

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NFL ENTERPRISES LLC,

Petitioner

v.

OPENTV, INC.,

Patent Owner.

Case No. _____

U.S. Patent No. 7,055,169

**DECLARATION OF STEPHEN MELVIN, Ph.D.
IN SUPPORT OF NFL ENTERPRISES LLC'S PETITION FOR
INTER PARTES REVIEW OF U.S. PATENT NO. 7,055,169**

I, Stephen Melvin, hereby declare as follows:

I. INTRODUCTION

1. I have prepared this Declaration in connection with NFL Enterprises LLC's Petition for *Inter Partes* Review of U.S. Patent No. 7,055,169 ("the '169 Patent") (NFLE. 1001), which is to be filed concurrently with this Declaration.

2. In the course of preparing this Declaration, I reviewed the '169 Patent and its prosecution file history, as well as the documents discussed in this Declaration.

3. I have been retained by NFL Enterprises LLC ("Petitioner") as an expert in the fields of computer science, computer communications, and related technologies. I am being compensated at my normal consulting rate of \$450 per hour for my time. My compensation is not dependent on and in no way affects the substance of my statements in this Declaration.

4. I have no financial interest in Petitioner or its products or services. I similarly have no financial interest in the '169 Patent or the owner of the '169 Patent, and I have had no contact with the named inventors of the '169 Patent.

II. QUALIFICATIONS

5. I received a Ph.D. in Computer Science from the University of California at Berkeley in 1991 and a B.S. in Electrical Engineering and Computer Science from the University of California at Berkeley in 1982. I have more than

30 years of experience in computer science and computer engineering. I am an inventor on over 45 patents, and I am a registered patent agent before the USPTO.

6. My Ph.D. research areas included high-performance computer architecture and microarchitecture, and microcode-based system performance analysis tools. From September 2001 through April 2002, I was a Visiting Scholar at the University of Texas at Austin, where I directed graduate students in research in the area of high-performance computer architecture.

7. In May 2001, I co-founded and was the Chief Architect of Flowstorm, Inc., a start-up company based in Silicon Valley, where I defined and guided the overall chip architecture for a multithreaded packet processor. From March 2000 through May 2001, I worked as the Senior CPU Architect at Clearwater Networks, where I was involved in defining the architecture and microarchitecture of Clearwater's CNP810S multithreaded network processor.

8. From August 1983 to the present, I have been the President of Zytek Communications Corporation ("Zytek"). Zytek is an engineering, consulting, and small-scale manufacturing company that currently provides intellectual property consulting services as well as services related to the design, implementation, and testing of embedded systems. Zytek's general areas of activity have included industrial control and measurement, Internet-related services, hard disk analysis and file recovery, and computer engineering research services. Through my work

at Ztek, I have designed numerous microprocessor-based embedded systems, including analog and digital circuit design, firmware development for embedded microcontrollers, and software development for host interfacing, product development, and debugging.

9. I am a member of the following professional organizations: The Institute of Electrical and Electronics Engineers (IEEE); The Association for Computing Machinery (ACM); The American Intellectual Property Law Association (AIPLA); The Intellectual Property Owners Association (IPO); and The National Association of Patent Practitioners (NAPP).

10. I served as General Chair of the 45th Annual International Symposium on Microarchitecture (Micro-45), held in Vancouver in December of 2012. I also served as co-chair of the 29th Annual International Symposium on Microarchitecture (Micro-29), held in Paris in December of 1996.

11. For further details regarding my employment and academic history, please refer to my curriculum vitae, attached as NFLE 1005.

III. RELEVANT LAW

12. I am not an attorney. For the purposes of this Declaration, I have been informed about certain aspects of the law that are relevant to my opinions. My understanding of the law is summarized below.

13. I have been informed and understand that claim construction is a matter of law and that the final claim constructions for this proceeding will be determined by the Patent Trial and Appeal Board.

14. I have been informed and understand that in the context of an *Inter Partes* review, a claim of an unexpired patent must be construed according to its broadest reasonable construction in light of the specification.

15. I have been informed and understand that a patent claim is obvious and therefore invalid if the claimed subject matter, as a whole, would have been obvious to a person of ordinary skill in the art as of the priority date of the patent based on one or more prior art references and/or the knowledge of one of ordinary skill in the art. I understand that an obviousness analysis must consider (1) the scope and content of the prior art, (2) the differences between the claims and the prior art, (3) the level of ordinary skill in the pertinent art, and (4) secondary considerations, if any, of non-obviousness (such as unexpected results, commercial success, long-felt but unmet need, failure of others, copying by others, and skepticism of experts).

16. I understand that a prior art reference may be combined with other references to disclose each element of the invention under 35 U.S.C. § 103. I understand that a reference may also be combined with the knowledge of a person of ordinary skill in the art, and that this knowledge may be used to combine

multiple references. I further understand that a person of ordinary skill in the art is presumed to know the relevant prior art. I understand that the obviousness analysis may take into account the inferences and creative steps that a person of ordinary skill in the art would employ.

17. In determining whether a prior art reference could have been combined with other prior art or other information known to a person having ordinary skill in the art, I understand that the following principles may be considered:

- a. A combination of familiar elements according to known methods is likely to be obvious if it yields predictable results;
- b. The substitution of one known element for another is likely to be obvious if it yields predictable results;
- c. The use of a known technique to improve similar items or methods in the same way is likely to be obvious if it yields predictable results;
- d. The application of a known technique to a prior art reference that is ready for improvement, to yield predictable results;
- e. Any need or problem known in the field and addressed by the reference can provide a reason for combining the elements in the manner claimed;
- f. A person of ordinary skill often will be able to fit the teachings of multiple references together like a puzzle; and

- g. The proper analysis of obviousness requires a determination of whether a person of ordinary skill in the art would have a “reasonable expectation of success” – not “absolute predictability” of success – in achieving the claimed invention by combining prior art references.

18. I am informed that whether a prior art reference invalidates a patent claim as obvious is determined from the perspective of a person of ordinary skill in the art. While there is no requirement that the prior art contain an express suggestion to combine known elements to achieve the claimed invention, a suggestion to combine known elements to achieve the claimed invention may come from the prior art as a whole, or individually, as filtered through the knowledge of one skilled in the art. In addition, the inferences and creative steps that a person of ordinary skill in the art would employ are also relevant to the determination of obviousness.

19. When a work is available in one field, design alternatives and other market forces can prompt variations of it, either in the same field or in another. If a person of ordinary skill in the art can implement a predictable variation and would see the benefit of doing so, that variation is likely to be obvious. In many fields, there may be little discussion of obvious combinations, and in these fields market demand – not scientific literature – may drive design trends. When there is a design need or market pressure, and there are a finite number of predictable

solutions, a person of ordinary skill in the art has good reason to pursue those known options.

20. It is my understanding that there is no rigid rule that a reference or combination of references must contain a “teaching, suggestion, or motivation” to combine references. But, I understand that the “teaching, suggestion, or motivation” test can be a useful guide in establishing a rationale for combining elements of the prior art. This test poses the question as to whether there is an express or implied teaching, suggestion, or motivation to combine prior art elements in a way that realizes the claimed invention, and it seeks to counter impermissible hindsight analysis.

