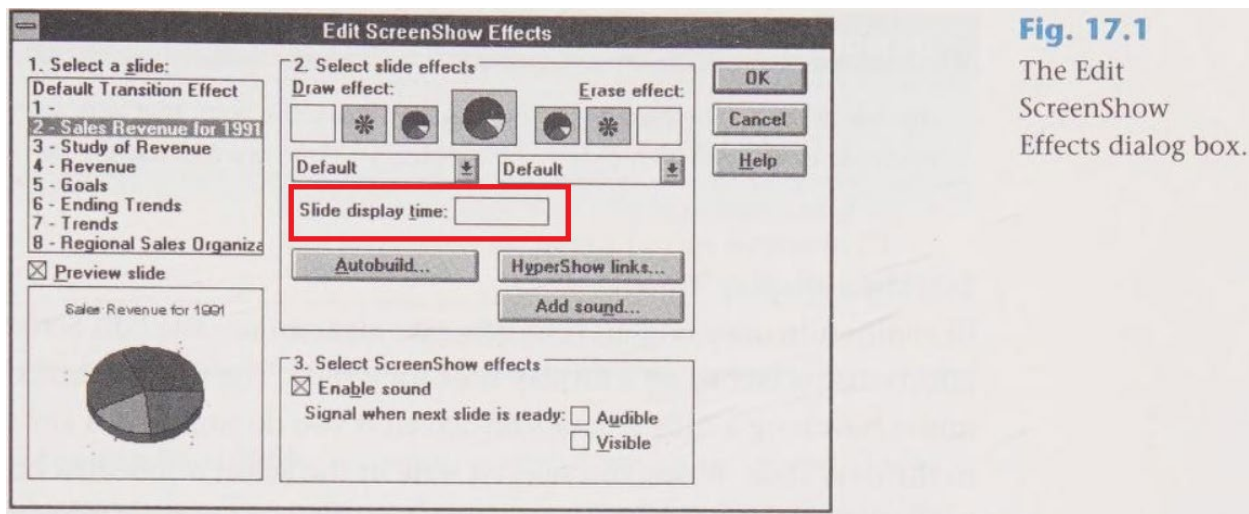
119. But Shimizu does not appear to disclose further details about how duration information is specified or stored within its system, or whether such intervals between nodes can be changed. To the extent it is determined that Shimizu alone does not disclose the durational requirement of the construction of “**node**,” it would have been obvious in further view of **Benedict**.

120. As explained in **Part V.A**, Benedict describes a software program known as Harvard Graphics that provided functionality similar, in some respects, to well-known business presentation programs such as Microsoft PowerPoint. (Benedict, p.1 (“Harvard Graphics for Windows is a program designed for creating business presentations.”).) Harvard Graphics allowed users to create a “presentation” including a series of slides. (Benedict, p.24 (“A *presentation* is a collection of slides stored in computer memory in a file on your hard disk.”) (italics in original).) Benedict also discloses features for viewing a presentation (referred to as a “ScreenShow”), for example, by displaying slides in a specified sequential order. “As you create and enhance presentations, you can use the ScreenShow

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feature to evaluate your work. ScreenShows are on-screen presentations in which the program displays each slide in order.” (Benedict, p.19.) As noted, Benedict further discloses a feature known as “HyperShows” in which slides in a ScreenShow can include hypertext-like links allowing the user to switch to other slides in the ScreenShow by clicking on-screen links. (Benedict, pp.442-453.)

121. As relevant to the above-mentioned durational requirement, Benedict discloses additional features (known as “ScreenShow Effects”) that allow the user to customize the display of the presentation. (Benedict, pp.438-442.) As shown in Figure 17.1 of Benedict, one of these features allows the user to specify how long a particular slide in a presentation will be displayed before moving to the next slide:



(Benedict, p.439, Fig. 17.1 (red box added).) The portion in the red box, as shown above, allows the user to specify how long the selected slide will be displayed:

The display time determines how long a slide remains on-screen if you

do not press a key to move to the next slide...

The default for the time is blank because Harvard Graphics continues to display the slide until you press a key. You can set a display time, however, by typing a time in the Slide display time: text box. You can enter the time in seconds or in minutes and seconds separated by a colon. Entering 23, for example, sets the display time to 23 seconds; entering 1:30 sets the display time to 1 minute and 30 seconds.

(Benedict, p.440 (italics in original).) Benedict explains that, using this feature, the user can create “self-running” presentations in which slides advance automatically after a specified period, without requiring user action:

Creating Self-Running Presentations

Self-running presentations automate your ScreenShow by displaying the slides for a specified length of time before the next slide appears—pressing a key is not necessary. At the end of the presentation, a HyperShow link causes the ScreenShow to start over from the beginning. The presentation continues until you press the Escape key. To create a self-running presentation, you must set the display time for the slides and create the link that begins the presentation again.

(Benedict, p.453 (boldface in original).)

122. The user can also specify a default display time applicable to the presentation, without having to separately assign the time to each slide:

Setting Default Effects... When you select a default transition,

Harvard Graphics uses the same effect to draw and erase all slides.

[* * *]

When the [Edit ScreenShow Effects] dialog box appears, follow these steps to change the default effects and time display:

[* * *]

4. Click the Set display time: text box and type the default display time.

If you do not set a time, the slides remain on-screen until you press a key.

(Benedict, p.441-442, ¶4.)

123. ***Manner, Rationale and Motivation to Combine (Shimizu and Fox with Benedict)***: It would have been obvious to combine Shimizu and Fox with Benedict, predictably resulting in the hypertext display system of the Shimizu-Fox combination with the ability to interactively vary, for each node, the duration of display for the node's content. Accordingly, the “**node**” in Shimizu under the proposed combination would have further included information specifying this user-specified duration. In a real-world implementation of the proposed combination, for example, the display time could have been specified within the node information structure **9** of Shimizu. I note that node information structure **9** in Shimizu also contains display procedure slot **62** (Fig. 6), which points to “a procedure program function used when the node in question is to be displayed on the screen.” (Shimizu,

6:52-55.) Shimizu thus contemplates that node information structure 9 may contain information about how the node will be displayed to the user, and as such, it would have been obvious that durational information could also have been included as part of node information structure 9. This durational amount could have been a default display time specified by the user, or a display time specific to the node in question, as explained above.

124. Benedict is analogous reference in the same field of techniques for providing organized or sequenced presentation of content, and would have been reasonably pertinent to a number of problems facing the inventor. For example, Benedict would have been reasonably pertinent to the problem of how to structure and organize information about nodes, in order to keep track of their associated content and the nodes to which they are linked, and how to implement display of node content for a specified duration based on user preference.

125. Shimizu, as explained above, already discloses the ability to display node content for a “predetermined” time or interval (Shimizu, 3:9-16, 5:11-14, 9:63-66). Shimizu also provides a suggestion to vary this predetermined duration between by explaining that “[i]t is also possible to build with ease a system for arranging information that emphasizes temporal relations between nodes (e.g. chronological tables).” (Shimizu, 9:66-10:2.) It would have been obvious to enhance Shimizu

based on Benedict to allow the user to specify the display time. An ordinarily skilled artisan would have been motivated to make this enhancement to improve user experience by providing greater customization of the duration that node content is displayed.

126. This would have provided clear benefits over a fixed-length duration that could not be modified by the user. An ordinarily skilled artisan (and even laypersons) would have readily understood the benefits of allowing the user to specify the display time. For example, nodes may have included content that was more complex thus justifying a longer display time to provide the user with more time to view and digest the content. Conversely, nodes with less or simpler content may have benefitted from a shorter display time, as this would have allowed the user to progress more quickly through nodes. In any case, an ordinarily skilled artisan would have been motivated to combine Shimizu with the “display time” teachings of Benedict to obtain the advantages of an interactively variable duration for display of node content.

127. An ordinarily skilled artisan would have had at least a reasonable expectation of success and could have implemented the proposed combination using conventional programming techniques. As noted, Shimizu itself already contemplates switching the display of nodes at “predetermined intervals” (Shimizu,

5:11-14), and it would have been trivial to adapt the node information structure in Shimizu to include user-provided information specifying the display time for the corresponding node. Shimizu itself clearly contemplates the ability to customize the display of nodes, and as explained above, node information structure **9** (Fig. 6) includes display procedure slot **62** which points to a program function or procedure used to display the node content, thus making clear that node information structure **9** can hold information about how the node will be displayed. (Shimizu, Fig. 6, 6:52-55.) The disclosures of Shimizu and Benedict would have provided more than sufficient detail to enable an ordinarily skilled artisan to implement the proposed combination as described, without undue experimentation.

(b) “without requiring user input, automatically accessing a plurality of said network accessible resources identified by a corresponding node;” (Claim 1[b])

128. This limitation adds little to what was already discussed for claim 1[a]. Shimizu discloses that the system automatically accesses a plurality of resources, i.e., the content items associated with the nodes, for example, when the content resources associated with a node (“**a plurality of said... resources identified by a corresponding node**”) are displayed:

FIG. 11 is a flowchart of steps in which the embodiment displays the contents of nodes in accordance with the order of their links. This

processing is started using the mouse to click the ‘PLAY’ button in the operation designating area **82** of the window **80** in FIG. 8. The contents of the linked nodes are displayed in the order set by the link information.

(Shimizu, 8:11-16.) As I explained above, it would have been obvious based on the further combination with Fox that the resources under the proposed combination would have been “**network accessible**.” Shimizu further discloses that, in order to display the node contents, the system uses the entity information pointer slot **63** discussed in the previous limitation to identify the location of the content resources, and then to access and retrieve it:

Step 107 accesses and reads the entity information linked by the entity information pointer of the node information structure designated by the pointer pointing to the acquired node. When the entity information (character string, image, sounds, motion pictures) is acquired from the node information entity management part 8, the content of the acquired information is reproduced and displayed in the node content display area 81 of the window 80 by applying the program which is associated with the pointer in the display procedure slot 62 of the node information structure 9.

(Shimizu, 8:49-59.) Shimizu thus discloses “**automatically accessing a plurality of said network accessible resources identified by a corresponding node,**” as

claimed. Under the proposed further combination with Fox, as noted, the entity information pointer slot **63** would have included a URL associated with the text, image, sounds, or motion pictures on the Web to be displayed with the node. For example, if a URL pointed to a web page, the web page and any content resources on that page (*e.g.* images, videos, etc.), would have been accessed using known techniques, such as using a web browser.

129. Shimizu also confirms that the claimed step of accessing occurs **automatically**, and **without requiring user input**, because the access and subsequent display proceed from node-to-node without user intervention at predetermined intervals, based on the link information. (Shimizu, Fig. 11, (Steps 104-109), 8:67-9:4 (“In step **105**, the next node information is reproduced in accordance with the next link information. The processing above is carried out so that the node C is displayed followed by node B and node D, in accordance with the order of the link information.”), 5:11-14 (“This makes it possible to build with ease an application program illustratively causing the display of the nodes to be switched in a specific order and at predetermined intervals.”).) Shimizu does not disclose any user controls (*e.g.*, a “Next” button) for advancing to the next node. It thus would have been obvious that the content resources would have been accessed and presented on the user’s computer in continuous sequential fashion, one after another,

without requiring any input from the user beyond a single initial click of a PLAY button that serves to commence the node display process. As I will explain below, the claim does not exclude a system in which the automatic sequential display process is commenced in response to a user pressing a PLAY button.

130. Benedict similarly discloses accessing “**automatically**” and “**without requiring user input,**” because ScreenShow presentations can be “self-running” and thus proceed automatically:

Creating Self-Running Presentations

Self-running presentations automate your ScreenShow by displaying the slides for a specified length of time before the next slide appears—pressing a key is not necessary. At the end of the presentation, a HyperShow link causes the ScreenShow to start over from the beginning. The presentation continues until you press the Escape key. To create a self-running presentation, you must set the display time for the slides and create the link that begins the presentation again.

(Benedict, p.453.)

131. Fox also similarly discloses the ability to access resources automatically, as the “REFRESH” technique discussed above automatically retrieves the next page after the elapsed period of time. (Fox, p.315 (“A Web page can be programmed to tell a server to reload its data after a given amount of time.

The server waits and automatically gives the Web page the new information.”); *id.*, p.316 (“To load up a different document after a set amount of seconds, simply specify a full URL using the URL attribute.”).)

132. Under the proposed combination of Shimizu, Benedict and Fox, as noted, the user would initially activate a “PLAY” button or other control to initiate the automatic sequential display of the content resources identified by the nodes. (Shimizu, 8:17-19, Fig. 11 (Step 101).) This presents no obstacle to obviousness because the actual step of “**accessing a plurality of said network accessible resources identified by a corresponding node,**” is separate from user activation of a PLAY button – the step is performed automatically by the software. The “PLAY” button or other user control is merely unclaimed prerequisite user step that does not perform the actual claimed step of accessing the claimed plurality of resources. This is also consistent with the challenged patent, which similarly discloses a “Play button” functionality for initiating the automatic presentation of nodes. (’819, 16:25-26 (“The Play button begins the presentation of information.”).) The ’819 specification further explains that “[a] triggering event, such as a mouse click on a single ‘link’ commences the presentation of a series of resources instead of one resource at a time.” (’819, 2:59-61.) I note that the district court’s claim construction order expressly adopted Patent Owner’s argument that “**without**

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requiring user input” did not exclude user action that triggers the commencement of the show. Accordingly, an ordinarily skilled artisan would not have interpreted the “**automatically**” and “**without requiring user input**” limitations as precluding any type of input that causes initiation of node display.

133. I further note that prerequisite user steps, including the initial activation of a “PLAY” button, would not perform the actual claimed step of accessing “**a plurality**” said resources associated with the plurality of nodes, because advancement to sequential nodes (which would have been required to access and display the claimed “**plurality**” of resources) would have taken place automatically and without requiring any user input. Finally, I note that even if the claim required display of resources from start-to-finish without an initial user step in the causal chain (such as clicking a “PLAY” button), this would still have been obvious. As noted, Benedict above expressly discloses that a slide presentation can be configured, after its display is complete, to automatically and repeatedly replay itself. (Benedict, p.453 (“At the end of the presentation, a HyperShow link causes the ScreenShow to start over from the beginning. The presentation continues until you press the Escape key.”).) As such, the second, third, etc., runs through the set of nodes under the proposed combination – any one of which would have been sufficient to satisfy the claim – are even further removed from any previous user

steps in the causal chain including the initial press of a “PLAY” button.

- (c) **“causing content corresponding to each of said accessed resources to be automatically accessed and presented through said user’s computer in accordance with said show structure such that during said presentation of at least some of said content from said accessed resources, at least some of said other network accessible resources are being accessed,” (Claim 1[c])**

134. As just explained for claim 1[b], the resources associated with each node (*e.g.*, character strings, images, sounds, motion pictures, etc.) are automatically accessed and retrieved. Because these resources (*e.g.* files, web pages, etc.) contain the underlying content, by accessing and retrieving these resources, the **“content corresponding to each of said accessed resources”** is also automatically accessed. The content is then automatically presented through the user’s computer. (Shimizu, 8:11-16, 8:49-59; Benedict, p.435 (“Self-running presentations automate your ScreenShow by displaying the slides for a specified length of time before the next slide appears—pressing a key is not necessary.”); Fox, p.316) The content is automatically displayed **“in accordance with said show structure,”** because it is presented in the sequence specified by the corresponding link information for the nodes. (Shimizu, 8:67-9:4, 5:11-14.)

135. Claim 1[c] continues by reciting that **“during said presentation of at least some of said content from said accessed resources, at least some of said**

other network accessible resources are being accessed.” This limitation is obvious based on Benedict (discussed above) and **Wolfe**.

