

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AMAZON.COM, INC.,

Petitioner,

v.

LEXOS MEDIA IP, LLC,

Patent Owner.

Case IPR2023-1000

U.S. Patent No. 5,995,102

Case IPR2023-1001

U.S. Patent No. 6,118,449

**DECLARATION OF DR. MICHAEL SHAMOS, PH.D., J.D.,
IN SUPPORT OF PATENT OWNER'S PRELIMINARY RESPONSE**

TABLE OF CONTENTS

I.	INTRODUCTION	2
II.	QUALIFICATIONS	2
III.	COMPENSATION	4
IV.	MATERIALS CONSIDERED	5
V.	RELEVANT LEGAL STANDARDS	6
A.	Claim Interpretation	6
B.	Person of Ordinary Skill in the Art.....	7
C.	Obviousness	7
VI.	LEVEL OF ORDINARY SKILL IN THE ART	10
VII.	CLAIM CONSTRUCTION.....	10
VIII.	OVERVIEW OF THE PRIOR ART	12
A.	Malamud (Exhibit 1004)	12
B.	Nakagawa (Exhibit 1005).....	17
B.	Nielsen (Exhibit 1006).....	18
IX.	SUMMARY OF MY OPINIONS.....	21
X.	THE '102 AND '449 PATENTS.....	21
A.	BRIEF OVERVIEW OF THE COMMON SPECIFICATION	21
XI.	REBUTTAL OF UNPATENTABILITY GROUNDS 1-3	29
A.	Malamud Does Not Render Any Challenged Claim Obvious (Ground 1)	29
B.	The Combination of Malamud and Nakagawa Does Not Render Any Challenged Claim Obvious (Ground 2)	33
C.	The Combination of Nielsen and Malamud Does Not Render Any Challenged Claim Obvious (Ground 3)	36
XII.	CUMULATIVE NATURE OF THE PETITION	42
XIII.	CONCLUDING STATEMENT.....	44

I, Michael Ian Shamos, declare as follows.

I. INTRODUCTION

1. I have been retained by Patent Owner Lexos Media IP, LLC (“Lexos Media”) to offer opinions regarding the above-captioned *inter partes* review proceedings before the United States Patent and Trademark Office (“PTO”) initiated by Amazon.com Inc. (“Amazon”) regarding claim 72 of U.S. Patent 5,995,102 (the “’102 Patent”) and claims 1, 27, 38, and 53 of U.S. Patent 6,119,449 (the “’449 Patent”) (collectively, the “Challenged Claims” of the “Patents”).

2. In this Declaration, all emphasis is added unless otherwise specified.

II. QUALIFICATIONS

3. I currently hold the title of Distinguished Career Professor in the School of Computer Science at Carnegie Mellon University in Pittsburgh, Pennsylvania. I am a member of two departments in that School, the Software and Societal Systems Department and the Language Technologies Institute. I was a founder and Co-Director of the Institute for eCommerce at Carnegie Mellon from 1998-2004 and from 2004-2018 was Director of the eBusiness Technology graduate program in the Carnegie Mellon University School of Computer Science. Since 2018, I have been Director of the M.S. in Artificial Intelligence and Innovation degree program at Carnegie Mellon.

4. I received an A.B. (1968) from Princeton University in Physics; an M.A. (1970) from Vassar College in Physics; an M.S. (1972) from American

University in Technology of Management, a field that covers quantitative tools used in managing organizations, such as statistics, operations research and cost-benefit analysis; an M.S. (1973), and M.Phil. (1974) and a Ph.D. from Yale University in Computer Science; and a J.D. (1981) from Duquesne University.

5. I have taught graduate courses at Carnegie Mellon in Electronic Commerce, including eCommerce Technology, Electronic Payment Systems, Electronic Voting, Internet of Things, Electronic Payment Systems and eCommerce Law and Regulation, as well as Analysis of Algorithms. Since 2007 I have taught an annual course in Law of Computer Technology. I currently also teach Artificial Intelligence and Future Markets.

6. I am the author and lecturer in a 24-hour video course on Internet protocols and have taught computer networking, wireless communication, and Internet architecture since 1999.

7. From 2001-2021, I was a Visiting Professor at the University of Hong Kong, where I teach an annual course in Electronic Payment Systems. This is one of only a handful of graduate courses taught on this subject in the world.

8. From 1979-1987 I was the founder and president of two computer software development companies in Pittsburgh, Pennsylvania, Unilogic, Ltd. and Lexeme Corporation.

9. I am an attorney admitted to practice in Pennsylvania and have been admitted to the Bar of the U.S. Patent and Trademark Office since 1981. I have

not been asked to offer any opinions on patent law in this proceeding.

10. I am a named co-inventor on the following six issued patents relating to electronic commerce: U.S. Patent Nos. 7,330,839, 7,421,278, 7,747,465, 8,195,197, 8,280,773, and 9,456,299.

11. I have previously served as an expert in over 370 cases concerning computer technology. In particular, I have been involved in multiple cases involving Internet technology and delivery of content over the Internet. A current copy of my curriculum vitae setting forth details of my background and relevant experience, including a full list of my relevant publications and a listing of cases in which I have been engaged is attached hereto as Exhibit 2002.

III. COMPENSATION

12. I am aware of contemporaneous litigation involving the parties in a case styled *Lexos Media IP, LLC v. Amazon.com, Inc.*, 2:22-CV-00169-JRG (E.D. Texas) (the “Litigation”).

13. I am being compensated at my usual rate of \$600 per hour. My compensation is in no way contingent on the nature of my findings, my testimony, or the outcome of this or any other proceeding. I have no direct financial interest in this proceeding, the Litigation, Patent Owner, or the Patents. It is conceivable that I may own, through mutual funds or other investment vehicles, directly or indirectly, some shares of Petitioner. I have no knowledge of any such holding which, in any event would not constitute a material part of my net worth.

IV. MATERIALS CONSIDERED

14. In connection with this declaration, I have reviewed and am familiar with the Patents, including the Challenged Claims, their specifications, and their prosecution histories.

15. In preparing this declaration, I have reviewed the Petitions for *Inter Partes* Review of the '102 Patent and '449 Patent (the "Petitions") and the Declaration of Dr. Craig Rosenberg ("Rosenberg Decl.," Ex. 1003). Additionally, I have reviewed the references and exhibits cited in the Petitions, including Exhibits 1004-1013. I have also reviewed the PTAB final written decisions from IPR2018-01749 and IPR2018-01750, initiated by Ralph Lauren Corporation regarding the Patents, which decisions are attached hereto as Exhibits 2003 and 2004, as well as all filings made to date in these IPRs.

16. I have been asked to consider and provide my technical review, analysis, and opinions regarding the Rosenberg Decl. and whether a person of ordinary skill in the art ("POSITA") would have understood the disclosures of Malamud (Exhibit 1004) alone or in view of Nakagawa (Exhibit 1005) or Nielsen (Exhibit 1006) to render the Challenged Claims obvious. As part of that analysis, I have been asked to consider how a POSITA would have understood these prior art references as they relate to the Challenged Claims. In this regard, I was also asked to consider whether a POSITA would have been motivated to combine these references.