IV. LEVEL OF ORDINARY SKILL IN THE ART

21. Based on my review of the '169 Patent and my background and experience in the field of computer science, it is my opinion that one of ordinary skill in the art as of the priority date would be someone with a bachelor's degree in computer science, computer engineering, or the equivalent, plus approximately two years of experience in the field of computer engineering or software development, or an equivalent amount of relevant work and/or research experience.

22. I have been informed and understand that claim construction is viewed from the perspective of a person of ordinary skill in the art in question at the time

of the invention. I have been informed that the owner of the '169 Patent claims an invention date of June 2001. I have been asked to assume that this is the proper priority date for the '169 Patent. However, the opinions I expressed in this report would be the same if I applied a priority date of April 2002 (the provisional filing date of the '169 Patent) or April 2003 (the actual filing date of the '169 Patent).

23. The '169 Patent generally relates to computer content control and interactive television systems, although the lack of any limitation relating to interactive television in certain claims, such as claims 1 and 23, show that the '169 Patent's scope is not so limited. *See* '169 Patent at Claims 1 & 23.

24. Based on my education and experience, I am familiar with the level of knowledge that one of ordinary skill would have possessed during the relevant period of time.

25. In reaching this opinion as to the qualifications of the hypothetical person of ordinary skill in the art, I have considered the types of problems encountered in the art, the prior art solutions to those problems, the rapidity with which innovations are made, the sophistication of the technology, and the educational level of active workers in the field.

26. By the priority date of the '169 Patent, I was a person who had more than ordinary skill in the art.

V. OVERVIEW OF THE STATE OF THE ART IN JUNE 2001

27. During and before June 2001, the operation of web pages and the Internet was well understood by a person of ordinary skill in the art (“POSITA”).

28. During and before June 2001, Web pages were, at a high level, (1) downloaded from a server over the Internet, (2) rendered by a user’s computer, and (3) displayed to a user.

29. Downloading a web page refers to the process of the web browser retrieving content from the Internet. Such content can be pointed to using a Uniform Resource Locator (“URL”), which identifies a server where the content is located such that the user’s computer can download the content. The content received is generally composed of directions that instruct the computer in how to render the web page as well as multiple “resources,” which can include, for example, text, images, video and graphics.

30. Rendering a web page refers to the process of utilizing resources downloaded from the Internet, such as text and images, and processing HTML code to place and format the resources and display the resulting web page to the user. For example, the HTML code for a web page that refers to an image might direct that the image be aligned in a certain way or have a certain size border. The rendering software in the web browser would place the picture at the correct location and show it to the user. A feature known as “progressive rendering” was

well known at the time of the '169 Patent and remains to this day the default operation for most web browsers in handling images. Progressive rendering refers to the process of rendering and displaying to the user a partially constructed web page as soon as possible, before all of the resources for the full web page have been downloaded, as opposed to rendering and displaying the web page after all resources necessary to display the web page are downloaded.

31. Displaying the rendered web page refers to the process of making the rendered web page available to a display that the user can view.

VI. OVERVIEW OF THE '169 PATENT

32. The '169 Patent is entitled “Supporting Common Interactive Television Functionality Through Presentation Engine Syntax.” NFLE 1001 at Cover. It was filed on April 21, 2003, claims priority to a provisional application filed on April 19, 2002, and issued on May 30, 2006. *Id.*

33. The '169 Patent includes 23 claims. I have been asked to analyze Claims 1, 2, 22, and 23.

34. The limitations in Claim 1 define a method for handling a set of resources. *Id.* An example of a resource is a media file that contains audio, video, and/or graphics. *See, e.g.*, NFLE 1001 at 21:8–20 (identifying a file called “background.mpg,” *i.e.* a “background” file, as a *resource*). The '169 Patent explains that resources utilize Internet protocols: “HTML pages [(*i.e.*, web pages)]

may use ‘http:’ URLs to load resources from the carousel.” *Id.* at 24:63–64. A “carousel” is a term the ’169 Patent uses to refer to a collection of data objects being transmitted to the computer over a network from a broadcaster in a cyclical or repeating format. *Id.* at 1:43–2:15.

35. The resources are organized into a *presentation*. For example, a presentation could be a web page, which is represented by HTML code in an “HTML document.” *See, e.g.*, NFLE 1001 at 11:49–61 (describing a presentation consisting of content from cnn.com).

36. Claim 1 requires use of *directives* that are *indicative* of the presentation. The ’169 Patent explains that “declarations or other statements used in the creation and/or manipulation of resources and content in this document may be generally referred to as ‘directives.’” *Id.* at 47:7–10. The specification provides examples of directives in an HTML Document:

```
<IMG height=300 width=400 style="position:absolute; left:200px;
top:80px" src="broadcast://current ">
<OBJECT height=300 width=400 data="broadcast://current
"></OBJECT>
```

NFLE 1001 at 22:30–49. In the example above, the code consists of directives that are indicative of where an image is located (“broadcast://current”) and how it should be positioned and sized on the user’s display. *Id.* Claim 1 specifies that if a particular resource is designated as a *prerequisite* by one of the received

directives, then presentation of the audio, video, or graphics will be *prohibited* until the prerequisite resource is acquired. NFLE 1001 at Claim 1. And if there are no resources designated as prerequisite, then the presentation will be *initiated*. *Id.* One example identified by the '169 Patent of a *prerequisite directive* is:

```
<META name="prerequisite"  
content="http://www.cnn.com/background.mpg">
```

NFLE 1001 at 21:18–20. This example directive is written in HTML (*see id.* at 20:66– 21:3) and the directive is identified by the name/value pair: name="prerequisite." The resource is the **background.mpg** file available for download at the location pointed to by the URL. "META" is an HTML tag that is generally used to provide metadata to the web browser. In this example, the "META" HTML tag provides the web browser with an instruction regarding the rendering of the web page. The specification indicates that by including the "prerequisite" parameter in the HTML code, the web browser would prohibit the presentation until the background.mpg file is acquired. NFLE 1001 at 21:8–20. In addition to the mechanism described above, in which resources are labeled as "prerequisites" using the META tag in the HTML code, the '169 Patent also discloses three different options for rendering web pages. NFLE 1001 at 21:21–31. The first option is the "progressive rendering policy," wherein the web page is rendered as soon as possible. NFLE 1001 at 21:32–36. Only those resources

labeled as prerequisites, if any, cause the display of the web page to be prohibited until the prerequisites are acquired. NFLE 1001 at 21:32-36. The second option is the “layoutComplete rendering policy,” wherein display of the web page is prohibited until information that determines the complete on-screen layout are acquired, in addition to those resources that are labeled as prerequisites, if any. NFLE 1001 at 21:37–44. The third option is the “loadComplete rendering policy,” wherein the display of the web page is prohibited until all resources are acquired, which means that all resources are prerequisites. NFLE 1001 at 21:45–52.

VII. CLAIM CONSTRUCTION ANALYSIS

A. “Directive”

37. I have been asked to opine on the following claim limitation: “directive” (Claims 1, 2, 22, and 23).

38. The ’169 Patent describes “directives,” stating: “[T]he declarations or other statements used in the creation and/or manipulation of resources and content in this document may be generally referred to as ‘directives.’” NFLE 1001 at 47:7-10.

39. The ’169 Patent also explains: “In one embodiment, a device in an interactive television system is configured to receive one or more directives

provided by a content author which describe or otherwise indicate an audio and/or video presentation.” NFLE 1001 at 2:39-42.