136. As explained in **Part V**, this claimed feature recites nothing more than a well-known technique, commonly referred to as “pre-fetching” or “pre-loading,” in which a computer fetches or loads data before the point in time when the data is actually needed. When the computer later needs that requested data, it can utilize it immediately because it has already been fetched or loaded.

137. Pre-loading was also a commonly used technique for reducing delays associated with presenting information to a user. For example, Benedict discloses a feature in which Harvard Graphics can prepare for the display of a subsequent slide during the display of a current slide, and notify the user when the next slide is ready for display:

Signalling [sic] for the Next Slide. Depending on the power and speed of your computer, Harvard Graphics may need time to prepare the next slide in the presentation before displaying it. The Signal when next slide is ready: options in the Edit ScreenShow Effects dialog box enable you to activate an audible signal (a beep) and visual signal (a small arrow in the bottom right corner of your screen) to indicate when the next slide is ready.

(Benedict, p.441 (boldface in original).) As shown, Benedict confirms that “Harvard

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Graphics may need time to prepare the next slide in the presentation before displaying it” (*id.*), but by preparing the next slide during the time the user is viewing the current slide, the next slide can be displayed when needed without unnecessary delay.

138. Benedict renders this aspect of claim 1[c] obvious because during the presentation of the content resources of a current slide, the resources in at least a subsequent slide are being accessed in order to “prepare the next slide in the presentation before displaying it.” (*Id.*) An ordinarily skilled artisan would have understood that the act of “accessing” information is a broad one that encompasses opening a file and reading information from it, among other acts. (*See Microsoft Press Computer Dictionary* (2d ed. 1994), EX1020, p.7 (“**access** To obtain entry into, or to locate, read into memory, and make ready for, some operation.”).) An ordinarily skilled artisan would thus have appreciated that resources are “**being accessed**” when, for example, the computer is retrieving them from storage and loading them into memory for use.

139. In the case of Benedict, in order to prepare the next slide for display, the software would have accessed resources associated with that next slide, such as by reading those resources into memory in order to prepare the display of the next slide. Under the proposed combination, therefore, it would have been obvious that

“during said presentation of at least some of said content from said accessed resources,” *i.e.*, during presentation of content resources associated with the currently displayed node, **“at least some of said other network accessible resources are being accessed,”** *i.e.*, content resources associated with the next node are being accessed (such as by retrieving them from the Internet via their URLs) in order to prepare the next node for display. An ordinarily skilled artisan would have been motivated to implement this technique to improve the performance of the system and user experience by eliminating or reducing the amount of delay before the display of the next node.

140. Benedict does not disclose details about how the next slide preparation technique works, so the extent Benedict is faulted for any lack of technical detail, I have also cited to **Wolfe**, which discloses more details about a similar technique for pre-loading information while the user is viewing other information.

141. Wolfe explains that a sequence of documents can be identified for the user, for example, by using the results of a search query. (Wolfe, 1:53-57 (“Whatever querying technique is used, a search engine uses the query [to] define a class of documents within the database, and locates each of the documents within the class. The user then browses the search results by ‘paging through’ one or more of the search documents.”).) But Wolfe explains that “today’s database systems are

plagued by the problem of slow document retrieval.”

Consequently, today’s database systems are plagued by the problem of slow document retrieval. After a query is processed and search documents are identified, the user begins browsing the search results by studying the first view (or screen of information) from one of the search documents. The user then either “pages-down” to the next view within the same document, or moves to another search document. Each of these moves requires that new information be retrieved from the database before it can be displayed on the screen. Since the retrieval time is substantial... the database system is slow in responding to the user's request for the information.

(Wolfe, 2:1-12.) Wolfe addresses this issue through a technique in which, while the user views certain information, other information the user will likely to need at a later point is preloaded:

This need can be satisfied by effectively utilizing the time the user spends studying the information on the display screen. In a database system (or document retrieval system) in one embodiment of the present invention, information that the user is likely to eventually request is preloaded into memory while the user is viewing other information. The present invention takes advantage of the fact that it is possible to accurately predict the information that the user will eventually request be shown on the display. The present invention also takes advantage of the fact that the time that the user spends viewing

displayed information is often sufficient to advantageously preload a substantial amount of information.

(Wolfe, 2:23-35.) Wolfe further explains:

In the systems of the prior art, when the database system receives the command to display a different view, the requested view must be loaded from the database **30** before it can be displayed on the monitor **27**. Since retrieving information from the database is time-consuming, this loading process is undesirably slow. But in a system employing the present invention, the time required to respond to the user's request for a different view (the “requested view”) is reduced by taking advantage of the fact that it is often possible to predict the requested view before the user actually requests it. In the present invention, the view(s) that the user is likely to next request are preloaded while the user is reading the displayed view.

(Wolfe, 5:47-59.) Although an exemplary embodiment in Wolfe involves an on-line legal database, Wolfe makes clear that his techniques are broadly applicable to any type of documents that can be retrieved and presented to the user. (Wolfe, 4:20-23 (“But a ‘document’ need not only be text—it could be a picture, video clip, or information in another format, such as might be available in a multimedia encyclopedia.”).) Wolfe also makes clear that his techniques are applicable to both single-user databases as well as networked databases accessible by multiple users

simultaneously. (Wolfe, 3:60-4:8.)

142. ***Rationale and Motivation to Combine (Shimizu, Fox, and Benedict with Wolfe)***: It would have been obvious to combine with Wolfe, predictably resulting in the Shimizu-Fox-Benedict system with the further ability to access “**at least some of said other network accessible resources,**” *i.e.*, content resources on the Internet associated with the next node in the show structure, “**during said presentation of at least some of said content from said accessed resources,**” *i.e.*, during display of content resources for the current node. For example, during the display of the current node to the user, the system could have retrieved the resources (*e.g.*, Web pages, images, etc.) associated with the next node over the Internet.

143. Wolfe is an analogous reference in the field of content retrieval over networks, and would have been pertinent to a number of problems facing the inventor. For example, Wolfe would have been pertinent to implementing techniques for accessing content resources during the display of other content resources, including benefits of incorporating such techniques into the invention.

144. An ordinarily skilled artisan would have been motivated to combine to improve user experience, by reducing or eliminating the delays associated with accessing and displaying the next node’s content resources. Benedict supports this motivation by explaining “Harvard Graphics may need time to prepare the next slide

in the presentation before displaying it” (Benedict, p.441), and that same observation would have applied to any system that presents information sequentially to the user – including the proposed combination. Wolfe supports this motivation by explaining, as noted, that the “undesirably slow” loading process can be reduced by preloading subsequently-needed information during the display. (Wolfe, 5:47-59.) Wolfe also explains that his preloading technique is particularly appropriate in a scenario in which the system can predict what information the user will subsequently require. (Wolfe, 2:23-35.) The proposed combination presents precisely that scenario because nodes are presented to the user in a predetermined (and thus predictable) sequence based on the link information. Wolfe thus provides a clear advantage because, during the time when the user is reviewing the current node, the system can access network accessible resources associated with the next node.

145. Nor does Wolfe in any way “teach away” from the proposed combination. A passage in Wolfe explains that his preloading technique is potentially more effective to single-user databases such as those in which data is loaded from local storage such as a CD-ROM, because in a single-user database, no competing demands by other users exist. (Wolfe, 9:13-18.) But in a many-user or multiple-user database (such as a database accessed over a network), Wolfe asserts, simultaneous requests may exist from multiple users resulting in the invention being

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less effective because the database may not be in an idle state when the requests are received. (Wolfe, 9:19-26.) An ordinarily skilled artisan would not have interpreted these statements as discouraging the use of preloading with a network accessible database such as a many-user or multiple-user database, as Wolfe acknowledges that even with these types of databases, “where the database is not as busy, the present invention can be effective in reducing response times to users’ requests for information.” (Wolfe, 9:27-29.) It would have been obvious to an ordinarily skilled artisan that the performance increase achieved by preloading would have depended on a number of additional factors, including the amount of time the current node is being displayed before advancement to the next node (as a longer duration would have provided more time for preloading), as well as the network speed and latency.

146. Wolfe’s comments also appear to pertain to highly centralized databases simultaneously accessed by a large number of users. But under the proposed combination, content resources associated with nodes (identified by URLs) could have been located across multiple servers on the Web, thus avoiding the centralization concerns of Wolfe. And even in a system involving a highly centralized database or server, an ordinarily skilled artisan would have understood that the preloading will still achieve benefits because – regardless of the response time or congestion at the database or server – the requested information would have

been provided earlier because it was requested at an earlier point in time.

147. An ordinarily skilled artisan would have had at least a reasonable expectation of success, and could have implemented the proposed combination using conventional programming techniques. Techniques for loading content resources over a network (such as the Internet) were well-known. The ability to access resources associated with a subsequent node, during display of a current node, could have been implemented using conventional techniques. The disclosures of Wolfe and Benedict would have provided more than sufficient details to have enabled an ordinarily skilled artisan to implement the preloading features I am citing for this claim limitation, without undue experimentation.

(d) “wherein said step of creating further comprises the step of providing interactively variable duration information, representing the duration that said content corresponding to said accessed resource is presented so as to enable a user to vary said duration; and” (Claim 1[d])

148. Shimizu also discloses that the step of creating the show structure of nodes also comprises providing duration information (*i.e.* a “predetermined interval” for the display of the content associated with a node):

As described, the hypertext apparatus of the invention offers a user interface capable of putting into a desired order the links between the nodes to be managed and of manipulating the established link order.

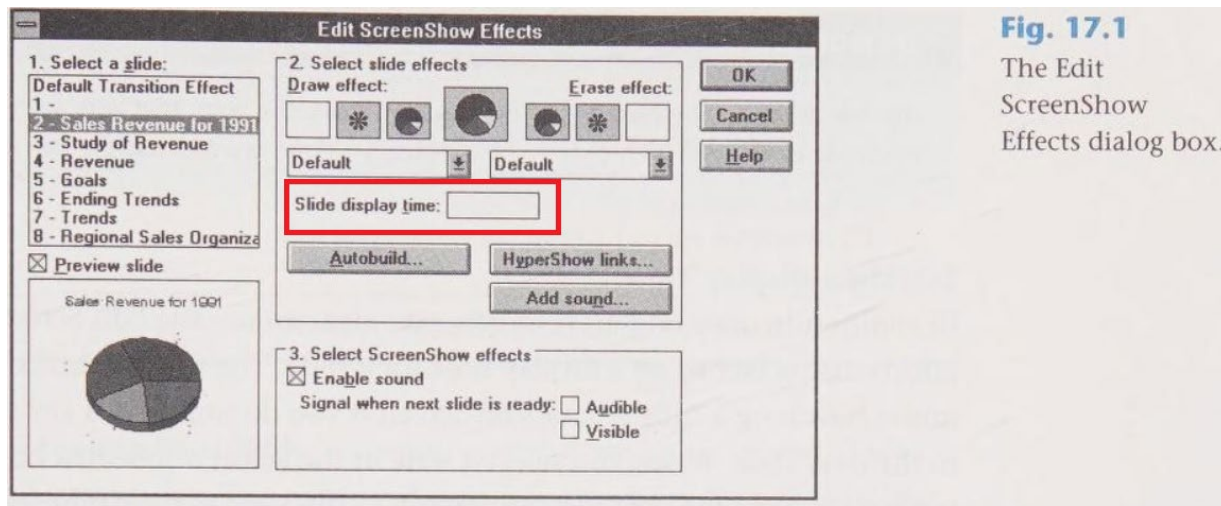
This makes it easy to create illustratively an application program allowing the display of node contents to be switched in a desired order and at **predetermined intervals** on the hypertext apparatus.”

(Shimizu, 9:60-66; *see also id.*, 5:11-14 (“This makes it possible to build with ease an application program illustratively causing the display of the nodes to be switched in a specific order and at predetermined intervals.”).)

149. As explained for claim 1[a], Shimizu does not disclose further details about the predetermined interval the switching the display from one node to the next, and does not expressly disclose that the duration information is “**interactively variable**” or that the content is displayed “**so as to enable a user to vary said duration.**” But this would have been obvious in further view of **Benedict**.

150. As explained for claim 1[a], under the combination of Shimizu with Benedict, each node would have included a display time that could have been interactively varied by the user – under two separate theories. First, Benedict discloses that the user can change the display time for a node using the ScreenShow Effects feature. (Benedict, *e.g.*, p.453 (“You set links and display times in the Edit ScreenShow Effects dialog box.”), p.440 (“You can set a display time... by typing a time in the Slide display time: text box.”).)

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(Benedict, p.439, Fig. 17.1 (red box added).) As Benedict explains:

You can enter the time in seconds or in minutes and seconds separated by a colon. Entering 23, for example, sets the display time to 23 seconds; entering 1:30 sets the display time to 1 minute and 30 seconds.

(Benedict, p.440 (italics in original).) As noted previously, this technique can be used to edit the display time for each slide individually, or for all slides. Benedict thus discloses that a user can interactively (through the user interface) vary the display time for a slide. Under the proposed combination of Shimizu and Benedict, therefore, the duration information for a node (specifying how long its content will be displayed) can be interactively varied by a user – and if desired, on a node-by-node basis. For purposes of this first way, the “user” may be a user creating or editing the presentation, who could have been the same user who would also be viewing the presentation.

151. As a second and independent way of satisfying the “**interactively variable duration information**” limitation, I am informed that in the pending litigation, Patent Owner has taken the position that a user can interactively vary the duration information through a user interface control that allows the user to skip or advance to the next item. I am further informed that Petitioner does not agree that such functionality satisfies the requirement of interactively variable duration information. Nevertheless, in the event the claim were construed to encompass this functionality, the prior art discloses and renders it obvious. More specifically, Benedict discloses that a user can vary the display time by pressing a button during a ScreenShow displaying a current slide to advance to the next slide without having to wait the full display time: “The display time determines how long a slide remains on-screen if you do not press a key to move to the next slide.” (Benedict, p.440; *see also id.*, p.443 (“Next slide... Moves to the next slide in the presentation”), *id.* (“In addition to keys and buttons, you can define a link that determines the length of the slide display time.”).) The user under the proposed combination can thus vary (*i.e.* shorten) the display duration by immediately advancing to the next node before expiration of the node’s specified duration. I note that for purposes of this second way, the “user” could include the user viewing the presentation, and as noted, this could be the same user who would be creating or editing it.

152. Under the proposed combination, therefore, a user can interactively vary the duration within which a corresponding content to a node is being displayed, either **(1)** by allowing a user to interactively change the “display time” for one or more nodes through a user interface or **(2)** by allowing a user to press a button during display of node content to shorten/truncate the display time, to the extent it is determined that the claim encompasses such functionality.

153. I am informed that in a previous litigation involving the related '451 patent, a district court construed “**interactively variable duration information**” as *“a parameter specifying how long a content is to be displayed by default before a subsequent content is displayed, where the viewer of the content can change the parameter.”* This construction is also satisfied by the proposed combination. In situation **(1)** discussed in the previous paragraph, the parameter corresponds to the duration for the display of node content, *i.e.*, a default display time (“predetermined interval”) in Shimizu before advancing to the next node, which the viewer can change as needed through a user interface such as Edit ScreenShow Effects dialog box in Benedict. It would have been obvious that the “predetermined” interval in Shimizu is a default value, because the intervals are “predetermined” and nothing in Shimizu suggests that they were selected by the user. In situation **(2)**, to the extent it is determined that the claim encompasses such functionality, the parameter is the

default amount of time the software waits when actually displaying a particular node contents before advancing to the next node (based on the established display time) – which the user can shorten by taking action (such as pressing a button) to advance to the next node before expiration of the display time, as explained.