17. In forming my opinions, I have relied on my own knowledge and experience, including my education, training, and work experience in the field of computer science and software engineering, my research and teaching experience, my experience in working with others in this field, and my experience in the design, development, and operation of computer systems.

18. I reserve the right to supplement, amend, or modify the opinions set forth in this declaration or in any other declaration, report, witness statement, deposition, or in testimony based on any new contentions or other information that may emerge in this proceeding, including any other documents, information, materials, or testimony.

19. I understand that the Patents have expired.

V. RELEVANT LEGAL STANDARDS

A. Claim Interpretation

20. I have been informed and understand that in an IPR proceeding, claims of both expired and unexpired patents are to be interpreted according to the *Phillips* claim construction standard. I have been informed and understand that claim construction is a matter of law and that any final claim constructions in this proceeding will be determined by the Patent Trial and Appeal Board (“PTAB”).

21. In this Declaration, I have been asked to apply the constructions that were previously determined by district courts. *See infra*, Part VII.

B. Person of Ordinary Skill in the Art

22. I have been informed and understand that a patent is to be understood from the perspective of a hypothetical “person of ordinary skill in the art” (“POSITA”) as of the time of the claimed invention. Such an individual is considered to possess normal skills and knowledge in a particular technical field (as opposed to being a genius). I understand that in considering what the claims of a patent require, what was known prior to that patent, what a prior art reference discloses, and whether an invention is obvious or not, one must use the perspective of such a POSITA.

C. Obviousness

23. I have been informed and understand that a patent claim is obvious under 35 U.S.C. §103, and therefore invalid, if the claimed subject matter, as a whole, would have been obvious to a POSITA as of the date of the claimed invention of the patent based on one or more prior art references and/or the knowledge of a POSITA.

24. 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) any objective evidence of non-obviousness (such as unexpected results, commercial success, long- felt but unmet need, failure of others, copying by others, and skepticism of experts).

25. 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 POSITA, and that this knowledge may be used to combine multiple references. I further understand that a POSITA 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 POSITA would employ.

26. In determining whether a prior art reference would have been combined with other prior art or other information known to a POSITA, I understand that the following principles may be considered:

- a. whether the references to be combined involve non-analogous art;
- b. whether the references to be combined are in different fields of endeavor than the alleged invention in the Patent;
- c. whether the references to be combined are reasonably pertinent to the problems to which the inventions of the Patent are directed;
- d. whether the combination is of familiar elements according to known methods that yields predictable results;
- e. whether a combination involves the substitution of one known element for another that yields predictable results;
- f. whether the combination involves the use of a known technique to improve similar items or methods in the same way that yields predictable results;

g. whether the combination involves the application of a known technique to a prior art reference that is ready for improvement, to yield predictable results;

h. whether the combination is “obvious to try”;

i. whether the combination involves the known work in one field of endeavor prompting variations of it for use in either the same field or a different one based on design incentives or other market forces, where the variations are predictable to a POSITA;

j. whether there is some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill in the art to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention;

k. whether the combination requires modifications that render the prior art unsatisfactory for its intended use;

l. whether the combination requires modifications that change the principle of operation of the reference;

m. whether the combination is reasonably expected to be a success; and

n. whether the combination possesses the requisite degree of predictability at the time the invention was made.

27. I understand that in determining whether a combination of prior art references renders a claim obvious, it is helpful to consider whether there is some teaching, suggestion, or motivation to combine the references and a reasonable

expectation of success in doing so.

VI. LEVEL OF ORDINARY SKILL IN THE ART

28. The Patents share a specification (the “Common Specification”) having a priority date of June 25, 1997. I understand this also to the asserted date of the invention to use in my analysis.

29. In light of the my review of the Common Specification and the Challenged Claims, I adopt, for purposes of this proceeding only, the characterization of a POSITA offered by Dr. Rosenberg (Exhibit 1003, ¶31), namely, that such a person as of June 25, 1997 would have had at least a bachelor’s degree in computer science, computer engineering, human factors engineering, or a related field and would have had at least two years of relevant work experience in the fields of UI design, or equivalent experience.

30. I am qualified by my education and experience to determine the level of ordinary skill in the art and am personally familiar with the technology of the Patents. I was a person of at least ordinary skill in the art as of June 25, 1997.

31. All of my opinions are from the viewpoint of a POSITA as of June 25, 1997.

VII. CLAIM CONSTRUCTION

32. I have reviewed Exhibits 1007 and 1008 with regard to claim construction and have considered both the constructions issued in the Litigation and the prior claim construction in *Lexos Media IP, LLC v. APMEX, Inc.*, 2:16-cv-

00747 (E.D. Texas) (“APMEX Litigation”) in forming my opinion. For all other claim terms, I have assumed the plain and ordinary meaning as understood by a POSITA at the time of the claimed invention, where appropriate, in light of the patent’s specification, claims, and file history.

33. The claim constructions from the Litigation are as follows:¹

Term	The Court’s Construction
“cursor display code” (’102 Patent, Claim 72; '449 Patent, Claims 1, 27, 53)	“computer code for modifying the display of the cursor image”
“cursor display instruction” (’102 Patent, Claim 72; '449 Patent, Claims 1, 27, 53)	“an instruction operable to modify the display of a cursor image”
“cursor image,” “initial cursor image,” “modified cursor image” (’102 Patent, Claim 72; '449 Patent, Claims 1, 27, 53)	“a movable image on a display screen whose position can be controlled through a user interface”
“modifying” / “transforming” [said cursor image/initial cursor image] (including “modify [said cursor image]” and “modifying [a cursor image]”) (’102 Patent, Claim 72; '449 Patent, Claims 27, 53)	Plain and ordinary meaning.
“specific image” (’102 Patent, Claim 72; '449 Patent, Claims 1, 27, 53)	Plain and ordinary meaning.

Exhibit 2008

34. The claim construction from the APMEX Litigation is:

Term	The Court’s Construction
“said specific image including content corresponding to at least a portion of said information to be displayed on said	“an image representative of at least a portion of the subject or topic being displayed on the screen”

¹ The table of constructions includes only those relating to the Challenged Claims.

display of said user's terminal"	
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Exhibit 1007

35. It is my understanding that, although this term was construed in the context of claim 70 of the '102 patent, claim 72 of the '102 patent and claims 1, 27, and 53 of the '449 patent include substantially similar limitations, and at least claims 1 and 27 of the '449 were asserted in the prior Eastern District of Texas litigation and this claim construction applied to those claims also.