40. Further, *The American Heritage College Dictionary* defines “directive” as: “An order or instruction, esp. one from a central authority.” NFLE 1010 at 3. *The New Shorter Oxford English Dictionary* defines “directive” as: “Something which directs; spec. a general instruction for procedure or action given to a subordinate.” NFLE 1011 at 3.

41. Accordingly, it is my opinion that, in the context of the ’169 Patent, a person of ordinary skill in the art would have understood “directive” to mean “declaration or instruction.”

B. “subset of said set of resources”

42. I have been asked to opine on the following claim limitation: “subset of said set of resources” (Claims 1 and 22–23). A POSITA would have understood that term to mean “a set that is some or all of said set of resources.”

43. The word “Subset” is defined as: “2. Math. a set consisting of elements of a given set that can be same as the given set or smaller.” NFLE 1013 at 3–4. The specification suggests that any number of resources may be labeled as prerequisites, and also contemplates an embodiment in which all of the resources are labeled “prerequisite resources,” in which case the subset of prerequisite resources would be the same as the set of all resources:

The loadComplete rendering policy indicates that the graphics may not be displayed until all resources that will be used for rendering the display have been downloaded. The only difference between the loadComplete rendering policy and ***labeling all resources as prerequisites***, is that in the first case the OnLoad event will have been delivered to the appropriate handler, if any, prior to rendering, and hence may affect the rendered view.

NFLE 1001 at 21:45–52 (emphasis added). The discussion above contemplates “labeling all resources as prerequisites,” and indicates that doing so would be equivalent to the loadComplete rendering policy (except for the timing of when the OnLoad event is triggered). Thus, the specification teaches to a POSITA that the META tag mechanism could be used to label all resources as prerequisites, and in so doing would be an alternative to the loadComplete rendering policy, with a difference in when events are triggered. A POSITA would understand that both alternatives are viable options for a content author who wants all resources to be prerequisites.

44. Indeed, the specification never states that all of the resources “required for a presentation” cannot also all be prerequisite resources and never restricts a content provider to only designating some of the resources as prerequisite. *See, e.g.,* NFLE 1001 at Abstract, 2:33–47, 21:9–20, 21:21–52, 21:53–22:11, 47:23–37,

47:45– 48:3, 48:54–56, 48:58–67. In fact, where the Patent contemplates a subset that does not include all members of the parent set, that situation is referred to as a “strict subset” of the “maximum set,” which a POSITA would have understood to be the proper way in the art to refer to a system wherein the subset cannot constitute the full set. *Id.* at 45:29–55.

45. Finally, nothing in the specification teaches away from a scenario wherein all resources are designated as prerequisite. *See generally* NFLE 1001. Indeed it would not make sense to restrict a content author such that they would have to reserve at least one resource that is not labeled as a prerequisite, and no such restriction is discussed in the specification. A POSITA would not have seen any logic behind limiting a subset to not being able to include all resources because such code is intended to be flexible and adaptable to a variety of situations.

C. “interactive television system”

46. I have been asked to opine on the following claim limitation: “interactive television system” (Claim 22).

47. The broadest reasonable construction of “interactive television system” is “system for providing interactive content as well as audio, video, and/or graphic presentations.” The ’169 Patent describes “interactive television systems” as “a means to deliver interactive content as well as ordinary television audio and video

to a large number of subscribers.” NFLE 1001 at 1:15–17. The specification describes the operation of “interactive television systems”:

Programs broadcast by these systems may incorporate television audio and video, still images, text, interactive graphics and applications, and many other components. They may also provide a number of services, such as commerce via the television, electronic program guides (EPGs), video-on-demand, and other interactive applications to viewers. The interactive content of the interactive television signal may therefore include application code, data associated with the audio and video, control signals, raw data and many other types of information.

NFLE 1001 at 1:17–27. The specification further explains: “For example, an interactive television game show may combine television audio and video with interactive content such as application code which allows users to answer questions. Another example would be a news program which combines audio and video with application code that inserts current stock prices in a banner at the bottom of the screen.” *Id.* at 2:4–10. Thus, in the context of the ’169 Patent, “interactive television systems” can provide television content as well as other interactive applications and data. *See id.* at 1:15–27, 2:4–10.

48. Indeed, Claims 13 and 22 disclose an “interactive television system” in which “audio, video and/or graphic presentation[s]” are presented. *See id.* at Claims 13, 22.

VIII. BERI RENDERS OBVIOUS CLAIMS 1, 2, AND 23, AND, IN COMBINATION WITH HARRINGTON, RENDERS OBVIOUS CLAIM 22

49. I have carefully reviewed U.S. Patent No. 6,141,018 (“Beri”) and U.S. Patent No. 7,120,871 (“Harrington”), and it is my opinion that Beri renders obvious claims 1, 2, and 23. It is also my opinion that Beri in combination with Harrington render obvious Claim 22.

A. Summary of Beri

50. Beri explains the structure and operation of the Internet and how some “resources,” such as images, are transferred over the Internet to a user’s computer:

The Internet comprises a vast number of computers interconnected so that information can be exchanged among the computers.

Various protocol and other interface standards have been developed for the Internet so that each computer will understand information of the other computers.

...

The Internet facilitates information exchange between servers and clients that are located throughout the World. Each computer on the

Internet has a unique address (e.g., “acme.com”). When a client wishes to access a **resource (e.g., document)**, the client specifies a Uniform Resource Locator (“URL”) that uniquely identifies the computer on which the server executes and the resource. An example of a URL is “http://acme.com/page1.” In this example, the server is identified by “acme.com” and the **resource** is identified by “**page1**.”

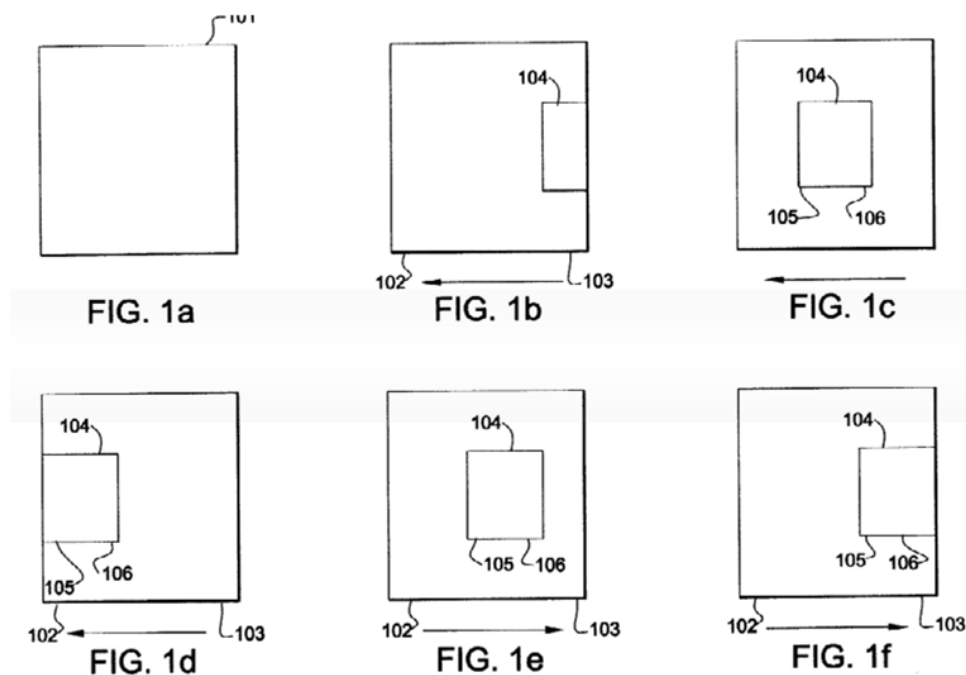
NFLE 1006 at 1:11–36 (emphasis added).