154. This is also consistent with Fox, which confirms that the ability to change the display time could have been accomplished using any number standard web-based techniques such as a text field to solicit the display time from the user (Fox, pp.396-397), and immediately switching to the next node could have been accomplished using a standard URL or hyperlink to implement a “Next” button or link (Fox, p.238 (“The [Next] button loads up the next page in the series, and the [Previous] button, naturally, loads up the previous page.”).) The system built based on the proposed combination, therefore, would have been further adapted to include a user interface feature for allowing the user to specify the time for displaying the content of individual nodes (*e.g.*, as a text box or other suitable control), and a feature for allowing a user to advance to the next node without having to wait the full display time. Under either theory, therefore, the duration could have been interactively varied by the user/viewer of the content. The rationale and motivation to combine Shimizu, Benedict, and Fox was provided for claim 1 [a] and applies here.

- (e) **“causing advertisement content to be presented to said user in connection with said automatic presentation of said content through said user’s computer.” (Claim 1[e])**

155. Shimizu, Fox, and Benedict do not expressly disclose that the content displayed through the automatic presentation includes **“advertisement content,”** but this would have been obvious in view of Filepp. As explained below, it would have been obvious that the **“show structure of nodes”** would have included nodes whose resources included advertisement content.

156. Filepp discloses an “interactive computer system that enables a user to display desired information, such as news, financial and cultural information, and perform desired transactional services, such as banking and shopping, through any of a plurality of types of personal computers.” (Filepp, Abstract.) Filepp was originally assigned to Prodigy Services Company, an early provider of interactive on-line services that competed with companies such as America Online (AOL) before widespread adoption of the Web.

157. The interactive system in Filepp displays “pages” to the user, with each page divided into a series of partitions as shown in Figure 3a:

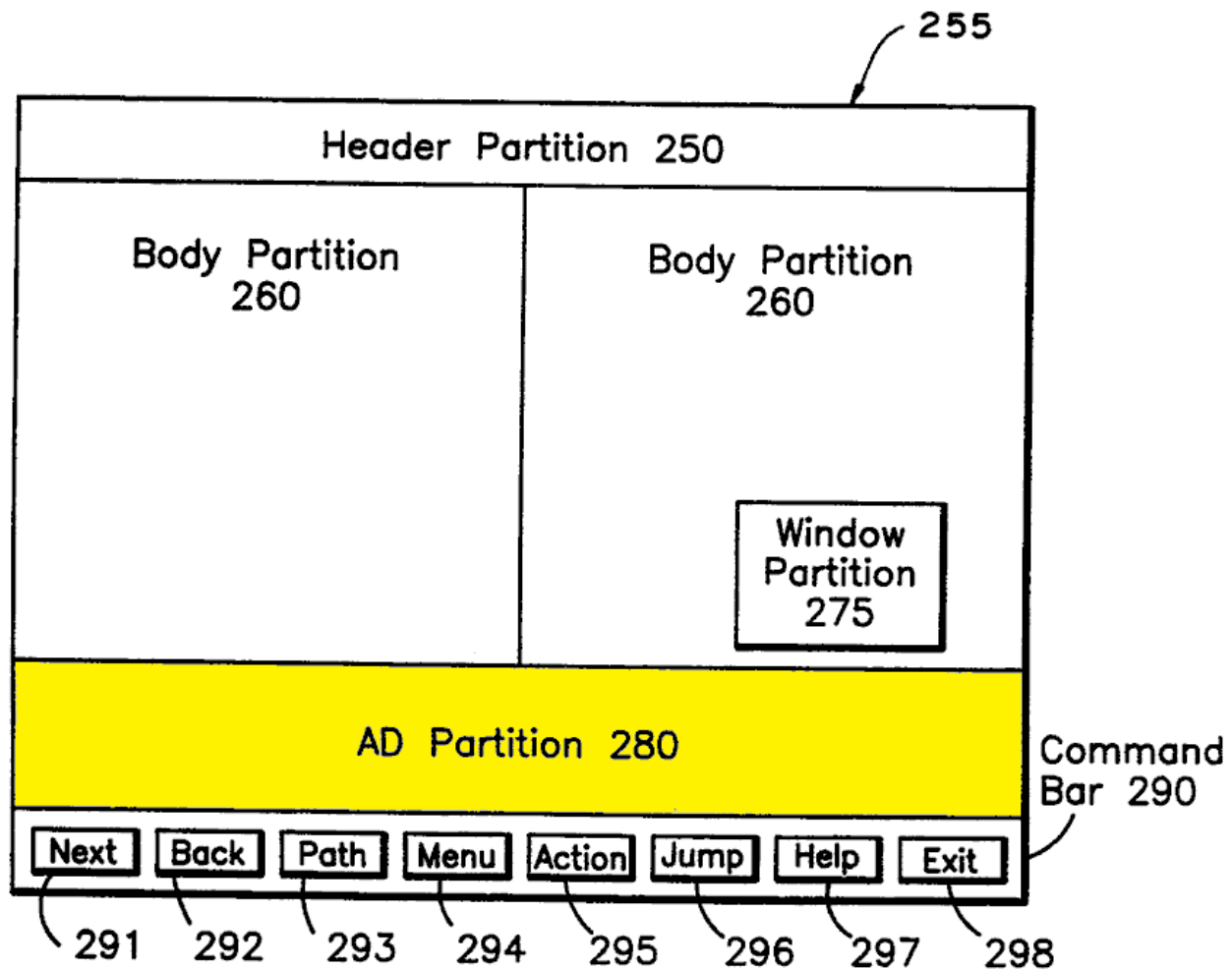


FIG. 3a

(Filepp, Fig. 3a.) “With reference to FIG. 3a, each page **255** is formatted into page partitions **250**, **260**, **280**, and **290** (not to be confused with applications partitions).”

(Filepp, 8:68-9:3.) Header partition **250** “typically conveys information on the page’s topic or sponsor,” and body partitions **260** and window partition **275** “gives the information and transactional content of the page.” (Filepp, 9:10-16.) AD

partition **280**, as its name implies, displays advertisements provided over the network for display to the user. (Filepp, 9:27-30, 9:30-34 (“Advertisements **280** may be presented to the user on an individual basis from queues of advertisements that are constructed off-line by business system **130**, and sent to file server **205** where they are accessible to each RS **400**.”), 12:64-66.)

158. Filepp further discloses that the advertisements received by the system are targeted based on specific information about the user, such as its past activities, demographic information, ZIP code and other targeting criteria. (Filepp, 9:35-47.) As noted previously, these advertisements are accessible to the user computer (RS **400**) from file server **205**. (Filepp, 9:30-34.) Filepp thus discloses “**causing advertisement content to be presented to [a] user.**”

159. ***Rationale and Motivation to Combine (with Filepp):*** It would have been obvious to combine Shimizu, Benedict, Fox, and Wolfe with Filepp, in the manner described above. The combination would have predictably resulted in the automatic presentation of node content to the user (as described in claim 1[c]), with the further ability to present “**advertisement content**” to the user in connection with the presentation of the content.

160. Filepp is an analogous reference in the field of interactive services for displaying content to users, and would have been reasonably pertinent to problems

facing the inventor. For example, Filepp would have been pertinent in understanding how to select dynamic content for the user based on its user profile, including advertising content – a feature of the alleged invention.

161. An ordinarily skilled artisan would have been motivated to combine for a simple reason – to make money. It was well-known long before the Internet that companies paid to display advertisements for their products or services across all forms of media (*e.g.* television, radio, newspapers, magazines, billboards, etc.). An ordinarily skilled artisan would have been motivated to adapt the proposed combination to also display advertisement content as disclosed in Filepp. For example, the revenue earned from such advertisements could have been used to defray the costs of developing and deploying the system or for other purposes. In Filepp, advertisements can be selected based on (among other things) the user's ZIP code (Filepp, 9:35-47), which would have allowed the system to target products and/or services specific to that geographic region, thus increasing the utility and value of the advertisements.

162. An ordinarily skilled artisan would have had at least a reasonable expectation of success and could have implemented the proposed combination using conventional programming techniques. It would have been trivial to adapt the proposed combination to include advertisement content in the automatic

presentation. The disclosures of the prior art cited above would have provided more than sufficient details to have enabled an ordinarily skilled artisan to implement the proposed combination, without undue experimentation.

2. Claim 2

163. Claim 2 depends from claim 1, and further recites “[t]he **method as claimed in claim 1, wherein said advertisement content is dynamic content.**” The prior art renders claim 2 obvious under two separate theories. First, as explained for claim 1[e], the advertisement content is targeted based on specific information about the user, such as past activities, demographic information, ZIP code, and other criteria. (Filepp, 9:35-47.) Such an advertisement qualifies as “**dynamic content**” because it was selected specifically for the requesting user based on its characteristics (as opposed to a static content sent to every user).

164. Second, to the extent “**dynamic content**” requires the generation of new content, it was well-known that web servers on the Internet generated content in response to requests from web browsers, such as a request to access a resource at a particular URL. Fox describes a process using a well-known process known as the Common Gateway Interface (CGI), which allowed web servers to execute scripts that dynamically generated web content on-the-fly in response to a request from the web browser. (Fox, p.391, p.423 (“CGI scripts are used for doing all of the ‘cool’

stuff on the Net. There are... sites that create graphic images on-the-fly.”).) For example, Fox shows an example of a web page that uses a CGI script to generate a web page image representing the current image captured by a camera in a laboratory. (Fox, p.424, Fig. 15-2.) Aside from images, it was well-known (and in fact more common) to use CGI techniques to generate HTML on-the-fly in response to a user request, which is discussed extensively in Fox. (Fox, pp.421-23.) It would have been obvious to generate new content for a wide variety of purposes, such as news, financial, and weather content, as these are areas where information regularly changes.

165. Under the combination of Filepp with Fox, moreover, advertising content could also have been generated on-the-fly, *e.g.*, an advertising image generated by a CGI server script as disclosed in Fox.⁵ (Fox, pp.423-424 (“CGI scripts are used for doing all of the ‘cool’ stuff on the Net. There are... sites that create graphic images on-the-fly.”), Fig. 15-2.)

166. I already provided the motivation to combine with respect to Filepp for

⁵ In my opinion, the term “**dynamic content**” does not require creation of new content for the user – it also encompasses delivery of pre-existing content dynamically selected for the user. But as explained in the text, even if the claimed dynamic content requires newly-created content, this was disclosed by and obvious in view of the teachings of Fox.

claim 1[e] above. An ordinarily skilled artisan would also have been motivated to provide “**dynamic**” content because it was well-known that dynamic advertising content targeted to the user based on their characteristics was more likely to be interesting to the user when compared to advertising delivered without regard to the viewer or audience. In the example in Filepp, advertisements can be selected based on (among other things) the user’s ZIP code (Filepp, 9:35-47), which would have allowed the system to target products and/or services specific to that geographic region, thus increasing the utility and value of the advertisements. Fox itself provides multiple express motivations to employ this technique, as it explains that “CGI scripts are used for doing all of the ‘cool’ stuff on the Net,” such as creating graphic images on-the-fly, accessing live video feeds, accessing large databases, among other uses. (Fox, p.423.) The use of CGI to generate content on-the-fly for users was well-known, and an ordinarily skilled artisan would have been motivated to use this technique to provide dynamic advertising to the requesting user – a clear advantage when compared to simply sending the same (static) advertisement content to every requesting user.

3. Claim 3

167. Claim 3 depends from claim 1, and further recites “[t]he **method as claimed in claim 1, wherein said advertisement content is a default set of**

advertisement content.” The ’819 patent does not define “**default set of advertising content,”** but describes it generally as pre-defined and non-dynamic content. (’819, 9:1-7.) As explained above, Filepp goes beyond display of a mere “**default set of advertisement content**” by disclosing advertisements that are targeted to the user based on their previous actions, demographic information and other targeting criteria. (Filepp, 9:35-47.) But the claimed **default set** of advertisement content would also have been obvious based on Filepp.

168. For example, Filepp discloses “Index” and “Path” features that allow the user to access a list of keywords to select a network application or object. (Filepp, 76:64-77:2, 77:15-21.) The “Path” feature provides “a list of keywords the user has previously selected; i.e., a personally tailored form of the Index command described above.” (Filepp, 77:15-18.) But Filepp explains that “where the user has not selected a list of personalized keywords, a default set is provided which includes a predetermined list and associated applications deemed by network **10** as likely to be of interest to the user.” (Filepp, 77:21-25.) This same reasoning, in my opinion, renders obvious the claimed “**default set of advertisement content.**”

169. This is because it would have been obvious that, like the personalized keyword command example above, there would have been situations in which the system under the proposed combination does not have enough information about the

user with which to perform targeted and personalized advertisement selection, in which case a default set of advertisement content would instead be utilized. Filepp explains that a personalized queue of advertisements is “constructed using data previously collected from user generated events and/or reports of objects used in the building of pages or windows, compiled by data collection manager **466** and transmitted to interactive system **10**.” (Filepp, 91:19-25, 9:35-41.) But like the keyword command above, it would have been obvious that for a new user, the system may not have collected the usage information used to perform targeting advertising.⁶ It thus would have been obvious to provide a “**default set of advertisement content**,” which would have beneficially resulted in the system being able to present non-targeted advertising content until the point in time when the personalized queue of targeted advertisements in Filepp could be constructed for delivery to the user.

4. Claim 4

170. Claim 4 depends from claim 1, and further recites “[t]he method as **claimed in claim 1, wherein said show structure of nodes is interspersed with**

⁶ Filepp does disclose the ability to use of demographic information in addition to user actions, but this is a secondary and optional embodiment to the use of usage information (Filepp, 9:41-44), and it would have been obvious that the system may not even have this type of information (for example, if the user did not provide it).

said advertisement content.” Claim 4 adds little to what was already discussed for claim 1. As explained for claim 1[a], each content resource under the proposed combination associated with each node would have been associated with a URL identifying a location on the Web. As further explained for claim 1[a], this URL under the proposed combination would have been included as part of the node information (*e.g.* in entity information pointer slot **63**) for the node(s) to which the content is associated. And as explained for claim 1[e], it would have been obvious that the content resources associated with a node could also have included advertisement content. Accordingly, show structure is “**interspersed**” with the advertising content in the sense that the advertising content would have been identified and retrieved using the information in the show structure.

171. To the extent the requirement of the show structure being “**interspersed**” with advertising content speaks to the eventual display of advertising content (as opposed to its representation within the show structure), this would also have been obvious. And as explained for dependent claim 5 below, under the combination with Filepp, the advertisement content would have been displayed in a persistent content window on the screen (for example AD partition **280** in Fig. 3b) in connection with display of its corresponding node. Under the proposed combination, as the system moves from one node to the next, the advertisement

content would have been “**interspersed**” in the sense of being displayed in connection with a particular node as part of the sequential display of nodes in the show structure.