VIII. OVERVIEW OF THE PRIOR ART

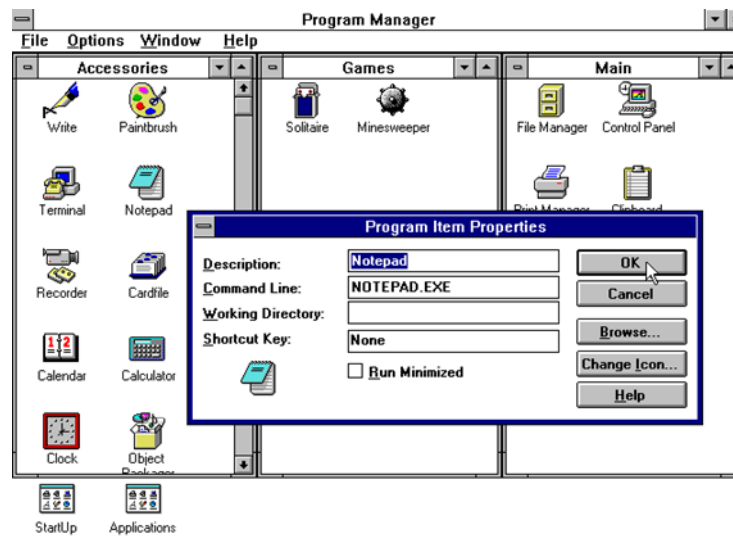
A. Malamud (Exhibit 1004)

36. Malamud teaches a Microsoft Windows application that works with a the Windows 3.1 operating system. Windows 3.1 provided a then-familiar form of user interface having a “desktop” on which icons representing “named entities” can be displayed:



https://upload.wikimedia.org/wikipedia/en/7/73/Windows_3.11_workspace.png

37. As shown in the above screen shot, some of the named entities are “file manager,” “control panel,” “print manager,” *etc.* As shown in the screenshot below, the operating system allowed the user to assign an icon to a named entity by selecting the “Change Icon” button.



<http://toastytech.com/guis/win31.html>

38. As Malamud explains, the application is to be used with an operating system, such as “an embellished version of the Microsoft WINDOWS, version 3.1, operation system that supports the use of information cursors.” EX1004 at 4:35-38. This embellished operating system displays various types of information cursors such as the name cursor 26 of FIGS. 2a, 2b, 2c, the preview cursor 34 of FIG. 3, or and the combined name and preview cursor 38 of FIG. 4, or a property cursor 40 of FIG. 5. These supported information cursor types each contain a pointing portion 28 and a second portion which is a box containing information about a named entity such as its name in box 30, an image in preview box 36 or text in a property

box 42.

39. While Malamud does not explicitly describe that the embellished operating system is the source of the cursor display code that creates these boxes, a POSITA would understand “supports the use of information cursors” to mean that this code is provided in the embellished operating system, particularly in light of fact that Malamud nowhere else describes the source of the cursor display code for such boxes, and nowhere states the Malamud application to be the source of any such cursor display code. Rather, as Malamud describes: “Information cursors are made available by an operating system to applications that are run on the operating system.” EX1004 at 3:6-9.

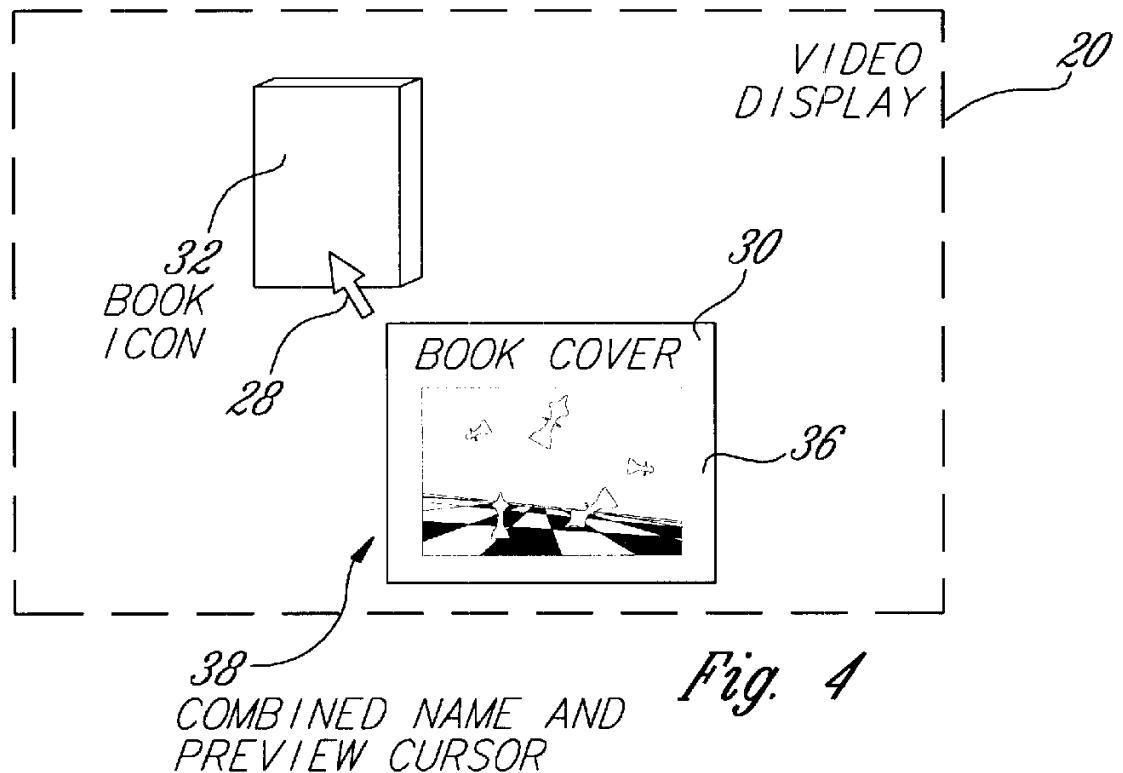
40. This understanding is further reinforced by Malamud’s description that the messages from the application to the operating system are contain only the type of information cursor to be displayed, whether its boxes should always be displayed or only displayed when the cursor is positioned over the associated named entity, and the content to be displayed in the box(es) of the selected information cursor type:

FIG. 7 is a flowchart showing in more detail the steps that must be performed in order to realize step 56 of FIG. 6. After the window procedure has determined what is at the specified cursor position, the procedure passes a message to the operating system 22 (FIG. 1) that tells the operating system what type of cursor to display and sets forth the contents and type of information to be displayed in the cursor (step 58 in FIG. 7). Suppose that the application program desires to display a name cursor 26 (FIG. 2a). A message requesting that a name cursor be

displayed is passed to the operating system 22 along with a text string for the name to be displayed in the name box 30. However, if the cursor to be displayed is a preview cursor 34 (FIG. 3), a message specifying that a preview cursor is required is sent. The message includes a pointer to a bitmap of graphical information that the operating System 22 should use in the preview portion 36. Still further, a property cursor 46 may be requested in the message. The message, in Such a case, includes a text string for the text of property information to be displayed in the property box 42.

EX1004 at 4:45-65.

41. Malamud does not explicitly describe how this information is input into the Malamud application for it to pass to the operating system, but a POSITA would understand that the information regarding the type of cursor to display and box content must be specified by a user in some manner, most likely through a direct user input to the Malamud application to allow the user to determine what type of entity to display and what content to display for the named entities on their computer system. A POSITA would not, however, understand that the Malamud application comes pre-loaded with the information cursor content, because it could not know what files are on the user's computer prior to installation. This understanding is reinforced by Malamud's description of an exemplary named entity: a text file for a book about chess represented by a book icon 32 in which a preview cursor shows a graphic involving chess pieces. *See* EX1004, FIG.4 and 3:35-38 and 3:59-4:3.