51. Beri explains that prior art software developed by Microsoft allowed for scrolling text to move across a webpage:

Microsoft Corporation has defined various extension[s] to HTML. One such extension is known as a <marquee> tag. The <marquee> tag indicates that certain text is to be scrolled within a marquee window on a Web page. The attributes of the <marquee> tag specify the size of the marquee window and the direction and speed of scrolling. The <marquee> tag thus provides a visual effect that is similar to the electronic marquees found on some buildings that display the headline news.

NFLE 1006 at 2:1–9. Beri explains that the prior art was deficient because, although it could display scrolling text across the webpage, it could not display one

or more images scrolling across a web page. *Id.* at 2:34–37. To remedy that deficiency, Beri describes a method and system for displaying resources transferred over the Internet, such as an “image in an animated marquee.” *Id.* at 2:40–53. For example, Figure 1 shows frames of an arbitrary image over time as it “bounce[s] off each border of the marquee window in which it is displayed”:



NFLE 1006 at Figure 1, 2:42–44, 2:56–57.

52. To enable this functionality of scrolling images, an animation, on a webpage, Beri discloses use of an ActiveX object to control the animation:

In one embodiment, the animated marquee is controlled by an ActiveX object (i.e., marquee object) that is specified by an <object> tag in an HTML document. The <object> tag identifies the image and specifies various parameters to control the animation.

The marquee object exposes various methods for setting the parameters and issues events to notify a Web browser of various conditions.

NFLE 1006 at 2:46–53; *see also* 5:13–62 (listing tags and explaining implementation). ActiveX is a software framework developed by Microsoft which is primarily aimed at providing additional capabilities for Internet web browsers.

53. Beri discloses parameters, or attributes, of the ActiveX object which control the drawing of the images in the animation. *See, e.g.*, NFLE 1006 at 5:13–62 (disclosing various parameters), 3:48–50 (“the parameters can be set to indicate whether the URL is to be drawn immediately or progressively”); 5:57 (disclosing a DrawImmediately flag whose purpose is to “indicat[e] to progressively render the image”).

54. Beri discloses that the animation could consist of one image moving or of multiple images moving. NFLE 1006 at 3:52–54 (“The animated marquee can also display a sequence of images rather than just one image. Each image is identified by a URL.”). When displaying an animation with multiple images, the images can be set to automatically “follow another image in a continuous manner” or “the user can click on the marquee window to select the next image.” *Id.* at 3:54–58; 4:18–21, 4:33–35.

B. Summary of Harrington

55. Harrington discloses a system that “combines broadcast television programming and/or video programming . . . , or particular content from the Internet, or video programming at a video server . . . with the massive Internet” NFLE 1007 at 1:65–2:3. To achieve this end, Harrington discloses “a computer based system for receiving a video program along with embedded uniform resource locators (URLs)—which direct the user’s computer 16 to address locations, or Web sites, on the Internet 20 to retrieve related Web pages.” NFLE 1007 at 4:62–66. While the user is watching a video, the software downloads the content at the URL and constructs it in a staging area in the system memory. *Id.* at 14:61–15:13. Then, at a predetermined time, the constructed webpage is integrated with the video and displayed to the user. *Id.* at 16:12–23. Thus, for example, the user’s system could retrieve targeted advertising content from the Internet and integrate that content with the video, at a time when that advertising is relevant to the video. *Id.* at 2:33–41. This functionality allows “video programming” or “particular content from the Internet” to be combined with the “massive Internet” by “synching specific Internet pages to the video signal.” *Id.* at 1:65–2:27. “The video programming and corresponding Internet pages can be viewed on personal computers equipped with a television card.” *Id.* at 2:50–53.

56. To obtain the web page for construction, Harrington uses a “pre-fetch push command,” which is composed of instructions that direct the computer to

retrieve content at a URL and begin construction of the web page before the user sees it:

The machine receives from a server a pre-fetch push command along with a URL and timer event information. A hidden staging frame is set-up in memory for constructing the web page, and a timer is initialized using the timer event information. A web browser uses the URL to retrieve content and construct the web page in the hidden staging frame. After the web page is constructed and the timer expires or other relevant timer event occurs, the web browser retrieves the constructed web page and displays it to the user. Therefore, the user is provided with a more television-like experience in viewing content, as the user need not view the web pages being constructed.

NFLE 1007 at 4:7–18. Harrington explains that the “pre-fetch push command may include any type of information instructing client machine 204 to construct a web page hidden from view.” *Id.* at 15:21–23. These instructions include, for example, instructions that direct the browser to pass URL “and timer event information, if present, to web browser 210, which initializes timer event 212, as shown with connection 224, if timer information is invoked.” *Id.* at 14:61–64.

57. Harrington explains that the content at the URL must be displayed to the user **synchronously** with the television programming being watched. *Id.* at

3:34–40; 4:19–22 (“it is an object of the present invention to provide order and direction to the Internet by using television signals to place, orient and control such information in a meaningful context”). To ensure correct synching, Harrington uses, for example, a “timer” to control when the content will be displayed to the user. *Id.* at 4:5–22. Harrington explained that the timer, when used, provides an indication of when to display the constructed web page and it may use a JavaScript timer, or other software or hardware timers. Also, it may provide a relative indication of when to display the web page, such as a particular number of seconds after receiving the command, or it may provide an indication of an actual time at which to display it.

Id. at 15:25–32.

C. Beri renders obvious Claim 1

1. **Limitation 1[A]: A method comprising: receiving one or more directives, wherein said directives are indicative of an audio, video and/or graphic presentation which requires a set of resources**

58. ***Method.*** Beri discloses a method executed by software, specifically a web browser, on a computer. *See, e.g.*, NFLE 1006 at Abstract, 2:40–53, Claim 1 (claiming method for “displaying a document”).

59. ***Presentation which requires a set of resources.*** Beri also discloses a method involving an audio, video, and/or graphic presentation consisting of a web

page with an animation. Beri explains that “[t]he present invention relates generally to the field of displaying hypertext documents, and in particular, to animating the display of hypertext documents.” NFLE 1006 at 1:6–8. And Beri “provides a method and system for displaying an arbitrary image in an animated marquee. The image can be displayed with various visual effects. For example, the image can be displayed to bounce off each border of the marquee window in which it is displayed.” *Id.* at 2:40–44; *see also, id.* at 1:27–2:53.

60. The images in the animation constitute the set of resources, and the images are referred to using URLs. NFLE 1006 at 5:13–63, 4:33–36, 3:20–27, 3:52–54. Beri explains that “[a]n example of a URL is ‘http://acme.com/page1.’” In this example, the server is identified by “acme.com” and the resource is identified by ‘page1.’” *Id.* at 1:33–36. Beri discloses a set of resources because it indicates, for example, that presentation of the animation can involve use of multiple images. *Id.* at 3:48–59, 4:33–36, 6:47–57, 7:36–67. Beri also discloses a set of resources because the <object> tag is only one component of an HTML document and a POSITA would understand that other resources may be defined within the HTML document outside of the specific <object> tag that defines the animation.