5. Claim 5

172. Claim 5 depends from claim 1, and further recites “[t]he **method as claimed in claim 1, wherein said advertisement content is presented in a persistent content window.**” The ’819 patent does not expressly define “**persistent content window,**” but provides examples such as “a small window on the user’s screen” that can display content provided by a server, “such as advertising or user specific messages.” (’819, 8:42-44.) I am informed that in previous litigation involving the related ’451 patent, a district court construed “**persistent content window**” as “*a designated window for displaying content to a user.*”

173. As explained for claim 1[e], it would have been obvious based on Filepp to present advertisement content. It would also have been obvious to display that content in a persistent content window on the user’s display screen. As noted above, the interactive system in Filepp displays “pages” to the user, with each page divided into a series of partitions as shown in Figure 3a:

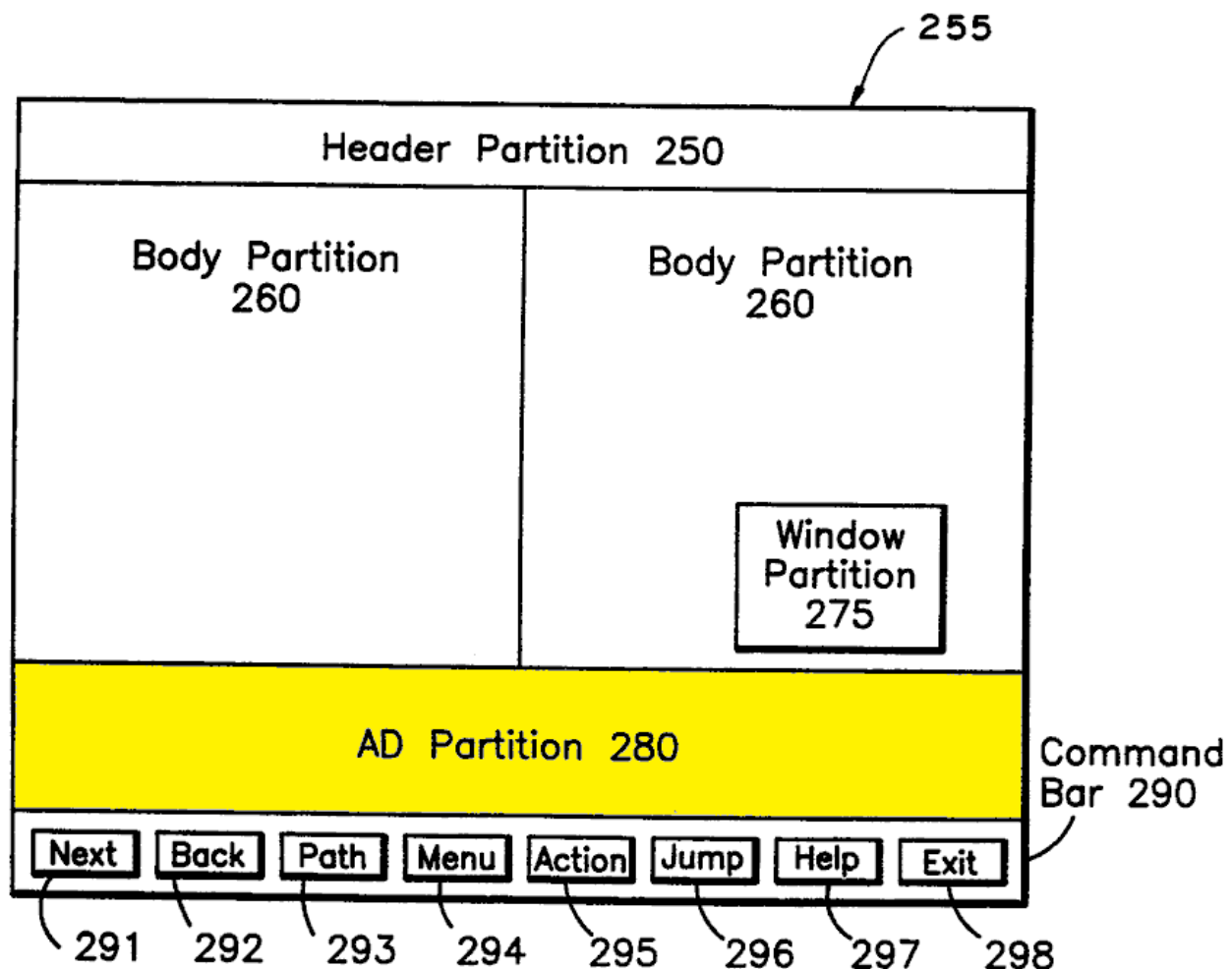


FIG. 3a

(Filepp, Fig. 3a (highlighting added).) “With reference to FIG. 3a, each page **255** is formatted into page partitions **250**, **260**, **280**, and **290** (not to be confused with applications partitions).” (Filepp, 8:68-9:3.) Header partition **250** “typically conveys information on the page’s topic or sponsor,” and body partitions **260** and window partition **275** “gives the information and transactional content of the page.”

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(Filepp, 9:10-16.) AD partition **280**, as its name implies, displays advertisements provided over the network. (Filepp, 9:27-30, 9:30-34 (“Advertisements **280** may be presented to the user on an individual basis from queues of advertisements that are constructed off-line by business system **130**, and sent to file server **205** where they are accessible to each RS **400**.”), 12:64-66.) For purposes of this Declaration, I have identified AD partition **280** as “a **persistent content window**,” which provides a designated window on the screen devoted to the display of a particular type of content (*i.e.* advertising). This is consistent with the ’819 patent which, as noted, provides an example of a persistent content window as “a small window on the user’s screen” that can display content “such as advertising or user specific messages.” (’819, 8:42-44.) The AD partition **280** is also “**persistent**” because it appears in a designated and consistent place on the screen and its contents are separate and independent of the contents of other partitions. (Filepp, *e.g.*, 9:27-47, 10:30-36.) Each partition in Filepp also has a particular program associated with it (a “TBOL program”) that has access to the partition’s data – but not the data of other partitions. (Filepp, 39:23-36, 44:59-45:4.) It therefore would have been obvious that the content of AD partition **280** in Filepp could have remained on the screen even as the content of other partitions on the screen changed.

174. Under the proposed combination, therefore, the advertisement content

would have been displayed in a fixed and dedicated partition on the user's display device. An ordinarily skilled artisan would have been motivated to provide this functionality to improve user experience by locating placing advertising information in a consistent part of the screen, thus enhancing the user's ability to perceive it.

175. As noted for claim 1, an ordinarily skilled artisan would have been motivated to combine with Filepp to obtain the benefits of displaying advertising. An ordinarily skilled artisan would have been motivated to provide a persistent content window in order to improve user experience. An ordinarily skilled artisan would have appreciated that a persistent content window would have provided greater consistency and uniformity to a graphical user interface. It was well-known to ordinarily skilled artisans that organizing different types of information on the screen by displaying them in designated and consistent locations would have allowed the user to more quickly locate information of interest. Using the example in Filepp above, AD partition 280 provides a consistent location for advertising information on the screen, allowing a visual tool for the user to quickly identify such information and distinguish it from other types of information presented on the screen.

176. An ordinarily skilled artisan could also have implemented this combination using conventional programming techniques. The ability to partition a

user display into separate windows or sections was an elementary feature of graphical user interfaces (such as Microsoft Windows), and within the Web context, the ability to create a persistent content window within a page was a built-in feature of the HTML frames (<FRAMESET>) feature that was a standard available in standard HTML before the priority date. An ordinarily skilled artisan would have found the disclosures of the prior art more than sufficient to implement the claimed persistent content window, within the proposed combination, without undue experimentation.

6. Claim 6

177. Claim 6 depends from claim 1, and further recites “[t]he method as claimed in claim 1, wherein said advertisement content is presented using a node in said show structure of nodes.” As explained for claim 4, the advertisement content would have been presented using a node. For example, as explained for claim 1[a] and 1[e], the content resources under the proposed combination would have been retrieved via a URL. The presentation of advertisement content (as with other content) thus takes place “using” a node in the show structure.

7. Claim 7

178. Claim 7 depends from claim 1, and further recites “[t]he method in accordance with claim 1, wherein said advertisement content is presented using

a URL.” As just explained for claim 6, content resources are retrieved and presented using a URL.

8. Claim 8

179. Claim 8 depends from claim 1, and further recites “[t]he method in accordance with claim 1, further comprising the step of providing said advertisement content in accordance with a user’s profile.” As explained for claim 2 and claim 3, under the further combination with Filepp, targeted advertisements dynamically selected for the user may be based on information about the user such past activities, demographic information, and other targeting criteria:

Individual queues of advertisements are constructed based upon data collected on the partitioned applications that were accessed by a user, and upon events the user generated in response to applications. The data are collected and reported by RS 400 to a data collection co-application in file server 205 for later transmission to business system 130. In addition to application access and use characteristics, a variety of other parameters, such as user demographics or postal ZIP code, may be used as targeting criteria. From such data, queues of advertisements are constructed and targeted to either individual users or to sets of users who fall into certain groups according [sic; to] such parameters.

(Filepp, 9:35-47.) This renders obvious “**providing said advertisement content in accordance with a user’s profile,**” as claimed, because the targeted advertisements

are provided in accordance with the user's interests (based on the previous information they accessed) and/or characteristics (such as demographics, ZIP code, and other criteria). This is consistent with the '819 patent, which identifies similar information as examples of user profile information. ('819, 8:56-60 ("Such dynamic content is usually based on, among other things, the user's profile. For example, some of the factors relating to a user profile, which are considered include a particular sports team preference; a demographic; or a pre-set profile as specified in the software.").)

9. Claim 9

180. Claim 9 depends from claim 1, and further recites "[t]he method in accordance with claim 1, wherein said advertisement content is a resource accessible via the Internet." As explained above, the advertisement content would have been identified by a URL and would thus be accessible via the Internet.

10. Claim 10

181. Claim 10 depends from claim 1, and further recites "[t]he method in accordance with claim 1, wherein said advertisement content is a resource accessible via an Internet website." For the same reasons as claim 9, it would have been obvious that the URL identifying the advertisement could have identified a resource accessible via an Internet website (*e.g.*, a web page, image, or other

resource accessible via a website).

11. Claim 11

182. Claim 11 depends from claim 1, and further recites “[t]he method in accordance with claim 1, wherein said advertisement content is video content.” As explained for claim 1, Shimizu discloses that the content associated with a node could have included motion pictures (video). (Shimizu, 1:26-29, 6:1-3, 6:39-42, 8:52-59.) Fox similarly discloses that Web resources can include video content. (Fox, p.45 (“The Web combines graphics, video, sound, text, hypertext, and more.”).) It would have been obvious that “said advertisement content,” as with any other content resources associated with the show structure of nodes, could have been video content.

12. Claim 12

183. Claim 12 depends from claim 1, and further recites “[t]he method in accordance with claim 1, wherein said advertisement content is displayable content.” This limitation adds nothing of significance. As explained for claim 1[a], Shimizu discloses that the content resources could have included character strings, images, and motion pictures, which are examples of displayable content. It would have been obvious that “said advertisement content,” as with any other content resources associated with the show structure of nodes, could have been displayable

content.

13. Claim 13

184. Claim 13 depends from claim 1, and further recites “[t]he **method in accordance with claim 1, further comprising the step of altering the show structure in response to user action related to said advertisement content.**”

Shimizu discloses a DEL button (Fig. 8) that the user can activate to delete a node. (Shimizu, Fig. 8, 7:25-28 (“...the DEL button is used to delete a node.”).) Under the proposed combination, therefore, it would have been obvious to “**alter[] the show structure in response to user action,**” as user action to delete a node would have altered the show structure. Deletion of the node would also have removed its associated node information, including information identifying the advertisement content associated with the node.

185. It also would have been obvious that the user action to delete the node could have “**related to said advertisement content,**” because under the proposed combination, the action would have taken place during display of the advertisement content. I note that the claim only requires user action “**related**” to the advertisement content, and does not impose requirements about the subjective motivations of the user, such as whether the user took the action *because of* the advertisement. The fact that the deletion of the node occurred while the advertisement was displayed, in my

opinion, discloses user action “**related**” to said advertisement content. But even if the claim imposed a requirement about the subjective motivation of the user, it would have been obvious for a user to have chosen to delete a node from a show structure because the user found the advertisement content undesirable and wanted to ensure that it would not be presented during the show. I have also addressed claim 13 in connection with **Ground 4**, which provides a further basis for showing obviousness of this claim limitation.

14. Claim 14

186. Claim 14 depends from claim 1, and further recites “[t]**he method in accordance with claim 1, wherein said computer is a mobile device.**” This claim adds nothing of patentability, as it would have been obvious and basic knowledge to any ordinarily skilled artisan that the user computer of claim 1 (“**said computer**”) could have been a mobile device, such as a laptop or other mobile computer.

187. As was well-known to ordinarily skilled artisans and even laypersons, mobile devices such as laptop computers were widely available and commercially popular by the early 1990s, several years before the priority date. (*See* EX1016 (Hollingsworth), 1:14-17 (“Recent years have seen a proliferation of so-called ‘laptop’ computers, that is, personal computers so reduced in size and weight as to be conveniently carried and employed while traveling or the like.”).) Laptop and

mobile computers were not niche products, either; they were sold by household names such as Apple Computer (PowerBook), IBM (ThinkPad), Compaq Computer Corporation (which actually began selling portable PCs by 1983), among many others. Mobile computers by the mid-1990s, moreover, could have performed the same functions as desktop computers including communicating over networks such as the Internet. (EX1017 (Steele), 5:29-32 (“The client machine **10** may preferably be an intelligent computer system, such as an IBM PS/2 computer, an IBM ThinkPad laptop computer, or an IBM RISC System 6000 workstation.”).) It would have been obvious that the user’s computer could have been a mobile device such as a laptop or notebook computer, which could have performed all the functions of the user computer in claim 1 under the proposed combination. An ordinarily skilled artisan would have been motivated to enable the proposed combination to work with a mobile computing device because such a device would have been portable and thus more convenient for the user.

15. Claim 15

188. Claim 15 depends from claim 1, and further recites “[t]he **method in accordance with claim 1; wherein said content is presented through said user's computer using a web browser.**” As explained for claim 1, under the proposed combination, content resources are resources on the Web identified by URLs, such

as web pages, images, etc. It would have been obvious to display that content through a web browser, as a browser was the standard software tool for displaying content from the Web.

16. Independent Claim 23

189. For reference, claim 23 recites:

23. A method for providing content via a communications network on a user's computer, obtained from a plurality of resources in an organized arrangement comprising the steps of:
- [a] creating a show structure of nodes, each node identifying a resource from a plurality of accessible resources, at least some of which are network accessible resources;
 - [b] without requiring user input, automatically accessing a plurality of said network accessible resources identified by a corresponding node;
 - [c] causing content corresponding to each of said accessed resources to be automatically accessed and presented through said user's computer in accordance with said show structure such that during said presentation of at least some of said content from said accessed resources, at least some of said other network accessible resources are being accessed,
 - [d] wherein said step of creating further comprises the step of providing interactively variable duration information, representing the duration that said content corresponding to said accessed resource is presented

so as to enable a user to vary said duration; and

[e] causing advertisement content to be presented to said user in a persistent content window in connection with said automatic presentation of said content through said user's computer.

('819, 19:9-35 (Claim 23; bracketed notation (e.g., [a]) added).) Many of the limitations of claim 23 are substantially similar to limitations recited in claim 1 that were covered above. In the interests of brevity and consistency, therefore, I will refer back to my analysis of claim 1 where appropriate.

190. The preamble of claim 23 recites “[a] **method for providing content via a communications network on a user's computer, obtained from a plurality of resources in an organized arrangement...**” It is unclear if the preamble of claim 23 recites a claim limitation, but even if it does, it is disclosed by the prior art. The preamble of claim 23 is identical to the preamble of claim 1, and as such, the proposed combination thus renders obvious the preamble.

- (a) **“creating a show structure of nodes, each node identifying a resource from a plurality of accessible resources, at least some of which are network accessible resources;” (Claim 23[a])**
- (b) **“without requiring user input, automatically accessing a plurality of said network accessible resources identified by a corresponding node;” (Claim 23[b])**
- (c) **“causing content corresponding to each of said accessed resources to be automatically accessed and presented through said user’s computer in accordance with said show structure such that during said presentation of at least some of said content from said accessed resources, at least some of said other network accessible resources are being accessed,” (Claim 23[c])**
- (d) **“wherein said step of creating further comprises the step of providing interactively variable duration information, representing the duration that said content corresponding to said accessed resource is presented so as to enable a user to vary said duration; and” (Claim 23[d])**

191. Claim 23[a]-[d] are identical to claim 1[a]-1[d], so the analysis above applies full force here. These limitations are obvious based on the combination of Shimizu, Fox, Benedict, Wolfe and Filepp.