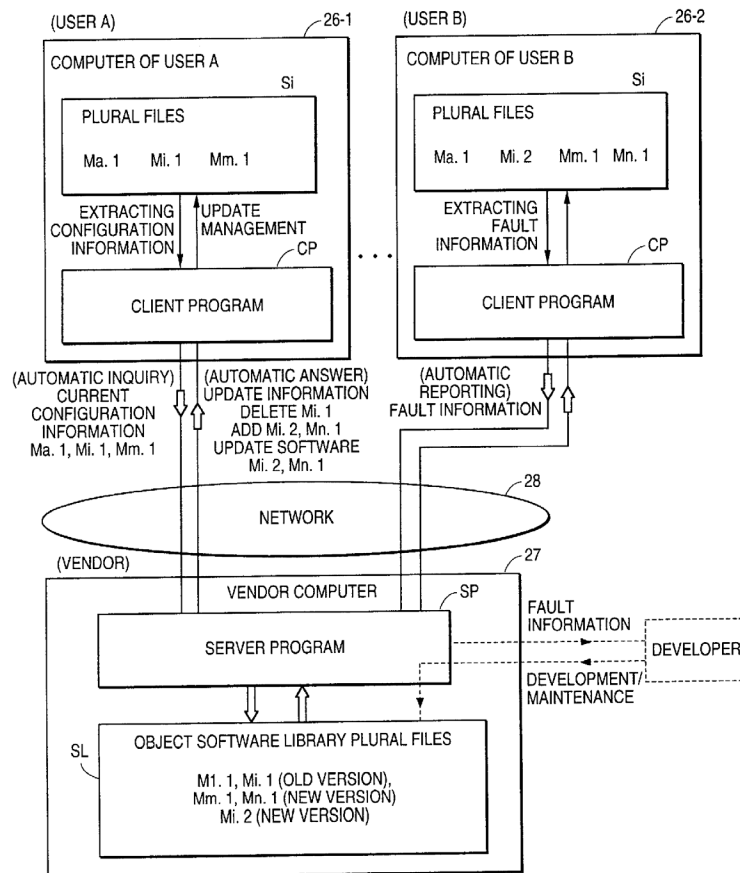


42. A POSITA would understand from this description that the Malamud application does not come pre-shipped with knowledge that the computer it will be installed upon has stored on it a chess book but rather that the content of the information to be displayed is entered into the application by a user after its installation.

43. Finally, nowhere does Malamud describe the source of the book icon or that the application sends the icon to the operating system. Rather, Malamud reinforces what a POSITA would understand, that the icon for the named entity is provided not by Malamud's application but from the operating system itself, which allows a user to specify icons for a given named entity.

B. Nakagawa (Exhibit 1005)

44. Malamud does not describe the use of application over a network, as required by the Challenged Claims. To bring in a network, Petitioner relied on Nakagawa. Nakagawa is directed to and discloses at a server system for distributing over a network software and updates thereto so that the software or its updated component(s) may be transmitted and automatically installed at the user's computer.

FIG. 7

45. As Nakagawa describes with regard to a preferred embodiment:

The vendor computer 27 stores the server program SP which manages a library of the object software and the versions of all modules based on the development and update of the software developer. When module configuration information of the user computer is transmitted from the client program CP, the server program SP receives the information and determines which module is required, unnecessary, or an old version in the software configuration of the client. Then, the server program SP specifies the names of the modules to be deleted and installed to generate update information as an answer to the client program CP. The update information and the modules to be installed are provided for the client program over the network 28.

Nakagawa at 33:30-43.

46. Nakagawa is not directed to cursor modification or user interfaces. Its technology is directed solely to how to distribute software and updates thereto over a network for automatic installation at a remote computer.

47. Nakagawa is deficient in that it only discloses distributing entire applications over a network, and is not directed to interactions between a server and a client that take place after such an application is installed.

B. Nielsen (Exhibit 1006)

48. Nielsen is directed to a specific extension of the HTML standard that added a feature called “tooltips” to the standard. A webpage developer can place into an HTML file, adjacent to any webpage content they wish to display, a tooltip

tag and enter content they wish to be displayed in a tooltip box when a cursor is positioned over particular webpage content for a specified period of time. As

Nielsen explains:

The present invention allows for the use of tooltips in Web Pages. Thus, any information displayed on display device 160 by browser 130 can have a tooltip associated therewith. When the user places the cursor on a predetermined location on display device 160 for a predetermined period of time, tooltip text is displayed, providing further explanation of the information at the predetermined location. In a preferred embodiment, Web Pages Specified using the present invention can still be displayed using Web browsers that have not been enhanced to recognize tooltips because these browsers will simply ignore the tooltips tag.

Nielsen at 3:34-45.

49. Thus, the web developer is able to insert tooltip tags into the webpage's HTML file next to various pieces of webpage text for which they wish a tooltip to be displayed. Because Nielsen's specification is directed to explaining this new feature of HTML, and its use requires proper use of HTML language, a great deal of Nielsen's specification is directed to the various valid HTML formats

for tooltip tags, as show in FIGS. 2(a)-2(d):

Fig. 2(a)

210 212 214 216

<TOOLTIP TXT=tooltip text> displayed info</TOOLTIP>

Fig. 2(b)

220 222 224 226

<TOOLTIP TXT=tooltip text EVERYWHERE> displayed info</TOOLTIP>

Fig. 2(c)

230 232 234 236

<TOOLTIP TXT=tooltip text EVERYWHERE BELOW> displayed info</TOOLTIP>

Fig. 2(d)

240

<TOOLTIP ALLOFF>

50. As shown, the webpage developer can insert into the webpage's HTML file a pair of tooltip tags around the portion of webpage text for which a tooltip is desired to be displayed, specify the tooltip text, and specify whether this tooltip text should be displayed over every instance of the webpage text.

51. In a primary example given, shown in FIG. 4, the tooltip text "London Heathrow" will appear over the webpage text "LHR" when a cursor has been positioned somewhere over "LHR" for a sufficient length of time. Likewise, the tooltip text "United Airlines" will appear above the webpage text "UA" and the tooltip text "San Francisco" will appear over the webpage text "SFO."

52. As Niesen describes, all the webpage developer has to do is enter the following metadata into the HTML file for this to occur:

<TOOLTIP TXT-"Universal Airlines'
 EVERYWHERE > UA&/TOOLTIP>
 Feb. 15, 1996 0931 <TOOLTIP
 TXT-"London Heathrow
 EVERYWHERE > LHR </TOOLTIP>
 <TOOLTIP TXT-"San Francisco'
 EVERYWHERE > SFO &/TOOLTIP>
 5368 6710 12078

Nielsen at 4:58-67.

53. Because browsers that support HTML include code to execute these HTML instructions, the webpage developer does not have to provide code to the browser to make a tooltip appear on the user's display, but only supplies data surrounded by tags.

IX. SUMMARY OF MY OPINIONS

54. As explained below in detail in this Declaration, it is my opinion that:

Ground 1: The Petition does not establish that Malamud renders obvious any of the Challenged Claims to a POSITA, nor do I believe Malamud to do so.