61. ***Directives.*** Beri discloses a table of directives:

ATTRIBUTE	DESCRIPTION
ScrollStyleX	Horizontal scroll style: “circular” or “bounce.”
ScrollStyleY	Vertical scroll style: “circular” or “bounce.”
ScrollDelay	Time in milliseconds between each movement of the image in the marquee window.
LoopsX	Number of times the image scrolls horizontally if ScrollStyleX is “circular,” or number of times the image bounces horizontally if ScrollStyleX is “bounce.”
LoopsY	Number of times the image scrolls vertically if ScrollStyleY is “circular,” or number of times the image bounces vertically if ScrollStyleY is “bounce.”
ScrollPixelsX	Number of pixels to move the image horizontally in the marquee window each ScrollDelay.
ScrollPixelsY	Number of pixels to move the image vertically in the marquee window each ScrollDelay.
URL	URL of the image.
DrawImmediately	Flag indicating to progressively render the image.
Whitespace	Amount of white space between images.
PageFlippingOn	If multiple URLs; indicates that the next image is to be displayed when the marquee window receives a click.
Zoom	Percentage of the original size of the image.
WidthOffPage	Width in pixels of the image.

NFLE 1006 at 5:41–62. These attributes are directives because they instruct the web browser in how to obtain and render the resources at the URL (the images for the animation). *Id.* at 2:10–33 (explaining ActiveX object used as part of the HTML environment to render web pages).

62. ***Indicative.*** Beri discloses directives that are indicative of an audio, video, or graphic presentation because the attributes in the table above are declarations or instructions that indicate how the computer should handle presentation of the audio, video, or graphic content that is downloaded over the Internet. For example, the “URL” directive indicates to the web browser where it

can find the image to download it. NFLE 1006 at 5:13–62; 6:47–57. And, the “DrawImmediately” directive indicates to the web browser whether or not it should “progressive[l]y render the image.” *Id.* at 5:57.

2. Limitation 1[B]: determining whether said one or more directives includes a prerequisite directive which indicates that acciuisition [sic] of a subset of said set of resources is a prerequisite for initiating the presentation;

63. ***Determining.*** The “determining whether” aspect of this limitation is performed in Beri by a web browser, which is software designed to process the directives contained in the ActiveX object that Beri uses to animate the marquee. NFLE 1006 at 2:10–53.

64. ***Prerequisite directive.*** Beri’s web browser determines whether one or more of the directives includes a “prerequisite directive which indicates that acquisition of a subset of said set of resources is a prerequisite for initiating the presentation.” As explained above, a prerequisite directive is a “declaration or instruction that indicates a subset of the resources required for initiating the presentation.” DrawImmediately is a prerequisite directive because, when disabled or set to 0, it prohibits the web browser from displaying the web page until after all of the resources (the images) in the marquee are downloaded. NFLE 1006 at 5:57, 6:42–44, 3:48–50, 11:24–26. Beri explains that the DrawImmediately directive controls the drawing of the image marquee and can be set to instruct the

computer to display the image marquee after it the images have been completely loaded. *Id.* NFLE 1006 at 2:40–53, 3:48–50, 6:55–57.

65. If DrawImmediately is enabled, or set to 1, it does not constitute a prerequisite directive, because it causes the web browser to initiate display of the marquee progressively, before it finishes downloading the images from the Internet: “If the DrawImmediately parameter is set, the image will scroll before the image is fully loaded (i.e., formatted). This gives the effect of progressive rendering.” *Id.* at 6:42–44. Beri discloses a method “wherein portions of the image are displayed immediately as the image is generated in accordance with the page description language.” *Id.* at 11:24–26. Thus, portions of the image which are not yet generated, because they are not yet downloaded or formatted, are not displayed. *See id.* at 3:48–50 (“the parameters can be set to indicate whether the URL is to be drawn immediately or progressively”).

66. Beri provides an example wherein the DrawImmediately directive is disabled or set to 0, which has the effect of designating the resources in the marquee as prerequisites because they must be downloaded before the presentation can be initiated:

**Slide Image From Bottom Only When Finished Formatting and
Rendering**

<PARAM NAME="Loops Y" VALUE=0>

<PARAM NAME="ScrollPixelsX" VALUE=0>

<PARAM NAME="ScrollPixels Y" VALUE=-100>

<PARAM NAME="**DrawImmediately**" VALUE=0>")

NFLE 1006 at 8:25–30 (emphases added). A POSITA would have understood this code to indicate that the presentation will not be initiated until all resources are loaded, because the DrawImmediately directive is disabled. To the extent Patent Owner argues that DrawImmediately is not a prerequisite directive because prerequisite resources are indicated by the default value (0 or disabled), it would have been obvious to implement the inverse scheme such that required resources are designated by setting a flag, for example named “DrawDelayed”, to be 1 or enabled, and non-prerequisite resources designated by a default setting of DrawDelayed to be 0 or disabled. See, e.g., Ex. 1006 at 2:1–:33 (explaining flexible HTML framework), 9:55–:60 (explaining other embodiments are apparent to a POSITA).

67. **Subset.** Beri’s animation can contain one or more URLs, each of which points to a single image. NFLE 1006 at 5:56; 6:46–57. All of the images pointed to by the URL attribute constitute a subset of the resources because they constitute “some or all of the set of resources.”

68. Alternatively, the ActiveX marquee itself constitutes a subset of the resources on the entire web page. A POSITA would have understood that the

ActiveX marquee contemplated by Beri is only one possible part of a web page, and that web pages contain other resources as well, such as images or text, outside of the ActiveX object marquee. Indeed, Beri explains that “Web pages are usually defined to include graphical components” such as a “bitmap” within a web page. NFLE 1006 at 1:60–67. A POSITA would have understood this disclosure to refer to resources that can be outside of the ActiveX object Beri uses to animate the marquee. The default behavior for most browsers in handling images is progressive rendering, which means that the web page will be displayed as soon as possible, before resources have been downloaded. Thus, if DrawImmediately is disabled, and if the web page includes images outside of the marquee object, the resources outside of the marquee object will not be treated as prerequisites, while the resource or resources inside the marquee object will be treated as prerequisites.

3. Limitation 1[C]: initiating said presentation, in response to determining the one or more directives do not include said prerequisite directive; and

69. ***Initiating.*** Beri discloses that the presentation is controlled, including being initiated, by a web browser that uses an ActiveX object to specify directives that control how the animation is generated. NFLE 1006 at 5:13–37.

70. ***No Prerequisite Directive.*** Beri discloses that if the one or more directives do not include a prerequisite directive (*i.e.*, the DrawImmediately feature is enabled or set to 1), then the web browser will determine no prerequisite

directive exists and presentation of the animation will be “immediately” initiated before the images have been downloaded. NFLE 1006 at 3:48–50, 5:13–39.

4. Limitation 1[D]: prohibiting initiation of said presentation until said subset of resources are acquired, in response to determining the one or more directives include said prerequisite directive.