- (e) **“causing advertisement content to be presented to said user in a persistent content window in connection with said automatic presentation of said content through said user’s computer.” (Claim 23[e])**

192. Claim 23[e] is substantially identical to claim 1[e], with the only difference being that 23[e] further recites that advertisement content is presented “in

a persistent content window.” This further limitation is also disclosed and rendered obvious by the proposed combination and in view of Filepp, as explained for claim 5. The analysis from claim 5 above applies here.

17. Claim 25

193. Claim 25 depends from claim 23, and further recites “[t]**he method as claimed in claim 23, wherein said persistent content window is displayed simultaneously with said displayed content presented through said user’s computer.”** Referring back to Figure 3a of Filepp, it shows an example of a persistent content window in the form of AD partition **280** that displays advertisements to the user:

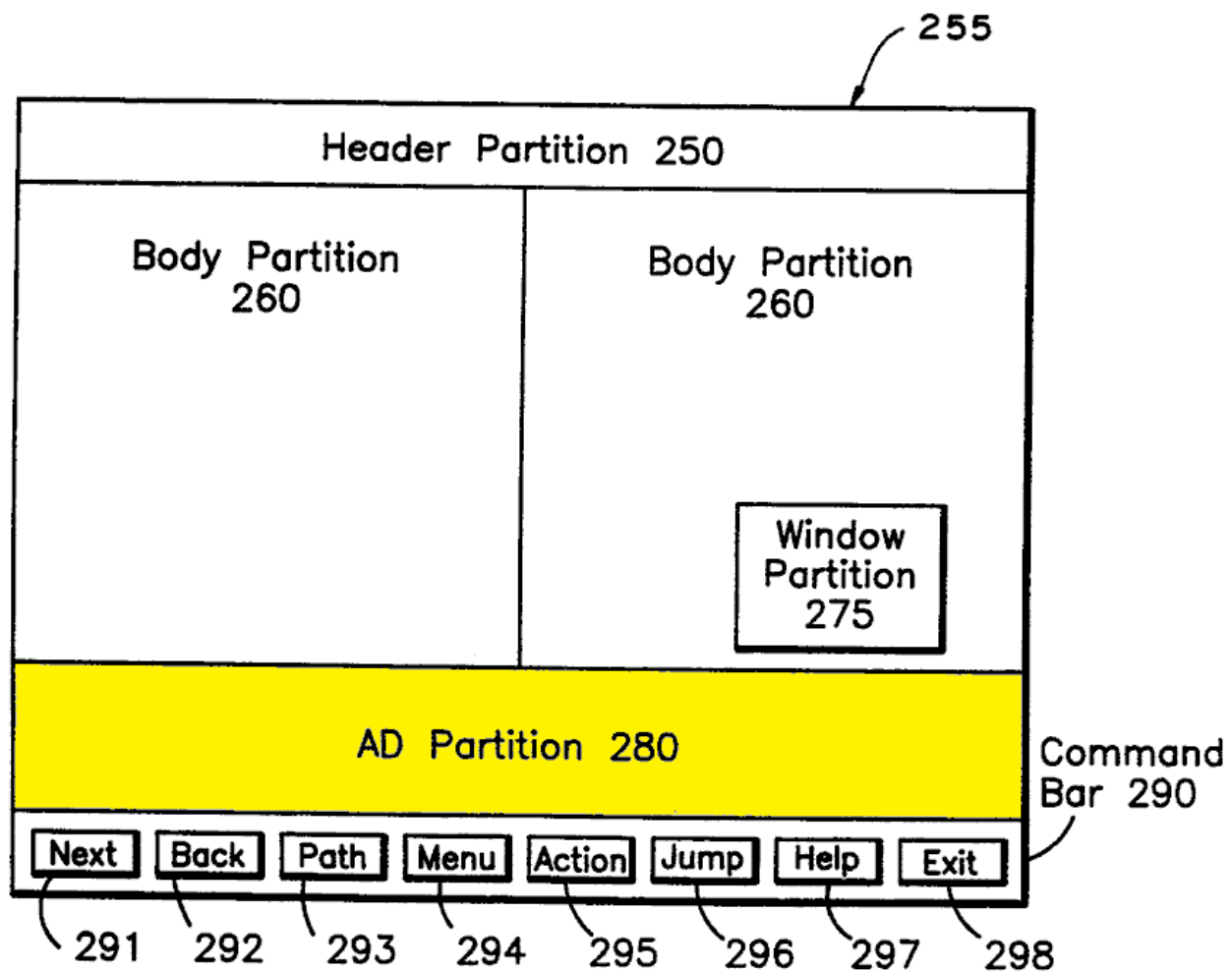


FIG. 3a

(Filepp, Fig. 3a (highlighting added).) As explained above, Filepp discloses that AD partition 280 can display advertisements based on a queue of advertisements assembled based on information about the user. (Filepp, 9:30-47.) Figure 3a also shows non-advertising content in body partitions 260 and window partition 275, which “gives the information and transactional content of the page.” (Filepp, 9:10-

16.) It would have been obvious, under the proposed combination, that the persistent content window (such as AD partition 280 in Filepp) could have been displayed “**simultaneously with said displayed content presented through said user’s computer,**” *i.e.*, simultaneously with non-advertising content on other portions of the screen on the user’s computer.

18. Claim 26

194. For reference, claim 26 recites:

26. A method for providing content via a communications network on a user’s computer, obtained from a plurality of resources in an organized arrangement comprising the steps of:

- [a] creating a show structure of nodes, each node identifying a resource from a plurality of accessible resources, at least some of which are network accessible resources;
- [b] without requiring user input, automatically accessing a plurality of said network accessible resources identified by a corresponding node;
- [c] causing content corresponding to each of said accessed resources to be automatically accessed and presented through said user’s computer in accordance with said show structure such that during said presentation of at least some of said content from said accessed resources, at least some of said other network accessible resources are being accessed,

[d] wherein said step of creating further comprises the step of providing interactively variable duration information, representing the duration that said content corresponding to said accessed resource is presented so as to enable a user to vary said duration; and

[e] causing targeted advertisement content to be presented to said user in connection with said automatic presentation of said content through said user's computer.

('819, 20:4-27 (Claim 26; bracketed notation (e.g., [a]) added).) Many of the limitations of claim 26 are substantially similar to limitations recited in claim 1 that were covered above. In the interests of brevity and consistency, therefore, I will refer back to my analysis of claim 1 where appropriate.

195. The preamble of claim 26 recites “[a] **method for providing content via a communications network on a user's computer, obtained from a plurality of resources in an organized arrangement....**” It is unclear if the preamble of claim 26 recites a claim limitation, but even if it does, it is disclosed by the prior art. The preamble of claim 26 is identical to the preamble of claim 1, and as such, the proposed combination thus renders obvious the preamble.

- (a) **“creating a show structure of nodes, each node identifying a resource from a plurality of accessible resources, at least some of which are network accessible resources;” (Claim 26[a])**
- (b) **“without requiring user input, automatically accessing a plurality of said network accessible resources identified by a corresponding node;” (Claim 26[b])**
- (c) **“causing content corresponding to each of said accessed resources to be automatically accessed and presented through said user’s computer in accordance with said show structure such that during said presentation of at least some of said content from said accessed resources, at least some of said other network accessible resources are being accessed,” (Claim 26[c])**
- (d) **“wherein said step of creating further comprises the step of providing interactively variable duration information, representing the duration that said content corresponding to said accessed resource is presented so as to enable a user to vary said duration; and” (Claim 26[d])**

196. Claim 26[a]-[d] are identical to claim 1[a]-1[d], so the analysis above applies full force here. These limitations are obvious based on the combination of Shimizu, Fox, Benedict, and Wolfe.

- (e) **“causing targeted advertisement content to be presented to said user in connection with said automatic presentation of said content through said user’s computer.” (Claim 26[e])**

197. Claim 26[e] is substantially identical to claim 1[e], with the only difference being that claim 26[e] further recites that the advertisement content is

“targeted.” This further limitation is also disclosed and rendered obvious by the proposed combination and in view of Filepp, as explained above. As noted, Filepp, discloses targeted advertisements selected for the user were based on specific information about the user such past activities, demographic information, ZIP code and other “targeting criteria.” (Filepp, 9:35-47.)

19. Claim 27

198. Claim 27 depends from claim 26, and further recites “[a] **method as claimed in claim 26, wherein said targeted advertisement content is based on a user profile.**” As explained for claim 8, the targeted advertisements are based on a user profile. (Filepp, 9:35-47.)

20. Claim 28

199. Claim 28 depends from claim 27, and further recites “[a] **method as claimed in claim 27, wherein said profile includes past actions taken by said user.**” The user profile in Filepp, on which targeted advertisements are selected, includes “data collected on the partitioned applications that were accessed by a user, and upon events the user generated in response to applications.” (Filepp, 9:35-38, 41-42 (describing said data as “application access and use characteristics”), 90:47-56 (“The remaining native code modules function in support and ancillary roles to provide RS **400** with the ability [to] ... display advertisements (ad manager **442**), to

collect usage data for distribution to interactive network **10** for purposes of targeting such advertisements (data collection manager **441**)....”).) The user profile thus includes (among other things) past actions taken by the user.

C. Ground 2: Claims 16-22 Are Obvious Over Shimizu, Fox, Benedict, Wolfe, Filepp, and Guinan

1. Claim 16

200. For reference, claim 16 recites:

16. A method for providing content via a communications network on a user's computer, obtained from a plurality of resources in an organized arrangement comprising the steps of:

- [a] receiving a request for an online search from a remote user;
- [b] providing a plurality of search results and their corresponding resource locators in response to said request,
- [c] creating a show structure of nodes based on said search results, each node identifying a resource from a plurality of accessible resources, at least some of which are network accessible resources;
- [d] without requiring user input, automatically accessing a plurality of said network accessible resources identified by a corresponding node;
- [e] causing content corresponding to each of said accessed resources to be automatically accessed and presented through said user's computer in accordance with said show structure such that during said presentation

of at least some of said content from said accessed resources, at least some of said other network accessible resources are being accessed; and

[f] causing advertisement content to be presented to said user in connection with said automatic presentation of said content through said user's computer.

('819, 18:36-59 (Claim 16; bracketed notation (e.g., [a]) added).) Many of the limitations of claim 16 are substantially similar to limitations recited in claim 1 that were covered above. In the interests of brevity and consistency, therefore, I will refer back to my analysis of claim 1 where appropriate.

201. The preamble of claim 16 recites “[a] **method for providing content via a communications network on a user's computer, obtained from a plurality of resources in an organized arrangement....**” It is unclear if the preamble of claim 16 recites a claim limitation, but even if it does, it is disclosed by the prior art. The preamble of claim 16 is identical to the preamble of claim 1, and as such, the proposed combination thus renders obvious the preamble.

- (a) “receiving a request for an online search from a remote user;” (Claim 16[a])
- (b) “providing a plurality of search results and their corresponding resource locators in response to said request,” (Claim 16[b])

202. These two limitations are closely-related and thus will be addressed

together. I am informed that a district court in prior litigation construed “**online search**” as “*Internet search*.”

203. Claim 16[a] would have been obvious in view of Fox and Guinan, which together confirm that receiving a request for an on-line search from a remote Internet user, and then providing a plurality of search results, was well-known to ordinarily skilled artisans. As Fox explains:

Search Indexes

Hypertext makes it easy to get lost. That’s part of the appeal. You can start out reading about Sperm Whales and end up reading about the Prince of Wales. But what if you want to find pages dealing with a specific topic?

Luckily, the Web is full of indexes. An index is a special Web page that allows you to type in a search term or keyword. The index then spits out a list of Web pages matching your search. You can then click on any page that catches your interest and transfer there automatically...

Many indexes allow you to search the full contents of thousands of Web pages. Some indexes have a series of forms or menus you can customized, allowing you to find exactly what you want.

(Fox, pp.10-11.) Fox identifies more than 10 existing Internet search indexes, including the Lycos and WebCrawler search engines that were popular by the mid-1990s. (Fox, pp.11-12, Table 1-1.) But Fox does not describe how results from an

on-line search are used beyond being displayed by the user. I have therefore cited Fox in combination with Guinan, which discloses a technique for (a) allowing a user to enter a natural language search query and then (b) searching for hypertext nodes in response to the query to create a “guided tour” for the user. (Guinan, pp.124-125.)

204. Guinan explains “[i]n using any hypertext system an end-user or browser will encounter many technical problems that have been well-documented elsewhere,” such as “disorientation and the quality of the information retrieved by the user from the hypertext.” (Guinan, p.122, §1.) This problem with hypertext was well-known and, as acknowledged in Fox, one of the key reasons the industry adopted on-line searching in the Web context as discussed above. (Fox, pp.10-11 (“Hypertext makes it easy to get lost... [W]hat if you want to find pages dealing with a specific topic? Luckily, the Web is full of indexes.”).)

205. Guinan states that, to address problems of hypertext systems:

We propose a method for dynamically generating a guided tour through a hypertext in response to a user’s query which will plan a tour through a hypertext covering all the nodes the system believes relevant to the user’s information need as expressed in a natural language query, which eases disorientation problems by using the guided tour metaphor... and which takes advantage of typing of information links in the hypertext

to present the nodes on the tour in a logical fashion. Effectively we extend the guided tour metaphor by including the information retrieval features... and we add in logical sequencing of nodes on the tour to complete the process.

(Guinan, p.123, §1 (Introduction).)

206. The first step of Guinan's proposed method is for the user to enter a "natural language" search query. (Guinan, p.124, §3.) The hypertext nodes are then searched for keywords matching the query, which are scored using a weighting algorithm. (*Id.*; *see also id.*, p.129, §6 ("*Finding information*: When the user enters a search query in the form of a natural language statement it is matched to the nodes in the hypertext using standard information retrieval techniques.") (italics in original).) Guinan explains that, in weighting hypertext nodes, search terms that appear less frequently throughout the collection are given more weight using known TF-IDF techniques,⁷ and as such, hypertext nodes containing more of these less frequent terms are given higher weights. (*Id.*) Hypertext nodes are also weighted

⁷ Guinan uses a weighting technique referred to as TF-IDF, an acronym for term frequency-inverse document frequency. (Guinan, p.124.) TF-IDF is a well-known technique for assessing the importance of terms appearing in documents. The basic idea behind TF-IDF is that terms appearing less frequently in documents are more likely to be important to the documents than terms that appear more frequently. TF-IDF will thus assign higher weights to these infrequently appearing terms.

based on the number of connections they have to other nodes. (*Id.*) Nodes whose weights satisfy a threshold value are included in the guided tour. (Guinan, p.125 (“All nodes whose weight is greater than or equal to this cut-off or threshold value would be selected for inclusion in the tour.”).)

207. Once matching hypertext nodes have been identified, a guided tour is assembled. “At this stage, the nodes for the guided tour have been dynamically chosen in response to a user’s query and some form of logical ordering has to be imposed on the selected tour nodes.” (Guinan, p.125, §3.) Guinan discloses an ordering procedure that takes into account linking relationships between the matching nodes. (*Id.*) “This procedure is followed until every node selected for inclusion in the tour has been positioned correctly relative to each other node in the tour.” (*Id.*) Guinan thus discloses receiving a request for a search, and then using that query to identify hypertext nodes for creating a guided tour for presenting those nodes.

208. ***Rationale and Motivation to Combine (Shimizu, Benedict, Fox, and Filepp with Guinan)***: I provided a full analysis of the manner and motivation to combine with respect to Shimizu, Benedict, Fox, and Filepp in my discussion of claim 1 above, and that analysis applies here. With respect to claim 16[a], it would have been obvious to combine these references with Guinan, predictably resulting

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in the system based on the proposed combination adapted to receive a request for an online search from a remote user, and then provide a plurality of search results and their corresponding resource identifiers in response.