Ground 2: The Petition does not establish that the combination of Malamud and Nakagawa renders obvious any of the Challenged Claims to a POSITA, nor do I believe the combination does so.

Ground 3: The Petition does not establish the combination of Malamud and Nakagawa renders obvious any of the challenged claims to a POSITA, nor do I believe the combination does so.

X. THE '102 AND '449 PATENTS

A. BRIEF OVERVIEW OF THE COMMON SPECIFICATION²

55. All of the Challenged Claims are supported by the Common

² All column and line number citations are to the '102 Patent.

Specification, first filed on June 25, 1997. The specification discloses a novel method of internet advertising, a notable aspect of the internet that drives ecommerce. At the time of the invention, more and more companies were starting to advertise on the Internet. EX1001, 1:21-23. Three forms of advertising at the time were “banner ads,” EX1001, 1:24-25, “frames,” EX1001, 1:55-56, and “self-appearing windows.” EX1001, 2:4-5.

56. Each of these forms of internet advertising had its own drawbacks and limitations, as the '102 Patent describes at 1:24-2:32. Consequently, the inventors recognized “a need for a simple means to deliver advertising elements.... without the annoyance of totally interrupting and intrusive content delivery, and without the passiveness of ordinary banner and frame advertisements which can be easily ignored.” EX1001, 2:27-32. Thus, it was a specific objective of the inventions “to provide a server system for modifying a cursor image to a specific image displayed on a video monitor of a remote user’s terminal for the purposes of providing on-screen advertising.” EX1001, 2:44-47.

57. The claimed inventions provide for server systems that enable a cursor or pointer displayed on a remote client’s computer to change appearance to a “specific image” that is related to the content being transmitted to by the server and displayed on that client computer. EX1001, 4:4-12. The modified cursor image can be used by the provider of displayed web content to advertise or promote the displayed content. EX1001, 3:51 to 4:3. As the Common

Specification explains, “[t]he present invention provides a means for enabling cursors and pointers to change color, shape, appearance, make sounds, display animation, etc., when the user’s terminal or computer, known as the ‘client’ or ‘user’ terminal, which has a network connection, receives certain instructions from a remote or ‘server’ computer attached to the network.” EX1001, 3:51-57.

58. The Common Specification describes “an exemplary embodiment of the present invention” whereby:

[T]he generic cursor or pointer icons used in many networking applications, such as black arrows, hands with a pointing finger, spinning wheels, hourglasses, wristwatches, and others, will change appearance, and in some cases may incorporate sound or animation, in a way that is linked and related to the content, such as a web page, which is being transmitted to and displayed on the client computer.

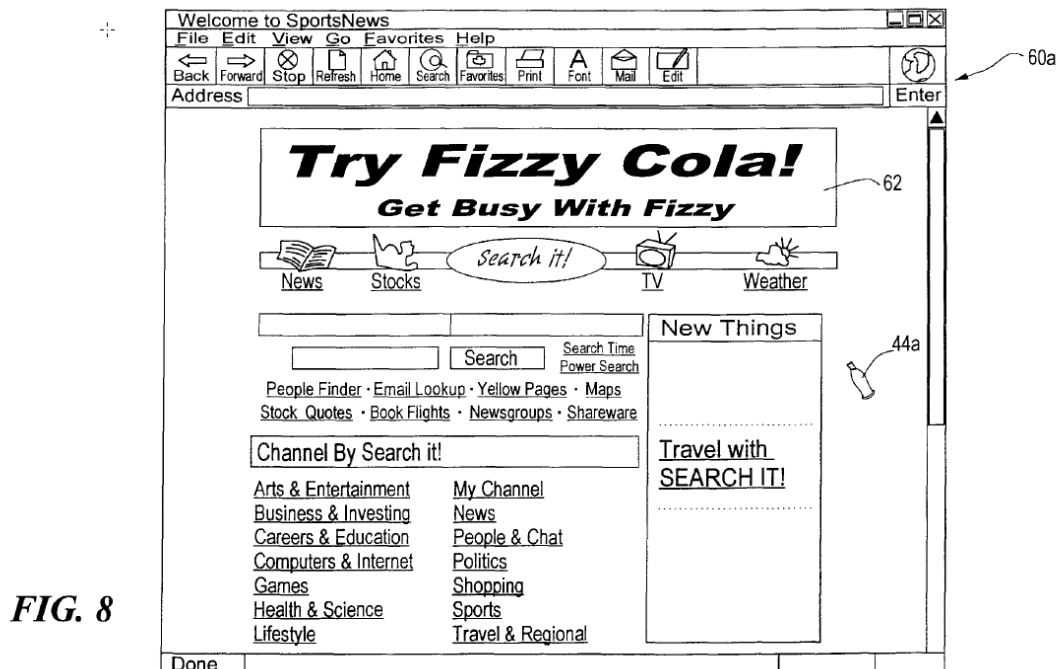
EX1001, 3:57-64.

59. “The cursor or pointer image may also appear in a specified shape or color that is intended to convey a message that relates to the advertising content within the web page being transmitted and displayed.” EX1001, 3:67-4:3. *See also* EX1001, 7:2-5 (“the server system provides certain information that causes the cursor image on the video monitor of the user terminal to display an image as specified by the server system.”).

60. The context of the invention relates to a graphical user interface in which a pointing device is used by the user to navigate a video display, and in which movement of the pointing device is indicated by a corresponding movement

of a cursor on the video display. *Id.* at 8:24–37. The '102 Patent relates to changing that generic cursor by sending data and control signals from a remote computer to replace such a cursor with a cursor having an appearance that is associated with other content being displayed to the user, e.g., a logo, mascot, or an image of a product or service, related to the other content being displayed to the user. *Id.* at 3:4–9, 17:5–18:3.

61. Figure 8 of the '102 patent, reproduced below, shows a web page according to the invention.



62. In Figure 8, shown above, web page 60a is displayed to a user, including banner ad 62 for cola. *Id.* at 13:31–37. The cursor to be used with this web page changes from a standard cursor (e.g., an arrow) to cola-bottle-shaped

cursor 44a in association with the banner ad 62. *Id.*

63. The '102 Patent describes interactions between a server system and a user's terminal to effect the cursor change. *Id.* at 4:4–9, 5:37–49, 5:48–65, 7:16–40. The user terminal is controlled by an operating system (“OS”), and application programs such as a browser running on the user terminal using an application programming interface (“API”) to interface with the OS. *Id.* at 7:29–40, Fig. 2.

64. The server system transmits specified content information to the user terminal, including information to be displayed on the user's computer (such as a hypertext markup language (“HTML”) web page), cursor display instructions, and cursor display code. *Id.* at 8:4–23. The cursor display instructions indicate where the cursor image data corresponding to the new appearance of the cursor resides. *Id.* at 8:49–64. The cursor display code causes the user's terminal to display cursor image data in place of the original cursor, using the API of the operating system to effect these changes. *Id.* at 8:34–37, 8:52–57; 13:19–30.