71. *Prohibiting.* Beri discloses that the presentation is controlled, including being prohibited, by a web browser that uses an ActiveX object to specify directives that control how the animation is generated. NFLE 1006 at 5:13–37.

72. *Includes a Prerequisite Directive.* Beri discloses that if the one or more directives include a prerequisite directive, then presentation of the web page will be prohibited until the subset of resources are acquired. If the DrawImmediately directive is disabled or set to 0, then the presentation will be prohibited until the images at the URLs are downloaded. NFLE 1006 at 3:48–50, 6:42–44; 5:13–62.

D. Beri renders obvious Claim 2: “The method of claim 1, wherein said prerequisite directive comprises one or more directives selected from the group consisting of: a markup language, a scripting language, and a style sheet.”

73. Beri discloses that the prerequisite directive can be written with a markup language, a scripting language, or a style sheet. The ’169 Patent states that a type of “markup language” is “HTML.” NFLE 1001 at 9:13. And Beri uses

HTML. *See, e.g.*, NFLE 1006 at 5:32–39. The HTML markup language is used as the vehicle for the exemplary prerequisite directive (DrawImmediately) rendered obvious by Beri. *Id.* at 5:13–62.

E. Beri and Harrington together render obvious Claim 22

1. Limitation 22[P]: A client device in an interactive television system, said device comprising:

74. Harrington discloses a television and receiver combination consisting of a personal computer equipped with a television card (the client device) that receives video from “broadcast television programming” (which together constitute the interactive television system). NFLE 1007 at 1:65–66, 2:50–54.

75. It would have been obvious to a POSITA to combine Beri’s web page rendering software with Harrington’s client device in an interactive television system. Harrington identifies the problem of integrating television with rendering of web pages, and provides a solution for retrieving and rendering web pages within the context of integrated television. NFLE 1007 at 1:65–2:13, 4:5–22. Beri also addresses the problem of rendering web pages, and provides a solution for rendering animations within web pages. NFLE 1006 at 2:1–33. A POSITA would have been motivated to combine the two references because they both involve solutions to the problem of rendering of web pages, and it was well known that many users enjoyed looking at animations on web pages.

76. A POSITA would have found it straight forward to effectuate the combination because Harrington and Beri both render web pages on a personal computer, and the software environments are the same. *See, e.g.*, NFLE 1006 at 2:1–33 (discussing Microsoft environment and Microsoft ActiveX tools for use in web browsers); NFLE 1007 at Figure 7 (using Netscape Navigator web browser in Windows environment), 10:48–64. Thus, the combination of Harrington’s client device in an interactive television system with Beri’s rendering software would have been an obvious combination of known elements that would have yielded predictable results. The result would have been software with the same overall purpose (rendering web pages) that would have the combined ability to render animations and to do so while the user was watching television.

2. Limitation 22[A]: a receiver configured to receive signals corresponding to directives which are indicative of an audio, video and/or graphic presentation requiring a set of resources; and

77. Harrington discloses a receiver configured to receive signals corresponding to directives because it discloses use of, for example, “a personal computer equipped with a **television card**” (NFLE 1007 at 2:50–54; 5:45–59) (emphasis added), which a POSITA would understand to refer to a card that is capable of receiving broadcast television signals. Harrington further discloses that the personal computer has an “Internet connection” through, for example, a “conventional modem” (NFLE 1007 at 5:60–:64), which a POSITA would

understand to be a receiver capable of receiving Internet signals. A POSITA would have been motivated to combine Beri and Harrington for the same reasons given above.

78. As explained above, both Beri and Harrington disclose directives which are indicative of an audio, video and/or graphic presentation requiring a set of resources, and a POSITA would have been motivated to combine Beri and Harrington to achieve the predictable goal of rendering web pages within the context of integrated television.

3. Limitation 22[B]: a processing unit coupled to said receiver, wherein said processing unit is configured to

79. Harrington discloses a processing unit as part of or coupled to the receiver. NFLE 1007 at 5:45–48 (“Preferably, each receiver station comprises any Intel x86 machine (preferably a 486 processor, pentium processor, etc.), an Apple Computer, UNIX or any other type of standard computer workstation.”).

80. The remainder of the Limitations in Claim 22 are disclosed by Beri as explained above in Claim Limitations 1[B], 1[C], and 1[D], which contain similar claim language

F. Beri renders obvious Claim 23

a. Limitation 23[P]: A computer readable medium comprising program instructions executable by a computer to:

81. Beri discloses a computer readable medium comprising program instructions executable by a computer because it discloses a computer that contains a memory, and that the memory stores software consisting of, for example, a web browser:

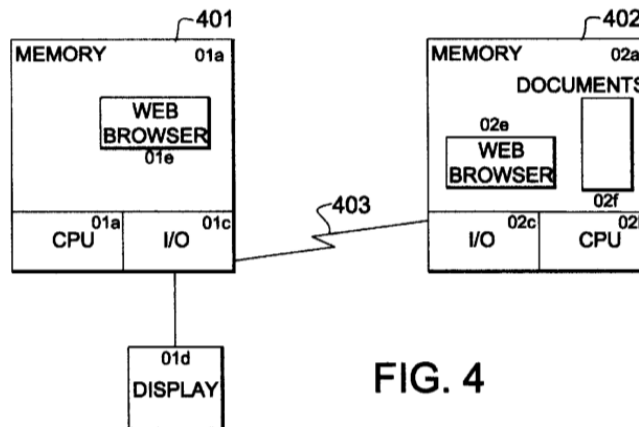


FIG. 4

NFLE 1006 at Fig. 4, 4:65–5:13.

82. The remainder of the Limitations in Claim 23 are disclosed by Beri as explained above in Claim Limitations 1[A], 1[B], 1[C], and 1[D], which contain similar language.

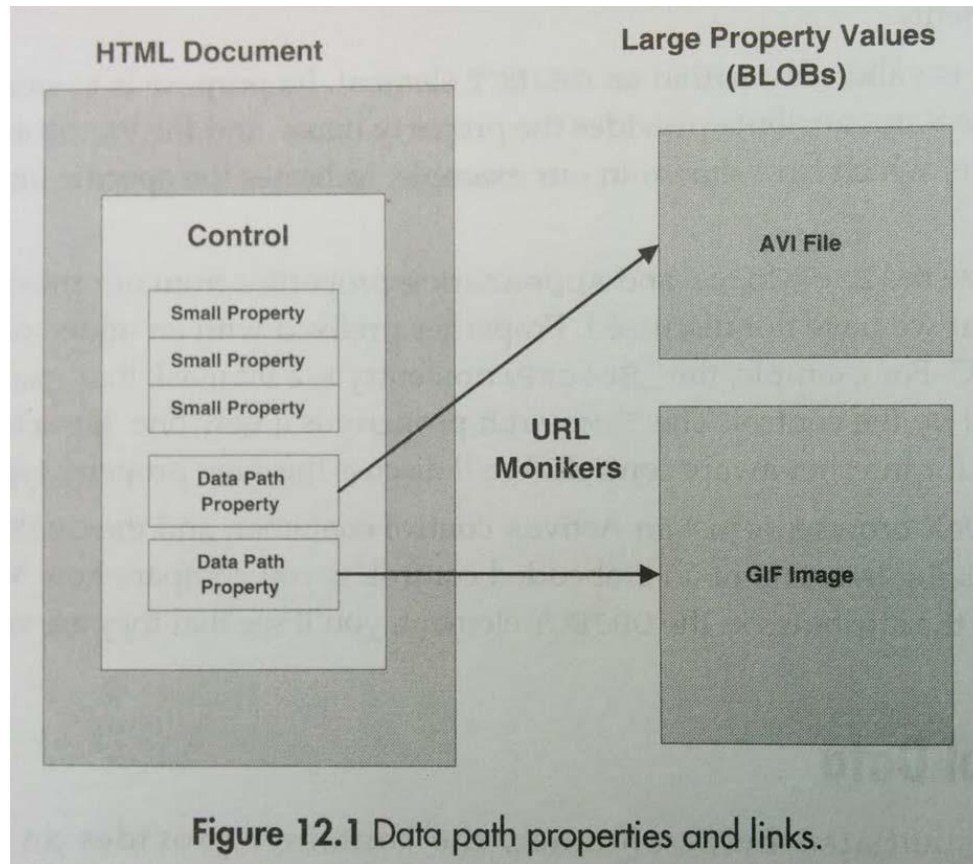
IX. ARMSTRONG RENDERS OBVIOUS CLAIMS 1, 2, AND 23, AND, IN COMBINATION WITH HARRINGTON, RENDERS OBVIOUS CLAIM 22