209. Guinan does not expressly disclose that the hypertext nodes in the guided tour are located using “**online search**” to the extent this term is interpreted as requiring an Internet search. But these details would have been trivial and obvious in view of Fox which, as mentioned above, expressly discloses the use of online search indexes accessible over the Web, which provided results in response to search requests from remote users over the Internet. As noted below in my discussion of the motivations to combine, moreover, Guinan was expressly designed to solve problems with hypertext systems – and the Web is a hypertext system. It would also have been obvious that the search results obtained by Guinan, under the combination with Fox, would have been accompanied by the URLs (“**resource identifiers**”). This is because, as was elementary knowledge to ordinarily skilled artisans, resources on the Web are identified using URLs. (Fox, p. 13 (“A *URL* (or *Universal Resource Locator*) is the address of a document, file, or other Internet resource... The World Wide Web gives every article, newsgroup, database, computer, file, or other Internet fragment its very own URL.”).) It thus would have been obvious to adapt the hypertext searching and guided tour techniques of Guinan, predictably

resulting in an “**online search**” that receives hypertext nodes as search results as well as their corresponding “**resource identifiers**,” *i.e.*, URLs.

210. Guinan is an analogous reference in the same field of providing organized or sequenced presentation of hypertext content, and would have been reasonably pertinent to a number of problems facing the inventor. For example, Guinan would have been reasonably pertinent to the problem of how to use searching techniques to create a list of hypertext nodes for creating a show structure.

211. The motivation to combine would have been straightforward. Guinan provides an express motivation to combine by explaining that, using her techniques for creating a guided tour based on a search, “[u]sers don’t need to worry about getting lost or confused in the hypertext as all they need to do is follow the tour which is generated in response to their query.” (Guinan, p.129, §6.)

212. This motivation is also expressly echoed in Fox, which also identifies the use of searching techniques to help users locate specific information and avoid getting lost. (Fox, pp.10-11 (“Hypertext makes it easy to get lost... [W]hat if you want to find pages dealing with a specific topic? Luckily, the Web is full of indexes.”).) The fact that Guinan and Fox both relate to hypertext systems (the Web being a hypertext system as discussed above), and that both address a common problem and identify search as the solution, reinforces their combinability and

provides a further motivation to combine.

213. An ordinarily skilled artisan would thus have been motivated to use the searching techniques in Guinan and Fox to more easily identify relevant hypertext nodes for the user. These nodes, as explained below, are in turn used to create the claimed “**show structure of nodes**” that is delivered and displayed to the user under the proposed combination.

214. An ordinarily skilled artisan would also have been motivated to adapt the teachings of Guinan to an Internet search index that identifies search results with URLs, as disclosed in Fox. An ordinarily skilled artisan would have found this to have been a natural adaptation considering that, as Fox confirms, the Web is an example of a hypertext-based system. (Fox, p.9 (“The World Wide Web uses hypertext to link all of its pages together.”).) An ordinarily skilled artisan would have been motivated to adapt Guinan for the Web to take advantage of the commercial growth and growing popularity of the Web, as fully explained for claim 1, and to expand the audience for her guided tour the universe of content that could be incorporated into the tour.

215. An ordinarily skilled artisan would have had at least a reasonable expectation of success and could have implemented the proposed combination using conventional programming techniques. The ability to search through hypertext

documents was well-known, as evidenced by Guinan and the many commercially-available examples of Internet search indexes in Fox. Keyword searching techniques were well-known decades before the priority date, with the TF-IDF term weighting techniques in Guinan dating back to at least the 1970s. And as explained for claim 1, the use of URLs to identify resources on the Web was well-known. The disclosures of Fox and Guinan would have provided more than sufficient details to have enabled an ordinarily skilled artisan to implement the details I have cited for this claim limitation, without undue experimentation.

(c) **“creating a show structure of nodes based on said search results, each node identifying a resource from a plurality of accessible resources, at least some of which are network accessible resources;” (Claim 16[c])**

216. Claim 16[c] is substantially identical to claim 1[a], the sole difference being that claim 16[c] requires that the show structure be **“based on said search results.”** For all other aspects of the creating step, the analysis of claim 1[a] applies.

217. It would have been obvious to create the show structure **“based on said search results.”** Under the proposed combination of Guinan with Shimizu, Benedict and Fox, the results obtained from the on-line search would have been used to identify nodes and automatically create the **“show structure of nodes.”** The rationale and motivation to combine as to Guinan was provided above. As a further

motivation to combine, I note that the “guided tour” of hypertext nodes in Guinan is directly analogous to the show structure of nodes under the proposed combination. It therefore would have been obvious to use the search results provided by Guinan – which Guinan placed into an ordered and sequenced guided tour – as the basis for creating the claimed show structure of nodes under the proposed combination.

- (d) **“without requiring user input, automatically accessing a plurality of said network accessible resources identified by a corresponding node;” (Claim 16[d])**
- (e) **“causing content corresponding to each of said accessed resources to be automatically accessed and presented through said user's computer in accordance with said show structure such that during said presentation of at least some of said content from said accessed resources, at least some of said other network accessible resources are being accessed; and” (Claim 16[e])**
- (f) **“causing advertisement content to be presented to said user in connection with said automatic presentation of said content through said user’s computer” (Claim 16[f])**

218. Claims 16[d]-[f] are identical to claim 1[c]-1[d] and 1[f], so the analysis above applies full force here. These limitations are obvious based on the combination of Shimizu, Fox, Benedict, Wolfe, Filepp and Guinan.

2. Claim 17

219. Claim 17 depends from claim 16, and further recites “[t]he method in

accordance with claim 16, wherein said user request comprises a search of accessible Internet content.” As explained for claim 16[a]-[b], under the proposed combination, the user request would have comprised a search of Web content accessible through the Internet, such as web pages, etc. (Fox, pp.10-11 (“An index is a special Web page that allows you to type in a search term or keyword. The index then spits out a list of Web pages matching your search.”)).

3. Claim 18

220. Claim 18 depends from claim 16, and further recites “[t]he method in **accordance with claim 16, wherein said user request comprises a search of a web site.”** As just explained for claim 17, the user request under the proposed combination would have comprised a search of Web content accessible through the Internet, such as web pages, etc. It therefore would have been obvious that the user request comprises a search of at least one web site.

4. Claim 19

221. Claim 19 depends from claim 16, and further recites “[t]he method in **accordance with claim 16, wherein said user request comprises a search of a remote server.”** As just explained for claim 17, the user request under the proposed combination would have comprised a search of Web content accessible through the Internet, which would have included at least one remote server. This is because

content on the Web (including web pages) is provided by “**remote**” servers, *i.e.*, servers remote from the user computer such as servers on the Internet.

5. Claim 20

222. Claim 20 depends from claim 16, and further recites “[t]**he method in accordance with claim 16, wherein said show structure is presented to said user.**” Shimizu and Benedict both disclose this feature. With respect to Shimizu, Figure 8 shows a user interface screen for presenting node content to the user:

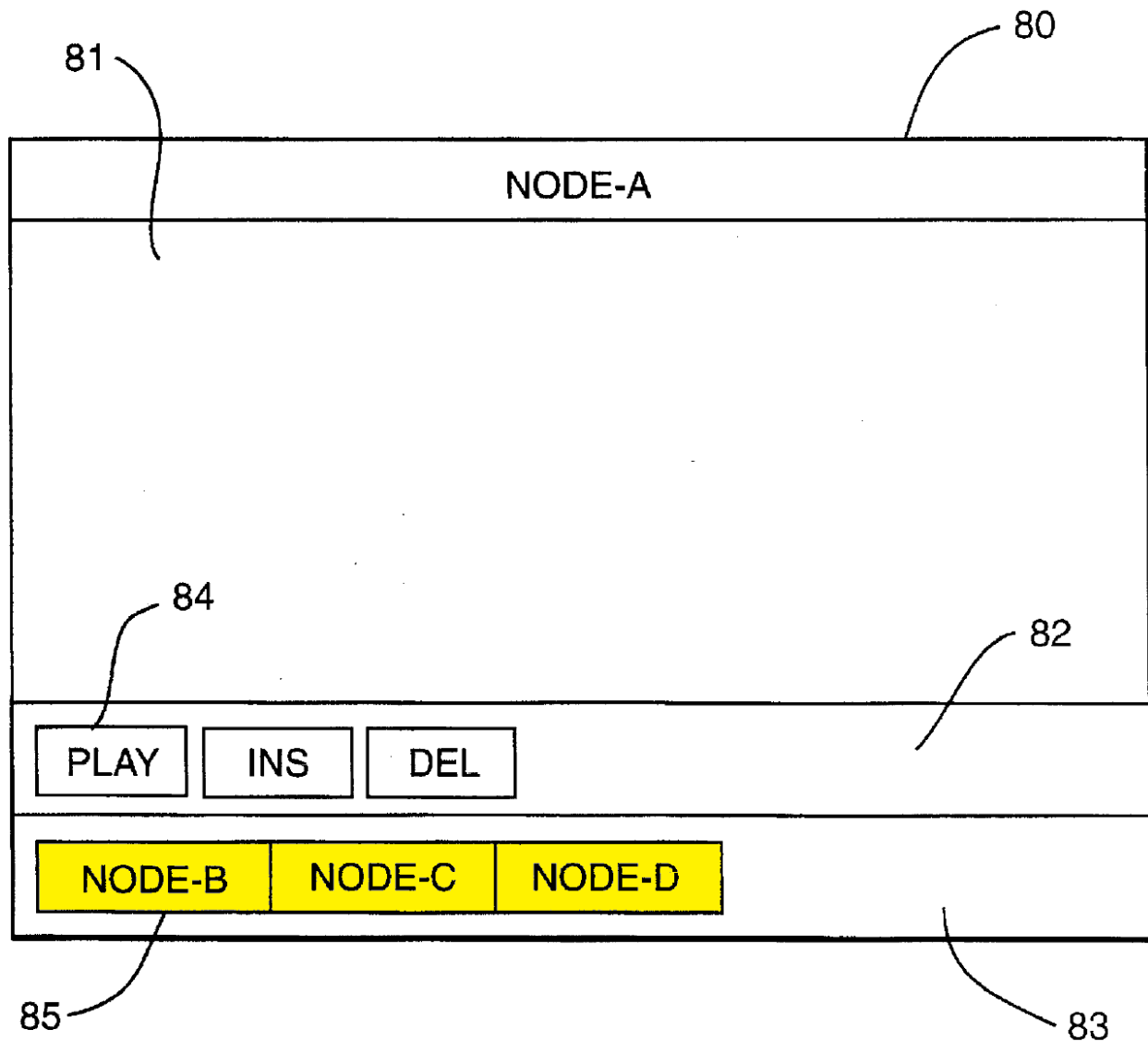


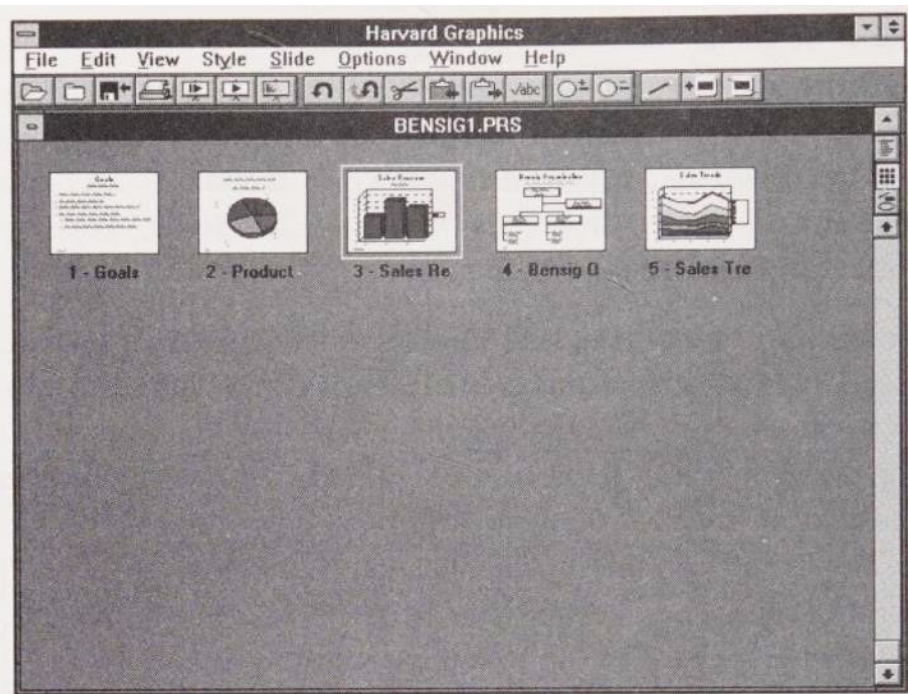
FIG. 8

(Shimizu, Fig. 8 (highlighting added), 7:12-14 (“FIG. 8 is a view of a typical user interface screen display provided by an application program running on the embodiment.”).) Figure 8 includes the display of a current node (NODE-A) and display area **83** that “displays, in a left-justified manner and according to the link

information order, icons **85** representing each of the nodes linked starting from the current node. The icons **85** show in a list format the links connected to the current node and the order in which these links are established.” (Shimizu, 7:30-35.) As a result, “[t]he link information of the node A indicates that the node A is linked to the nodes B, C and D, in that order.” (Shimizu, 7:37-38.) Under the proposed combination, therefore, it would have been obvious that “**said show structure is presented to said user,**” because icons **85** show icons for each node and the order in which they are linked.

223. This functionality is also separately disclosed by a similar feature in Benedict, *i.e.*, a “Slide Sorter” displays an icon for each slide in a presentation, numbered based on its order in the presentation:

Fig. 2.18
The Slide Sorter
window.



(Benedict, p.44, Fig. 2.18; *see also id.*, p.43 (“Figure 2.18 shows the Slide Sorter displaying five slides. The Slide Sorter represents these slides as scaled down images.”).) Like Shimizu, Benedict discloses the display icons for each slide in the presentation, numbered based on the order in which they will appear. This provides another way in which it would have been obvious that **“said show structure is presented to said user.”**

6. Claim 21

224. Claim 21 depends from claim 20, and further recites “[t]he method in accordance with claim 20, wherein **said show structure is presented to said user while said content is being delivered.**” This limitation adds little to what was

already discussed. As explained for claim 20, Shimizu under the proposed combination discloses showing the show structure (*e.g.* though icons 85 in Figure 8) at the same time and on the same screen where node content (*e.g.* NODE-A as shown in Figure 8) is displayed. Benedict also discloses this limitation, as the icons in the Slide Sorter show “scaled down images” of the underlying content, and thus, display the show structure simultaneously with said content. (Benedict, p.44.)

7. Claim 22

225. Claim 22 depends from claim 16, and further recites “[t]he method in accordance with claim 16, wherein the step of causing the presentation of said retrieved content automatically in accordance with said show structure includes the presentation of content from at least two nodes presented simultaneously.” This limitation would have been obvious for substantially the same reasons as claims 20-21 above. Shimizu, as explained, discloses the ability to display the show structure though icons 85 in Figure 8 at the same time as node content. Benedict also similarly discloses a Slide Sorter that displays icons but, as noted, those icons include smaller versions of the contents of their corresponding slides.