65. As extensively described in the '102 Patent's specification, *e.g.* 7:41–14:64, when a browser requests a webpage from a server, it receives back an HTML file that includes content to displayed and/or pointers thereto, formatting instructions how to display the content, and instructions and/or code regarding how the webpage is to interact with the user, including how the cursor modification takes place and specific images are displayed. The browser then uses the received information to generate the webpage displayed to the user, including the shape and

appearance of the modified cursor image.

66. As the specification also describes, the content of the specific image may be dynamically updated and may also change based upon cursor movement, via changes in position or in speed. *Id.*, 14:49-53 (“...it is possible to vary the modification to the cursor as a function of cursor position. For example, the cursor pointer could be controlled such that it ‘points’ to a specific location on the screen regardless of the cursor’s location on the screen as illustrated in line 214 of FIG 4.”); 14:54-64 (“In accordance with another embodiment of the invention it is possible to vary the modification to the cursor as function of cursor velocity. For example, the cursor image could change from a stationary bird to a bird with flapping wings only when the cursor is moved quickly across the screen as illustrated in line 215 of FIG. 4.”); 17:17-21 (“A dynamic cursor image could then be used to show a person holding a straw in such a way that the straw always points from the user toward the top of the Fizzy bottle, no matter where the cursor moves on the screen.”); 17:55-61 (“It may also be desirable in certain cases to put alphanumeric data in the cursor ‘space’ to convey information to users, such as stock prices, baseball game scores, the temperature in Florida, etc. The data can be static, semi-static (i.e. updated periodically), or dynamic (updated frequently -- possibly incorporating available streaming-data and data compression technologies.”)

B. REPRESENTATIVE CHALLENGED CLAIMS

67. Claim 72 of the '102 Patent recites:

72. A method for modifying an initial cursor image displayed on a display of a user terminal connected to at least one server, comprising: receiving a request at said at least one server to provide **specified content information** to said user terminal;

providing said specified content information to said user terminal in response to said request, said specified content information including at least one cursor display instruction and at least one indication of cursor image data corresponding to a specific image; and transforming said initial cursor image displayed on said display of said user terminal into the shape and appearance of said specific image in response to said cursor display instruction,

wherein said specified content information includes information that is to be displayed on said display of said user's terminal, wherein said specific image includes content **corresponding to at least a portion of said information that is to be displayed on said display** of said user's terminal,

and wherein said cursor display instruction **indicates a cursor display code operable to process said cursor display instruction to modify said cursor image** to said cursor image in the shape and appearance of said specific **image responsive to movement** of said cursor image over a display of said at least a portion of said information to be displayed on said display of said user's terminal.

68. Claim 1 of the '449 Patent likewise recites:

1. A server system for modifying a cursor image to a specific image having a desired shape and appearance displayed on a display of a remote user's terminal, said system

comprising:

cursor image data corresponding to said specific image;

cursor display code, said cursor display code operable to

modify said cursor image, and

a first server computer **for transmitting specified content information to said remote user terminal**, said specified content information including at least one cursor display instruction indicating a location of said cursor image data, said cursor display instruction and said cursor display code operable to cause said user terminal to display a modified cursor image on said user's display in the shape and appearance of said specific image,

wherein said specified content information is transmitted to said remote user terminal by said first server computer responsive to a request from said user terminal for said specified content information, and

wherein said specified content information further comprises information to be displayed on said display of said user's terminal,

said specific image including content corresponding to at least a portion of said information to be displayed on said display of said user's terminal, and

wherein said cursor display code is operable to process said cursor display instruction to modify said cursor image to said cursor image in the shape and appearance of said specific image **in**

response to movement of said cursor image over a display of
Said at least a portion of said information to be displayed on said
display of said user's terminal, and

wherein said specific image relates to at least a portion of said
information to be displayed.

69. The relevant limitations of independent claims 27 and 53 of the '449 patent are comparable to those of claim 1 in all material aspects for the purposes of my analysis. Thus, my analysis of claim 1 of the '449 patent applies to the other challenged independent claims as well.

XI. REBUTTAL OF UNPATENTABILITY GROUNDS 1-3

A. Malamud Does Not Render Any Challenged Claim Obvious (Ground 1)

70. As previously discussed, Malamud describes a Windows application that works with an operating system, such as Windows 3.1, that has been “enhanced” to support the use of information cursors.

71. A user installs and configures Malamud's application to, at a minimum, add the content to be displayed in the box(es) of an information cursor (*i.e.*, specific image) and to specify which information cursor type is to be displayed when a cursor is positioned over the Windows icon for a given named object/entity (cursor display instructions). There is no disclosure in Malamud of also transmitting the related content to be displayed from a server in response to a request, as required by all Challenged Claims.

72. In my opinion, Malamud does not disclose the source of the icons, but

a POSITA would understand that they are provided by the “embellished” operating system, as there is no disclosure of any transmission of icons by the Malamud application.

73. In ¶ 87 of his declaration, Dr. Rosenberg describes Malamud’s cursor changing to an information cursor “when the cursor is moved over a named entity displayed on the screen.” Here, Dr. Rosenberg is referring to the icon for the named entity. Dr. Rosenberg does not identify the source of the “named entity displayed on the screen” but, as set forth above, a POSITA would understand that the “named entity displayed on the screen” is provided by the “embellished” operating system, as there is no disclosure of the transmission of the named entity’s icon by Malamud.

74. I agree with Dr. Rosenberg’s acknowledgement in ¶¶ 88-92 that Malamud does not disclose the server/remote terminal architecture of the challenged claims.

75. Dr. Rosenberg argues it would be obvious to download Malamud’s application program from a server. I do not disagree, but that does not relate to the Challenged Claims. As I have previously discussed, a POSITA would not understand Malamud’s application to be pre-loaded with the specific images to be displayed within the box(es) of an information cursor because the application would have no knowledge of what files (such as the book on chess) are named entities in the computer. Nor again does Malamud disclose that the application

includes pre-configured icons, presumably for the same reason, and because the Malamud application is specifically designed to be used in conjunction with operating systems that a POSITA would understand will supply an icon for the named entity.

76. Because Malamud does not disclose sending both the “information to be displayed” and the corresponding “specific image” content, I cannot agree with Dr. Rosenberg’s conclusion in his ¶ 99 that Malamud’s application includes “specified content information.” On the contrary, Malamud is explicit that information cursors are “made available by an operating system to applications that are run on the operating system” (EX1004 at 3:6-8), not the other way around. That is, the application does not supply the cursors to the operating system. Indeed, his statement that “the program includes instructions and information regarding the display of elements depicted by the application program, including the objects that the application programs will display and to which the cursor can point, as well as information regarding the modified cursors (i.e., information cursors)” is inaccurate and irrelevant because Dr. Rosenberg does not actually state here (much less support with citations to Malamud) that Malamud sends any icon to the operating system.

77. Malamud does not disclose that the application it describes comes pre-configured with any named entities, nor would such make sense because, like the book on chess of Malamud’s example, named entities are screen objects

obtained from files that a user has created or saved on their computer. In a Windows system, those files can be represented by icons that are displayed by Windows on a user's screen. Malamud's application can then be used to enter content to be displayed in the information cursor so that this additional information about the named entity can be displayed in the box(es) of the information cursor. There is no disclosure in Malamud that the application is used to create named entities or their icons or sends any content to be displayed corresponding to the specific image as required by all Challenged Claims.