83. Armstrong explains that “Hypertext Markup Language (HTML) is the language of the Web environment” and its purpose is to “specify text- and image-based documents in a machine- and display- independent way. HTML describes the formatting characteristics of a document.” NFLE 1009 at 258–259. An HTML

document is identified by a URL that “specifies the exact location of a resource within a Web-based environment.” *Id.* at 260. An HTML document describes the contents of a web page using “elements.” *Id.* at 258. ActiveX controls, which add dynamic capabilities to Web documents, can be included in HTML-Based documents. *Id.* at 258–260. An OBJECT element is used to embed an ActiveX control into an HTML document. *Id.* at 261. A PARAM tag is code that can be used inside of an OBJECT element. *Id.* at 261. A PARAM tag can be used to store and retrieve a resource, such as an image. *Id.* at 261. If the PARAM tag identifies a resource explicitly, the resource is called “embedded.” *Id.* at 260.

84. In ActiveX OBJECT elements, if the resource is embedded, then the web browser will not display the web page at all until the resource is fully downloaded. NFLE 1009 at 261–262. Armstrong opines that the user’s wait for large embedded resources would “be excruciating” in a “low bandwidth-environment.” *Id.* at 261-262.

85. Thus, as described in Armstrong, ActiveX was modified to include a new “data path property” that allows the PARAM tag to interpret and use a link, such as a URL, to point to or refer to a resource. NFLE 1009 at 262. With a data path property, “[i]nstead of embedding the data for the property within the HTML document, you store a link to the data.” *Id.* at 262. Armstrong illustrates this framework:



Id. at 262. In the picture above, the “small” resources are embedded directly into the HTML document. NFLE 1009 at 261-263. The “large” resources or “BLOBs” are pointed to with a “data path property,” which uses “URLs” to link the web browser to an AVI file (a type of video file) and a GIF file (a type of picture file). *Id.* at 261-263.

86. One of the purposes of using a data path property is that it enables “progressive rendering.” NFLE 1009 at 263. Progressive rendering means the web page is displayed immediately, before resources that are pointed to by the data path properties are loaded. *Id.* at 263. This allows large resources to be

displayed asynchronously to the user (meaning the user does not wait for them to be loaded). *Id.* Thus, the web browser can load some resources without using a data path property (by embedding them in the HTML document), and the presentation of the web page to the user would be prohibited until those resources are entirely downloaded. *Id.* And while the web page with any embedded resources is being displayed to the user, the web browser will use the data path property to acquire other resources and display them as they are downloaded. *Id.*

87. Another benefit of the data path property is that it allows the web browser to display the web page while downloading a stream of continuous data (such as audio data). NFLE 1009 at 263. A POSITA would have understood this disclosure to mean, for example, that a user could go to a web page and listen to music being played on the web page while reading the text on the web page, even though the entire song had not yet downloaded. The advantage is that the user could start reading and listening immediately rather than waiting for a large audio file to entirely download over a slow Internet connection.

A. Armstrong renders obvious Claim 1

1. Limitation 1[A]: A method comprising: receiving one or more directives, wherein said directives are indicative of an audio, video and/or graphic presentation which requires a set of resources

88. Armstrong teaches the use of ActiveX software to display to the user a presentation consisting of a web page with various resources, such as fonts, colors,

text strings, images, videos, and audio. NFLE 1009 at 261–262. These resources constitute a set of resources, because the web pages referenced in Armstrong require multiple resources. *Id.* at 261-262. For example, Armstrong provides one example containing multiple resources consisting of multiple strings of text for display on the web page. *Id.* at 259. And Armstrong provides another example where one HTML document contains three small embedded properties (i.e., small strings of text or small images) and two data path properties (i.e., large GIF or BMP images or videos). *Id.* at 261–262.

89. Armstrong discloses directives that are indicative of an audio, video, or graphic presentation. For example, Armstrong discloses sample code that includes the line:

```
<PARAM NAME="TextPath"  
VALUE="http://www.sky.net/~toma/log">
```

NFLE 1009 at 267–68. This line of code is a directive that indicates to the Web browser that the URL (<http://www.sky.net/~toma/log>) points to a resource that will be downloaded asynchronously, meaning without having to wait. Thus, it is a directive that is indicative of an audio, video, or graphic presentation because it is a declaration or statement indicating how the computer should handle presentation of the audio, video, or graphic content that is downloaded from the link. For example, it indicates that the link is a “data path property,” meaning it should be

downloaded asynchronously compared to embedded resources. And Armstrong indicates that the data path properties are intended to be used for large images and videos. *Id.* at 261–62.

2. Limitation 1[B]: determining whether said one or more directives includes a prerequisite directive which indicates that acciuisition [sic] of a subset of said set of resources is a prerequisite for initiating the presentation;

90. The determining whether, prohibiting, and initiating aspects of this claim are performed in Armstrong by a web browser such as “Internet Explorer,” because the web browser is the software that processes the ActiveX control and other software disclosed in Armstrong. *See, e.g.*, NFLE 1009 at 259 (describing use of Internet Explorer to execute HTML code).

91. Armstrong’s web page includes a prerequisite directive which indicates that acquisition of a subset of said set of resources is a prerequisite for initiating the presentation. Armstrong discloses that web pages may have embedded resources such as images, fonts, colors, and text strings, and that the “primary purpose of HTML is to specify text- and image-based” web pages. NFLE 1009 at 259–262. Specifically, Armstrong states that HTML is “used to embed images, documents, applets, and, in our case, ActiveX controls.” *Id.* at 260. Embedded resources are designated as prerequisite resources because the presentation of the web page is prohibited until the embedded resources are downloaded. In contrast, for resources indicated by data path properties such as

TextPath, the initiation of the presentation of the web page can begin immediately, before the image or other resources pointed to by the data path properties are downloaded. *Id.* at 261–63, 267–68.