226. It therefore would have obvious to combine these user interface disclosures of Shimizu and Benedict, to adapt the display in Shimizu to show each

node icon **85** alongside a smaller version of its corresponding content, as described in Benedict. The following figure that I created for illustration shows one way in which such a combination could have been implemented:

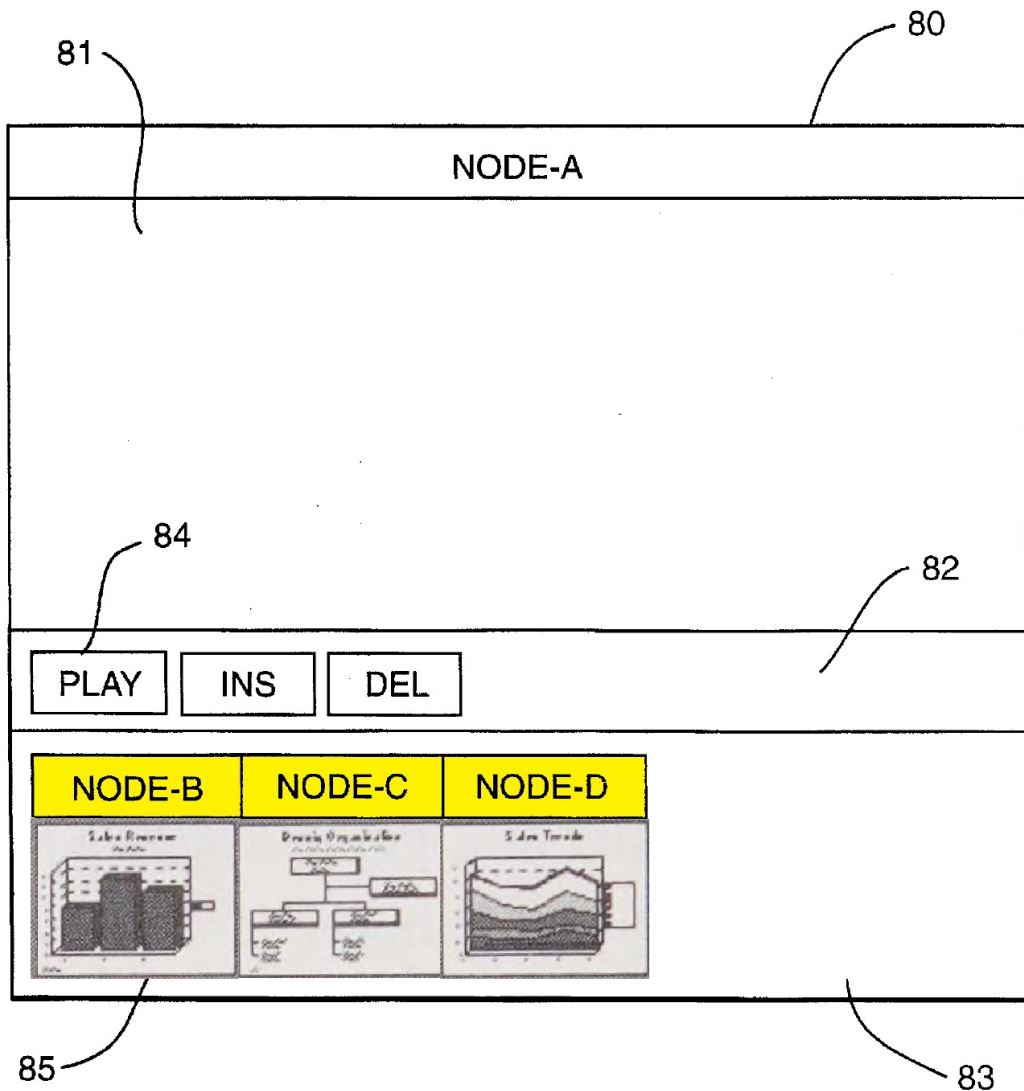


FIG. 8

(Shimizu, Fig. 8 (highlighting added, with scaled down images added); *see also*

Benedict, p.247 (“Even though most text is too small to read, one advantage of using the Slide Sorter is that you can see all of the information on each slide... and evaluate the slide with a global view of the information.”).)

227. In the example above, the node icons **85** would have been adapted to also show smaller versions of their content, consistent with the disclosures of Benedict. This would have predictably resulted in the automated presentation of information of claim 16 including **“the presentation of content from at least two nodes simultaneously.”** This is because, during presentation of the content of NODE-A as shown in the adapted Figure 8 above, the user can also see content from three other nodes (NODE-B, NODE-C, NODE-D). Although the other nodes are shown as smaller versions of the content of their corresponding nodes, Benedict confirms that “you can see all of the information on each slide.” (Benedict, p.247.) An ordinarily skilled artisan would have found this to be an obvious combination of the disclosures of Shimizu and Benedict, and would have been motivated to combine in this manner to improve user experience. This is because the smaller versions in Benedict would have benefitted the system of Shimizu by providing the user with a valuable visual cue and preview regarding content of subsequent nodes in the show structure (such as to better inform the user regarding node navigation, ordering and deletion), as explained by Benedict, to “evaluate the slide with a global view of the

information.” (Benedict, p.247.)

D. Ground 3: Claim 22 is Obvious Over Ground 2 Prior Art in View of Robertson

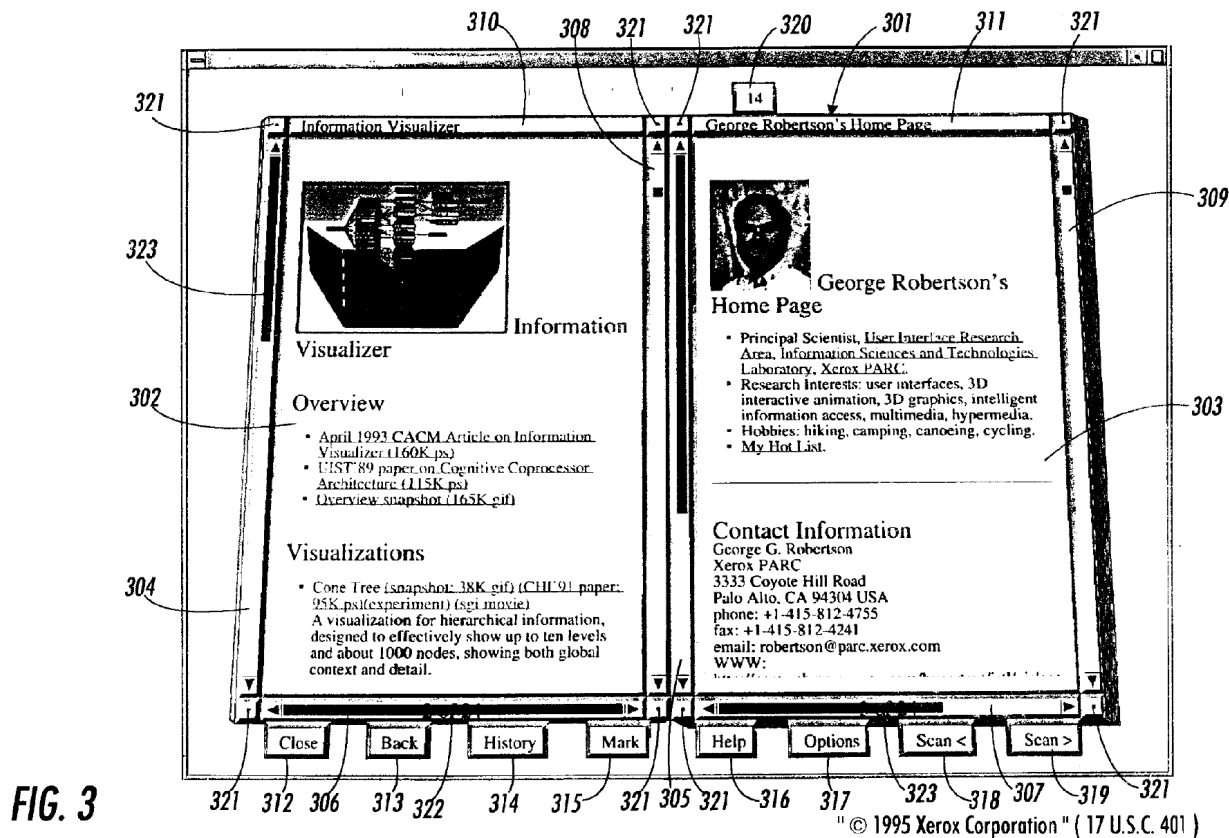
1. Claim 22

228. Claim 22 is obvious for the reasons stated for **Ground 2** above. But claim 22 is also obvious in further view of **Robertson**.

229. Robertson discloses a system for displaying lists of linked documents, such as web pages or other types of linked documents in a hypertext system. (Robertson, 3:24-39.) In one embodiment, Robertson presents a list of web pages by displaying each web page in the list as a “page” of a virtual book. (Robertson, Abstract, 2:14-25.) “The list of pages is displayed in a book metaphor, termed WebBook, on a computer controlled display system... When displayed, two active pages are displayed at one time.” (Robertson, 2:24-28; *see also id.*, 4:14-19 (“The currently preferred embodiment of the present invention presents the list of pages to a user in a book metaphor hereinafter referred to as a WebBook. The book metaphor is useful since it conveys a relationship between the different pages. Each page in the WebBook represents a page in the list.”).)

230. Figure 3 of Robertson shows an exemplary WebBook view showing two web pages visible in a side-by-side fashion:

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(Robertson, Fig. 3.) As explained in Robertson:

FIG. 3 is an illustration of a WebBook as displayed on a display. Referring to FIG. 3, the WebBook 301 is comprised of a first page 302 and a second page 303, each having an identical structure. The first page 302 is an instance of a left page and the second page 303 is an instance of a right page.

(Robertson, 6:15-19; *see also id.*, 6:28-30 (“The content and layout of the page is determined by the HTML macros defining the page.”).) Robertson explains that, in order to display web pages in a WebBook, each Web page is converted into a page object. (Robertson, 7:65-66.) “Each page is provided in the order in which it is to

appear in the WebBook. Accordingly, each page object will represent either a left page or a right page in the WebBook.” (Robertson, 7:66-8:2.) The “Scan >” button 319 in Figure 3 causes the pages in the WebBook to advance forward automatically after a period of time. (Robertson, 6:45-46, 9:5-6.) Another embodiment depicted in Figure 15 shows an enhancement for viewing images representing many or even all of the pages of a WebBook. (Robertson, Fig. 15, 10:15-28.)

231. Robertson thus discloses presenting the content from at least two websites simultaneously.

232. *Rationale and Motivation to Combine (Ground 2 Prior Art with Robertson)*: It would have been obvious to combine the references cited for Ground 2 with Robertson. The combination would have predictably yielded the system based on the proposed combination in which **“the step of causing the presentation of said retrieved content automatically in accordance with said show structure includes the presentation of content from at least two nodes presented simultaneously.”** For example, during the automatic presentation of the retrieved content, the content from at least two sequential nodes could have been presented at the same time on the display, as depicted in Figure 3 of Robertson above.

233. Robertson is an analogous reference in the same field of techniques for providing organized or sequenced presentation of content, and would have been

reasonably pertinent to a number of problems facing the inventor. For example, Robertson would have been reasonably pertinent to the problem of how to access and display multiple nodes simultaneously, and would have provided useful teachings about how to effectively present linked web pages to the user.

234. An ordinarily skilled artisan would have been motivated to combine in the manner described above in order to improve user experience. As noted previously, Shimizu itself already discloses display of a node and icons **85** for each other linked node in the set of nodes. (Shimizu, Fig. 8, 7:30-35.) An ordinarily skilled artisan would have been motivated to further enhance the proposed combination based on Robertson, as it explains that organizing information using a “book metaphor” was a known way to present information to the user. (Robertson, 1:66-2:3 (“The present invention uses a book metaphor to enable a user to browse through a list of web pages. The use of a book metaphor on computer based systems is known in the art. Such a book metaphor has been used as an aid for organizing related files and/or applications.”).) An ordinarily skilled artisan would have appreciated that the “book metaphor” of Robertson has a clear advantage of leveraging the user’s familiarity with real-world books to present an intuitive user interface for viewing linked webpages. As an additional advantage and benefit, the techniques in Robertson can display two or more web pages at the same time, thus

more efficiently utilizing screen space and improving the user's ability to review and visualize the actual content associated with the nodes.

235. An ordinarily skilled artisan would have had at least a reasonable expectation of success. Robertson itself confirms that web-based techniques, web browsers, and the ability to browse information using a "book metaphor," were already known to persons of ordinary skill in the art and commercially available. (Robertson, 1:10-2:11.) The techniques in Robertson that I cite for claim 37 could have been implemented using conventional programming techniques, and the disclosures of Robertson would have provided more than sufficient detail to have enabled an ordinarily skilled artisan to implement the cited teachings applied to the proposed combination, without undue experimentation.

E. Ground 4: Claims 13 and 29 Are Obvious Over Ground 1 Prior Art in View of Rakavy

236. For convenience, I will first address dependent claim 29, as that discussion will streamline the discussion of dependent claim 13.

1. Claim 29

237. Claim 29 depends from claim 28, and further recites "[a] **method as claimed in claim 28, wherein said targeting of said advertisement content is based on past skipping actions taken by said user on previously presented**

advertisement content, stored in said user profile.”

238. As discussed previously, Benedict and Fox both disclose techniques for allowing the user to take “**skipping actions**” with respect to displayed content. For example, Benedict discloses that a user can take an action (such as pressing a key or activating a Next slide control) to skip the current slide during a self-running ScreenShow: “The display time determines how long a slide remains on-screen if you do not press a key to move to the next slide.” (Benedict, p.440; *see also id.*, p.443 (“Next slide... Moves to the next slide in the presentation”).) Fox similarly discloses that a series of web pages can include a “Next” button or link that the user can activate to move to the next page. (Fox, p.238 (“The [Next] button loads up the next page in the series, and the [Previous] button, naturally, loads up the previous page.”).) Additionally, Filepp, also discussed above, discloses that the targeting is based on past actions taken by the user, including “data collected on the partitioned applications that were accessed by a user, and upon events the user generated in response to applications.” (Filepp, 9:35-38.)

239. Thus, although Benedict and Fox disclose “**skipping actions**” taken by a user with respect to displayed content, and Filepp discloses the use of past actions to select targeted advertisements, these references do not appear to entirely disclose targeting “**based on past skipping actions taken by said user on previously**

presented advertisement content,” as they do not appear to expressly disclose using past skipping actions to impact future selection of targeted advertisements. I have therefore cited these references in combination with **Rakavy**.

240. Rakavy discloses techniques for selecting advertisements and other information from a computer network database based on user defined preferences and transmitting selected advertisements to the user. (Rakavy, Abstract.) In one embodiment, Rakavy discloses an Advertising System Server **600** that stores user preference information. (Rakavy, 5:42-44.) This user preference information can be provided in a number of ways, including by the user directly choosing categories of informational content that interests them. (Rakavy, 3:34-37.) “The Advertising System Server **600** uses this information to select the next Advertisement **50** to be downloaded.” (Rakavy, 5:45-47; *see also id.*, 12:19-26.)

241. Rakavy further discloses that a user’s interactions with advertisement can also modify the user’s preferences, for example, if a user indicates that he does not wish to see a particular advertisement again:

In one embodiment of the invention, the Advertising Display Manager **210** allows users to respond to Advertisements **50** being presented by Selecting a user grading box which allows users to judge the Advertisements **50** on a scale from “do not show me this advertisement again” to “excellent.” This information may be used to modify the user

preferences, and may also be incorporated into user feedback information and sent to the Advertising System Server **600** for use by the advertisers.

(Rakavy, 10:13-20.) In addition to user ratings about advertisements, the feedback information can include the “length of time an advertisement was displayed.”

(Rakavy, 12:53-65.) Rakavy therefore discloses collecting past actions by a user with respect to previously presented advertisement content (such as indicating that the user does not wish to see the advertisement again) and using those actions later to select targeted advertisements for the user. These past actions are also stored in the user profile, as noted, because they are used to modify the user preferences.