78. Perhaps for this reason, Dr. Rosenberg nowhere testifies that it would have been obvious to modify Malamud to provide both the content for display and the specific image. Rather, Dr. Rosenberg only testifies in ¶ 102 that "it would be obvious that the application program would contain cursor display instructions that instruct the performance of the functionality discussed below." But Dr. Rosenberg does not address the separate "content to be displayed" element of the specified content information.

79. Dr. Rosenberg correctly acknowledges in his ¶ 103 that Malamud's application does not transmit the "named entity" but only "tells the operating system what type of cursor to display and sets forth the contents and type of information to be displayed in the cursor." I disagree, however, that any specific image is pre-loaded in Malamud's application for the reasons previously discussed, because the application cannot know what named entity will be stored on the user

computer and therefore what related content should be displayed within the box(es) of an information cursor.

80. Despite his prior acknowledgements, Dr. Rosenberg asserts that Malamud discloses at 3:36-41 and 3:63-4:3 the “book icon 32” is “generated by the application program.” It is not. These passages are directed to the contents of the name box 30 and preview portion 36 and do not describe that the book icon 32 is generated by Malamud’s application. Dr. Rosenberg’s analysis provides no support for this conclusion. On the contrary, Malamud explicitly describes that the only information transmitted from the Malamud application to the operating system is the identification of which type of information cursor the operating system should display, whether the boxes of the information cursor should show prior to the cursor being positioned over the icon, and what content should be displayed within its box(es). There is no discussion in Malamud of the application sending any “information to be displayed” that triggers a cursor modification when a cursor is positioned over a named entity.

81. In sum, Dr. Rosenberg’s conclusion that Malamud renders the challenged claims obvious is based upon incorrect conclusions regarding Malamud’s disclosure and his analysis does not support his conclusion for at least the reasons I have stated above.

B. The Combination of Malamud and Nakagawa Does Not Render Any Challenged Claim Obvious (Ground 2)

82. As discussed *supra*, Nakagawa is simply directed to distributing software or updates thereto over a network for automatic installation at a client computer. It has nothing to do with changing cursor images and does not relate to any server-browser interactions.

83. I do not disagree with Dr. Rosenberg's conclusion at ¶ 117 that a POSITA might be motivated to use Nakagawa's system to at least distribute updates to Malamud's application. Nor do I dispute that it would have been well within the technical skill of a POSITA to do so with a high likelihood of success.

84. However, downloading Malamud's application from a server using Nakagawa's system does not result in the system or methods of the Challenged Claims because of the shortcomings of Malamud discussed in connection with Ground 1. Therefore, I disagree with Dr. Rosenberg's conclusion in his ¶ 128 that the combination of Malamud and Nakagawa even discloses "a request to a server to provide specified content information to a user terminal." It is not "content" that is requested, but the download of an entire application or an update thereto. An application or an update is not content for display but rather for execution. Moreover, the combination does not teach, suggest or result in the practice of a Challenged Claim because the Malamud application would not come pre-loaded with any named entity icons or content for display in the box(es) of information cursors, as I have previously explained.

85. In ¶ 130, Dr. Rosenberg asserts "it would have been obvious in view

of Malamud and Nakagawa for a user to request from a server and receive in response a [Malamud] application program” and that the “[Malamud] application program includes information regarding the display of elements depicted by the application program, such as objects to which the cursor can point and modified cursors (i.e. information cursors).” But here again Dr. Rosenberg does not and cannot cite to Malamud to support that Malamud’s application includes the “objects to which the cursor can point.” Nor does Dr. Rosenberg address the fact that Malamud would not come pre-loaded with content for display in the box(es) of an information cursor.

86. Also, I disagree with Dr. Rosenberg’s analysis in his ¶¶ 99, 129-131 that the information cursors are provided by the Malamud application. This is contrary to Malamud’s specification, which describes that the information cursors are in fact provided by the operating system on which the application runs: “Information cursors are made available by an operating system to applications that are run on the operating system.” EX1004 at 3:6-8.

87. Thus, Malamud’s application only provides the content contained within the information cursor, e.g., the content within name box 30 or a pointer to the graphical content of a preview portion 36. As Malamud describes, the application requires an “embellished” operating system to function “that supports the use of information cursors,” such as Microsoft Windows 3.1. *See*, Malamud at 4:33-42. In contrast, the Challenged Claims require cursor display code and

instructions to be provided, along with the specific image data, allowing standard browsers supporting HTML to render webpages having both the information to be displayed and the modified cursor with the specific image because all necessary data such a browser would need is provided by a server in response to the request for a webpage.

88. Because Malamud does not contain all of the information required by the claims, contrary to Dr. Rosenberg's opinion, and Nakagawa provides none of this missing information, there is insufficient support for Ground 2 as well.

89. For this reason, I disagree with Dr. Rosenberg's opinions set forth in ¶¶ 130-131. As a POSITA would understand, a Windows application does not ship with knowledge of what named entities are on the Windows computer to which the application is loaded or what information to display within the information cursor. Therefore, a POSITA would understand that the user will, after installation of the application, have to enter the content they wish to be displayed and identify for which named entity they wish that content to be displayed.

90. Dr. Rosenberg's ¶¶ 133-134 rely strictly upon Dr. Rosenberg's prior statements that I have addressed so I have no opinion to add regarding those paragraphs.

C. The Combination of Nielsen and Malamud Does Not Render Any Challenged Claim Obvious (Ground 3)

91. Nielsen is not directed to modifying cursor images. Rather, Nielsen is

directed to the use of a special HTML extension added to the HTML standard to displays “tooltips.” Similar to Malamud’s application taking advantage of an embellished operating system that supports information cursors, Nielsen discloses the use of this special extension built into HTML to display the “tooltip.”

Specifically, Nielsen discloses that a web designer can add a “Tooltip” tag into a webpage’s HTML that invokes the tooltip functionality of HTML and “specify the tooltip text that will be displayed when the cursor reaches the specified text.” The tooltip does not modify or transform a cursor image. Rather, a tooltip text “preferably will be displayed in proximity to” some associated text field when the cursor is moved over that text field. This is shown and described in Nielsen’s Fig. 8 and at 6:21-32.

92. Dr. Rosenberg states in his ¶ 139 that: “Figures 6a, 6b, and 7 provide flowcharts describing methods for modifying a cursor using a conventional client-server architecture.” This is incorrect. None of those figures mention modifying a cursor. And a tooltip is not a cursor nor it is a cursor image. It is simply a block of text that is displayed next to an associated webpage object. The tool tip does not move, nor would it make any sense in Nielsen for it to move because the point of Nielsen is to show the tool tip near the associated webpage text.

93. Nowhere in his declaration does Dr. Rosenberg support the incorrect statements made in ¶ 139. For example, in ¶ 140, Dr. Rosenberg states that “the tooltip text associated with the current cursor location is displayed on the browser

(step 722)” with no assertion (much less support) that the cursor image is modified.

Similarly, in ¶ 141, Dr. Rosenberg states: “[i]n Figure 4, the tooltip text ‘London Heathrow’ is displayed to the user in proximity to the ‘LHR’ text...,” again with no assertion that the cursor image is modified. Similarly in his ¶ 142 Dr.