92. Thus, the embedded resources are the subset of resources. Resources referred to using a data path property, which are not embedded, are part of the full set of resources that constitutes the web page presentation. NFLE 1009 at 267–68. It would also have been obvious to use a directive to explicitly identify a prerequisite resource. It would have been obvious because HTML uses directives for specifying web pages and includes a resource embedding functionality that creates a distinction for the web browser between those embedded resources and optional resources, such as those indicated by data path properties. *Id.* at 258–59, 261–63, 289–90.

3. Limitation 1[C]: initiating said presentation, in response to determining the one or more directives do not include said prerequisite directive; and

93. Armstrong discloses that the presentation is controlled, including being initiated, by a web browser such as “Internet Explorer,” because the web browser is the software that executes the ActiveX control and other software disclosed in Armstrong. *See, e.g.*, NFLE 1009 at 259 (describing use of Internet Explorer to execute HTML code).

94. Armstrong discloses that if the web page does not include a prerequisite directive, meaning that none of the OBJECT elements have embedded resources, and, therefore, all resources are indicated by data path properties, then the web browser will determine no prerequisite directive exists and presentation of the web page will be initiated. NFLE 1009 at 261–63, 275–76.

4. Limitation 1[D]: prohibiting initiation of said presentation until said subset of resources are acquired, in response to determining the one or more directives include said prerequisite directive.

95. Armstrong discloses that the presentation is controlled, including being prohibited, by a web browser such as “Internet Explorer,” because the web browser is the software that executes the ActiveX control and other software disclosed in Armstrong. *See, e.g.*, NFLE 1009 at 259 (describing use of internet explorer to execute HTML code). Armstrong discloses that if the one or more directives include a prerequisite directive, then presentation of the web page will be prohibited until the subset of resources are acquired. For example, if an OBJECT element has an embedded image, then the presentation will be prohibited until the OBJECT element is loaded. NFLE 1009 at 261–63.

B. Armstrong renders obvious Claim 2: The method of claim 1, wherein said prerequisite directive comprises one or more directives selected from the group consisting of: a markup language, a scripting language, and a style sheet.

96. Armstrong discloses that the prerequisite directive can be written with a markup language, a scripting language, or a style sheet. The '169 Patent states that a type of “markup language” is “HTML.” NFLE 1001 at 9:13. And Armstrong uses HTML. *See, e.g.*, NFLE 1009 at 257–63. The HTML markup language is used as the language for the prerequisite directive disclosed in Armstrong. *Id.* at 258–59.

C. Armstrong and Harrington together render obvious Claim 22

1. Limitation 22[P]: A client device in an interactive television system, said device comprising:

97. Harrington discloses a television and receiver combination consisting of a personal computer equipped with a television card (the client device) that receives video from “broadcast television programming” (which together constitute the interactive television system). NFLE 1007 at 1:65–66, 2:50–54.

98. It would have been obvious to a POSITA to combine Armstrong’s web page rendering software with Harrington’s client device in an interactive television system. Harrington identifies the problem of integrating television with rendering of web pages, and provides a solution for retrieving and rendering web pages within the context of integrated television. NFLE 1007 at 1:65–2:13, 4:5–22.

Armstrong also addresses the problem of rendering web pages, and teaches a solution for how to asynchronously render the various resources in a web page. NFLE 1009 at 261–64. Thus, a POSITA would have been motivated to combine the two references because they both involve solutions to the problem of rendering of web pages. A POSITA would have found it simple to effectuate the combination because Harrington and Armstrong both render web pages on a personal computer, and thus the software environments are the same. *See, e.g.*, NFLE 1009 at 260 (discussing Microsoft ActiveX tools for use in Microsoft web browsers such as Internet Explorer); NFLE 1007 at Figure 7 (disclosing use of Netscape Navigator web browser in Windows operating system), 10:48–64. Thus, the combination of Harrington’s client device in an interactive television system with Armstrong’s asynchronous rendering software would have been an obvious combination of known limitations that would have yielded predictable results in rendering web pages within the context of integrated television. The result would have been software with the same overall purpose (rendering web pages) that would have the combined ability to render web page resources asynchronously and to do so while the user was watching television.

2. Limitation 22[A]: a receiver configured to receive signals corresponding to directives which are indicative of an audio, video and/or graphic presentation requiring a set of resources; and

99. Harrington discloses a receiver configured to receive signals corresponding to directives because it discloses use of, for example, “a personal computer equipped with a television card” (NFLE 1007 at 2:50–54; 5:45–59), which a POSITA would understand to refer to a card that is capable of receiving broadcast television signals. Harrington further discloses that the personal computer has an “Internet connection” through, for example, a “conventional modem” (NFLE 1007 at 5:60–:64), which a POSITA would understand to be a receiver capable of receiving Internet signals. As discussed above, both Armstrong and Harrington disclose directives which are indicative of an audio, video and/or graphic presentation requiring a set of resources, and a POSITA would have been motivated to combine Armstrong and Harrington.

3. Limitation 22[B]: a processing unit coupled to said receiver, wherein said processing unit is configured to:

100. Harrington discloses a processing unit as part of, or coupled to, the receiver. NFLE 1007 at 5:45–48 (“Preferably, each receiver station comprises any Intel x86 machine (preferably a 486 processor, pentium processor, etc.), an Apple Computer, UNIX or any other type of standard computer workstation.”).

101. The remainder of the Limitations in Claim 22 are disclosed by Armstrong as explained above in Claim Limitations 1[B], 1[C], and 1[D], which contain similar claim language.

D. Armstrong renders obvious Claim 23

1. Limitation 23[P]: A computer readable medium comprising program instructions executable by a computer to:

102. Armstrong discloses a computer readable medium comprising program instructions executable by a computer because it discloses a computer that contains a memory, and that the memory stores software consisting of, for example, a web browser program. *See, e.g.*, NFLE 1008 at 22 (disclosing hardware and software for running the applications disclosed in Armstrong).

103. The remainder of the Limitations in Claim 23 are disclosed by Armstrong as explained above in Claim Limitations 1[A], 1[B], 1[C], and 1[D], which contain similar claim language.

104. Armstrong is a reliable authority on designing and using ActiveX Controls because it is apparent to me that Armstrong is a generally accurate description of how the ActiveX software tools developed by Microsoft function. In 1997, when Armstrong was first published, I had and still have the necessary expertise to evaluate Armstrong's accuracy. Additionally, Armstrong provides thorough explanations of ActiveX that are testable because Armstrong included sample code printed throughout the book and also on an included CD-ROM. After

examining a number of the examples of Armstrong's code printed in the book, I reach the conclusion that the code samples that I have evaluated are generally functional and correct and, therefore, that Armstrong is an authoritative treatise on designing and using ActiveX controls.

X. CONCLUSION

105. Based on the foregoing, it is my opinion that Claims 1–2 and 22–23 of the '169 Patent are rendered obvious by the prior art discussed above.

106. 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 called upon to testify in deposition or before the Patent Trial and Appeal Board. If called upon to testify, I would testify truthfully and competently to all matters stated in this Declaration.

107. I reserve the right to supplement my opinions in the future to respond to any arguments that Patent Owner raises and to take into account new information as it becomes available to me.

108. I hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true and that such statements are made with the knowledge that

Petition for *Inter Partes Review* of U.S. Patent No. 7,055,169
Declaration of Stephen Melvin, Ph.D.

willful false statements and the like are punishable by fine or imprisonment, or
both, under Section 1001 of Title 18 of the United States Code.

Date: 1/10/18



Stephen Melvin, Ph.D.