(Rakavy, 10:17-20.)

242. *Rationale and Motivation to Combine (Ground 1 Prior Art with Rakavy)*: It would have been obvious to combine the prior art for Ground 1 with Rakavy, predictably resulting in the proposed combination with a further ability to target advertisement content “**based on past skipping actions taken by said user on previously presented advertisement content, stored in said user profile.**” As explained, Benedict and Fox already disclose examples of skipping actions, such as user actions to immediately advance to the next item in a series of items. It would have been obvious to further incorporate the ratings interface of Rakavy into the

proposed combination, predictably resulting in the user being allowed to provide feedback about displayed advertisement content such as “do not show me this advertisement again” as disclosed in Rakavy. It would have been obvious that such ratings could have been obtained by a user in response to the user taking an action to skip the currently displayed node using the techniques in Benedict and Fox (*e.g.* in response to pressing a key or pressing a “Next” button), or could have been a separate option that caused skipping of the current node in the event of a negative rating. A number of different design choices could have been employed. In any case, it would have been obvious to provide “**past skipping actions taken by the user on previously presented advertisement content.**” These actions would have been “**stored in said user profile,**” as explained. Finally, under the proposed combination, these past skipping actions would have been used in “**targeting of said advertisement content,**” for example, by preventing the selection of an advertisement to which the user provided a negative rating or indicated it did not want to see again.

243. Rakavy is an analogous reference in the same field of presenting content to a user over a network such as the Internet and targeted advertising, and would have been reasonably pertinent to a number of problems facing the inventor. For example, Rakavy would have been relevant to issues such as storage of past user

actions in a user profile, and using those actions to impact the selection of targeted advertisements.

244. An ordinarily skilled artisan would have been motivated to combine in order to improve the effectiveness of targeted advertising. An ordinarily skilled artisan would have appreciated that the past feedback by the user with respect to an advertisement would have provided valuable information in improving the effectiveness of targeted advertisements. For example, in the case where the user has expressed a negative reaction about a particular advertisement, or indicated she does not wish to see that advertisement again, this provides a clear indication that the advertisement will be ineffective for that user, and will not persuade the user with respect to future purchasing decisions. The system can use that information to beneficially avoid showing that ad in the future, thus allowing the system to present different advertisements that may be more effective to that user.

245. An ordinarily skilled artisan would have had at least a reasonable expectation of success. Rakavy discloses a number of implementation details with respect to the display of advertisements (including using a screen saver), but I have cited Rakavy for its more general teachings regarding collecting and storing user feedback about advertisements and using that feedback to influence future advertisement targeting. Those techniques would have been simple to adapt to the

proposed combination with basic programming techniques, and as noted, Filepp already discloses the ability to use past user actions to target advertisements based on user behavior. (Filepp, 9:35-38.) The disclosures of Rakavy would have provided more than sufficient details to have enabled an ordinarily skilled artisan to implement the features of the proposed combination that I have relied upon for claim 29, without undue experimentation.

2. Claim 13

246. I also covered Claim 13 in **Ground 1**. Claim 13 depends from claim 1, and further recites “[t]he method in accordance with claim 1, further comprising the step of altering the show structure in response to user action related to said advertisement content.” As I explained for **Ground 1**, it would have been obvious under the proposed combination that a user could take action to alter the show structure, such as by deleting a node during display of the advertisement content. I also noted that claim 13 does not impose requirements about *subjective* motivations of the user, such as whether the user took the deletion action *because of* the advertisement. But even if the claim imposed such a requirement, this would have been obvious based on **Rakavy** as described above, which discloses the ability to collect direct feedback from the user about the advertisement, such as the user’s desire to not see the advertisement again. It therefore would have been obvious,

based on the further combination with Rakavy, that user action removing a node (“**altering the show structure in response to user action**”) could have been motivated by the advertisement content associated with the node. The motivation to combine with Rakavy was discussed for claim 29 above.

F. Ground 5: Claim 30 Is Obvious Over Ground 1 Prior Art in View of Reilly

1. Claim 30

247. Claim 30 depends from claim 26, and recites “[a] **method as claimed in claim 26, wherein targeted advertisement content is selected based on said content in said show structure of nodes.**”

248. As noted previously for **Ground 1** above, Filepp discloses a system for presenting targeted advertisement to the user based on the user’s past actions and characteristics such as demographics. (Filepp, 9:35-47.) But Filepp does not appear to expressly disclose the further ability to select targeted advertisement content based on the **content** in the show structure of nodes. But such a feature is disclosed by and rendered obvious in view of Reilly.

249. Reilly discloses a system for distributing information to users that match their interests, including advertising information and news items. (Reilly, 1:4-10.) A key feature of Reilly is that both news items and advertisements are

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placed in one or more categories or subcategories. An information server “stores and updates a database of information items and advertisements. The information items and advertisements are each categorized so that each has an associated information category.” (Reilly, 2:63-67; *see also id.*, 4:39-49 (assigning news stories to categories and sub-categories), 4:66-5:1 (advertisements).) Reilly further discloses that each user has a user profile “that indicates which categories and subcategories of news stories are of interest to the subscriber.” (Reilly, 6:50-56.) Each category can include various subcategories, which “may relate to specific companies, geographic regions, specific sports and sports teams, and so on, depending on the category.” (Reilly, 7:13-18.)

250. After the categories have been associated with a user, advertisements can be targeted to the user based on those categories of interest. “Each advertisement is displayed on subscribers’ workstations simultaneously with news items assigned to the same category as the advertisement.” (Reilly, 5:1-4; *see also id.*, 2:42-46 (“Another goal of the present invention is to categorize news stories and advertisements, and to display advertisements associated with each category at the same time that new stories associated with same category are displayed, thereby providing a ‘targeted’ audience for advertisers.”).)

251. Reilly thus discloses a technique in which targeted advertisement

content is selected based on the **content** of the information (new items) that will be displayed at the same time as the advertisement. This is because an advertisement is selected based on having the same information category as the news item with which it is presented. The category relates to the **content** of the news item and the advertisement. It would have been obvious, for example, that a news item falling within a category about a particular sports team would have content related to that team. The advertisement selection based on a matching category is thus based on the content of the news item being displayed.

252. *Rationale and Motivation to Combine (Ground 1 Prior Art with Reilly)*: It would have been obvious to combine the prior art for Ground 1 with Reilly, predictably resulting in the proposed combination with a further ability to select targeted advertisement content “**based on said content in said show structure of nodes.**” For example, the proposed combination would have been adapted to provide content-based categories for resources (such as particular sports teams, etc.), for both advertising and non-advertising content. It this would have been obvious to adapt the system based on the proposed combination, when presenting non-advertising content resources (such as a news item as disclosed in Reilly) (“**said content in said show structure of nodes**”), to select a targeted advertisement based on being in the same category as the non-advertising content.

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As explained, this would have resulted in selection of targeted advertisement content based on the content in the show structure.

253. Reilly is an analogous reference in the same field of presenting content to a user over a network such as the Internet, and would have been reasonably pertinent to a number of problems facing the inventor. For example, Reilly would have been pertinent to techniques for selecting and targeting advertising to users, including techniques for selecting targeted advertisements based on the content in the show structure of nodes.

254. An ordinarily skilled artisan would have been motivated to combine in order to improve the effectiveness of targeted advertising. An ordinarily skilled artisan would have appreciated that assigning content and advertising items into categories, and selecting advertisements that match the categories of the displayed content items, would have made the advertising more interesting to the user. This is because the advertising would have related to the same subject matter that has currently captured the user's attention. To take a simple illustration, if the user is currently reading content (such as a news article) about the New England Patriots, an advertisement about the New England Patriots is more likely to be of interest to the user than an advertisement about an unrelated subject. An ordinarily skilled artisan would thus have been motivated to combine in order to improve the quality

and relevance of targeted advertising content selected for the user.

255. An ordinarily skilled artisan would have had at least a reasonable expectation of success. The ability to place items into information categories was basic knowledge to an ordinarily skilled artisan. The disclosures of Reilly would have provided more than sufficient details to have enabled an ordinarily skilled artisan to implement the features of the proposed combination that I have relied upon for claim 30, without undue experimentation.

VI. NO SECONDARY CONSIDERATIONS OF NONOBVIOUSNESS

256. As explained in **Part III.B**, I understand that “secondary considerations” may be used as indicia of nonobviousness, provided that any such consideration has a nexus to the invention claimed. I understand from Petitioners’ counsel that Patent Owner in the related district court litigation has not yet identified any evidence related to secondary considerations with a nexus to the claimed invention. Nor am I aware of information, such as commercial success, unexplained results, long felt but unsolved need, industry acclaim, simultaneous invention, copying by others, skepticism by experts in the field, and failure of others, suggesting that the claims addressed in this Declaration are not obvious. To the extent Patent Owner later provides information it claims relates to secondary considerations, I reserve the right to supplement my analysis and opinions to

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comment on it.

VII. CONCLUSION

257. In signing this Declaration, I recognize that the Declaration will be filed as evidence in a contested case before the Patent Trial and Appeal Board of the United States Patent and Trademark Office. I also recognize that I may be subject to cross-examination in this proceeding. If required, I will appear for cross-examination at the appropriate time. I reserve the right to offer opinions relevant to the invalidity of the challenged claims at issue and/or offer testimony in support of this Declaration.

258. I hereby declare that all statements made herein of my own knowledge are true and that all statements are 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 18 U.S.C. § 1001.

Dated: February 21, 2023

Respectfully submitted,

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

Christopher M. Schmandt
Winchester, MA

EXHIBIT A

Christopher Schmandt

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Education

M.I.T., Master of Science, Visual Studies (Computer Graphics), 1980

M.I.T., Bachelor of Science, Computer Science, 1978

Professional Experience -- MIT

Media Laboratory, Principal Research Scientist, 1985-2018 (retired)
Director, Living Mobile Research Group (formerly Speech + Mobility)

Architecture Machine Group, Research Associate, 1980-1984

Architecture Machine Group, Research Assistant, 1979-1980

Architecture Machine Group, Graphics Programmer, 1977-1979

Departmental Undergraduate Research Opportunities Program Coordinator, 1984-2018

Laboratory Intellectual Property Committee 2001-2016, chair 2002-2009

Departmental Committee on Graduate Studies, 1996-2001, 2007-2018

Sponsored Research Activities

Alerting and Mobile Messaging, Digital Life Consortium, MIT Media Lab, 1997-2018

Acoustical Cues to Discourse Structure, National Science Foundation, Principal Investigator, 1995-1998

Parsing Radio, News in the Future Consortium, MIT Media Lab, 1993-1999

Desktop Audio, SUN Microsystems, Inc., Principal Investigator, 1989-1996

Voice Interaction in Hand Held Computers, Apple Computer, Principal Investigator, 1991-1993

Voice Interfaces for Network Services, AT&T, Principal Investigator, 1989-1991

Back Seat Driver, NEC, Principal Investigator, 1988-1991

Acoustic and Visual Cues for Speech Recognition, DARPA, co-Principal Investigator, 1986-1988

Personal Computers and Telephony, NTT Public Corporation, Principal Investigator, 1984-1989

Home Telecomputing, Atari, Inc., Principal Investigator, 1983

Testifying legal engagements within the last five years, representing party in italics

- *Microsoft v. SpeakWare*, 2019
- *Bumble Trading LLC v. Match Group LLC*, 2019
- *Tile Inc. v. Cellwitch Inc.*, 2019
- *Blackberry Ltd v. Facebook, Inc* 2020
- *EROAD Ltd v. PerDiem Co.*, 2020
- *Snap Inc. v. SRK Technology LLC*, 2020
- *Shopify Inc Ltd v. Express Mobile Inc.*, 2020
- *Express Mobile Inc. v Wix Ltd* 2020
- *Motorola Mobility LLC v. Ironworks patents, LLC.* 2021
- *Express Mobile Inc. v GoDaddy Inc* 2021
- *Bumble Trading LLC v. Kinectus, LLC.* 2021
- *Tile, Inc v. Linquet Technologies, Inc.* 2021
- *Facebook, Inc. v. Palo Alto Research Center, Inc.* 2021
- *Unified Patents, LLC v. Gesture Technology Partners, LLC.* 2021
- *Quantum Metric, Inc v. Content Square Isreal, Ltd.* 2021
- *Meta Platforms Inc. v. AlmondNet, Inc* 2022
- *Apple Inc. v. Zentian Limited* 2022

Professional Experience -- Intellectual Property

Co-inventor on U.S. Patents

- 5,177,685 for "Automobile navigation system using real time spoken driving instructions"
- 6,728,348 for "System for storing voice recognizable identifiers using a limited input device such as a telephone key pad"
- 6,937,986 for "Automatic dynamic speech recognition vocabulary based on external sources of information"
- 7,098,776 for "Methods and apparatus for vibrotactile communication"
- 7,392,280 for "Method for summarization of threads in electronic mail"
- 7,738,637 "Interactive voice message retrieval"
- 7,443,283 for "Methods and apparatus for connecting an intimate group by exchanging awareness cues and text, voice instant messages, and two-way voice communications"
- 7,865,560 for "System for summarization of threads in electronic mail"
- 8,121,653 for "Methods and apparatus for autonomously managing communications using an intelligent intermediary"
- 8,135,128 for "Animatronic creatures that act as intermediaries between human users and a telephone system"

Co-inventor on U.S. Patent Applications

- 20020076009 "International dialing using spoken commands"
- 20030023688 "Voice-based message sorting and retrieval method"
- 20030081738 "Method and apparatus for improving access to numerical information in voice messages"
- 20030144846 "Method and system for modifying the behavior of an application based upon the application's grammar"
- 20030158903 "Calendar bar interface for electronic mail interaction"

Publications

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SkinMorph: Texture-Tunable On-Skin Interface Through Thin, Programmable Gel ISWC 2018. (with Cindy Kao, M. Banforth, D. Kim)

Technical Interventions to Detect, Communicate, and Deter Sexual Assault. ISWC 2017. (with Manisha Mohan)

Exploring Interactions and Perceptions of Kinetic Wearables. DIS 2017. (with Cindy Hsin-Liu Kao, D. Ajilo, O. Anilonyte, A. Dementyev, I. Choi and S. Follmer)

Leveraging User-made Predictions to Help Understand Personal Behavior. MobileHCI 2017. (with Miriam Greis, Tilman Dangler and Albrecht Schmidt)

Rovables: On-Body Robots as Mobile Wearables. UIST 2016. (with Cindy Hsin-Liu Kao, A. Dementyev, I. Choi, D. Ajilo, M. Xu, and S. Follmer)

DuoSkin: Rapidly Prototyping On-Skin User Interfaces Using Skin-Friendly Materials. ISWC 2016. (with Cindy Hsin-Liu Kao, Christian Holz, Asta Roseway, and Andres Calvo)

Immersive Terrestrial Scuba Diving Using Virtual Reality (with Dhruv Jain, Misha Sra, Jingru Go, Rodrigo Margues, Raymond Wu and Justin Chiu) Proceedings, UIST 2016

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NailO: Fingernails as an input surface (with Cindy Hsin-Liu Kao, Artem Dementyev, Joseph Paradiso) CHI 2015

Mugshots: A mug display for front and back stage social interaction in the workplace (with Cindy Hsin-Liu Kao) TEI (Tangible and Embedded Interfaces) 2015

Mime: compact, low power 3D gesture sensing for interaction with head mounted displays (with Andrea Colaco, Ahmend Kirmani, Hye Soo Yang, Nan-Wei Gong, and Vivek Goyal) Proceedings of UIST 2013.

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Safe & Sound: a wireless leash (with Natalia Marmasse) Extended Abstracts, Proceedings of CHI 2003

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