Rosenberg states: “...the tooltip is displayed in proximity to the object that the cursor is hovering over” and not that the cursor image is modified. To the contrary, Nielsen explicitly states at 1:54-56 that “Tooltips are text areas that display automatically when the user places the cursor over predetermined text on a display device.” There is no description anywhere in Nielsen of modifying a cursor image. There is no description either in connection with Fig. 4 or Figure 8 of any cursor modification. At 6:28-32, Nielsen again explains that the tooltip text “preferably will be displayed in proximity to” some associated text field and nowhere describes any cursor modification.

94. Furthermore, I disagree with Dr. Rosenberg’s implication in his ¶ 142 that the tooltip taught by Nielsen appears in response to movement of a cursor over a display of information when he says “[t]he tooltip is displayed when the cursor hovers over text or a graphical image on the user’s display screen” Instead, Nielsen teaches that a cursor must be positioned over webpage content for a specified period of time before the appearance of a tooltip is triggered. Nielsen at 3:34-45.

95. I also disagree with Dr. Rosenberg’s premise set forth in ¶¶ 142-145

that a POSITA would be motivated to combine Nielsen with Malamud assertedly because the tooltip “may or may not be where the user’s attention is usually focused (i.e. the cursor location).” But this is exactly the opposite of the purpose of Nielsen, which teaches displaying the tooltip only when the cursor is “in proximity” to the associated webpage text.

96. I also disagree that changing Malamud’s software is not complex. Malamud is narrowly directed to an embellished operating system (e.g., some modified version of Windows 3.1) that is specifically built to support the information cursor types used by the Malamud application. In other words, the operating system already has been specifically coded with instructions to display the user designated type of information cursor and the information input by the user to display within the information cursor.

97. Likewise, Nielsen is directed to a specific HTML extension in which the tooltip is automatically generated by the HTML; all the programmer has to do within the webpage’s HTML file is to enter, next to the webpage text for which a tooltip is directed, two tooltip tags and the desired tooltip text between the two tags. The tooltip tags have nothing to do with modifying a cursor image.

98. Therefore, other than with the tautological statement that “software function[s] according to its programming,” I disagree with Dr. Rosenberg’s opinion in his ¶ 145 that there would be any motivation to combine Nielsen with Malamud. Even if there were such a motivation, still the combination of

Malamud and Nielsen does not yield or render obvious the Challenged Claims.

99. Dr. Rosenberg also offers no explanation of how a POSITA would modify Nielsen, which requires a specialized HTML extension in order to operate with features of a Windows application and that requires an “embellished” version of an operating system (e.g. Windows 3.1) specifically designed to display an information cursor and have any reasonable expectation of success. Indeed, Dr. Rosenberg does not address the limited teachings of both Malamud and Nielsen given their respective contexts. I disagree with the notion that such disparate technologies are readily combinable to a POSITA, particularly one with the qualifications Dr. Rosenberg proposes.

100. In contrast, the Common Specification provides extensive teachings on how to implement a cursor image modification. For example, the description spanning from 8:39-11:60 (and associated figures) specifies the required structure of an HTML file that implements the cursor image modification. Nowhere does Dr. Rosenberg attempt to support his conclusory one-sentence statement that “the software is not complex” with any explanation of how a POSITA would have “process[ed] Nielsen’s tooltip instruction in a manner to display the tooltip information as part of a modified cursor as disclosed in Malamud.” (Rosenberg Declaration at ¶ 145.)

101. The disparate and limited respective environments of Nielsen and Malamud reinforce that a POSITA would not have been motivated to combine

them to arrive at the Challenged Claims. The sole reason offered by Dr. Rosenberg, at ¶¶ 147 and 148 is that “[a] POSITA would have been motivated to modify the teachings of Nielsen with the teachings of Malamud such that the tooltip is not just displayed in proximity to the object to which the cursor is pointing, but rather is displayed as part of a modified cursor image to ensure that user sees the supplemental information or graphic.”

102. He does not explain why and I disagree. The HTML “tooltip” extension is specifically designed to only display the tooltip when the cursor is over the associated webpage text, so the user’s attention is already focused on the relevant webpage text for which it is desirable to show a tooltip. It would be contrary to the teachings of Nielsen to show the tooltip any other time because the cursor may be far away from the relevant text. Imagine, for example, the tooltip displaying “Heathrow” when the cursor is not positioned over the “LHR” text but rather positioned over some other webpage text representing another airport or some other unrelated text. Now instead of a relevant tooltip, there would only be user confusion.

103. Therefore in my opinion there is not only no support for the suggested combination but there is no reasonable expectation that a tooltip could even successfully fulfill its intended function if displayed in a modified cursor.

104. While I agree that Nielsen does disclose sending specific webpage text for display, and tooltip tag pairs with tooltip text between them that instructs

the browser to display the tooltip text when the cursor is positioned over that specific webpage (see 1:18-26, 1:51-57, 3:36-41, 3:46-4:7), for at least the reasons above the only motivation or expectation of success I see in the record comes from the Common Specification itself. A POSITA would not have been motivated to modify Nielsen's tooltip into a cursor modification nor would a POSITA have had any reasonable expectation that the tooltips would function as intended if displayed over unrelated text. Indeed, given the nature of a tooltip being relevant only to a specific piece of text such a modification would be unworkable because a tooltip would be displayed when the cursor was positioned over unrelated text.

105. I am advised that both the suggestion and the reasonable expectation of success must be founded in the prior art, not in the applicant's disclosure.

106. But even had there been any motivation to combine Nielsen and Malamud, neither Nielsen nor Malamud nor Dr. Rosenberg explain how a POSITA would modify an HTML extension to perform a cursor image modification as taught by the Common Specification or how to modify a Windows application designed to work in conjunction with an embellished operating system to implement cursor display instruction and cursor display code in an HTML setting with a reasonable expectation of success.

XII. CUMULATIVE NATURE OF THE PETITION

107. I have considered a prior challenge to the claim 72 of the '102 patent in IPR2018-01749. I understand that claim 72 was not shown to be unpatentable

over a combination of Malamud and another reference, Anthias. I agree that Malamud is deficient as a reference for the reasons stated in the Final Written Decision in IPR2018-01749. It is also my opinion that Malamud, either alone or in combination with Nakagawa or Nielsen, does not teach a system that transmits the “specified content information” required by the Challenged Claims for the reasons discussed above, particularly because Malamud does not send “information to be displayed” (which as explained above is different from the cursor image data) and therefore cannot meet that limitation. Thus, it is immaterial whether the current Petitioner argues that Malamud provides such information to be displayed.

108. Furthermore, the combination of Malamud with Nakagawa or Nielsen is cumulative over the prior attempt to invalidate claim 72 because those references are applied for their teaching of a client/server architecture, just as Anthias was used, and they do not remedy the identified deficiencies of Malamud.

109. I have also considered a prior challenge to claims 1, 27, 38, and 53 of the '449 patent in IPR2018-01755. I understand that claims 1 and 53 were not shown to be unpatentable over a combination of Malamud and Anthias. I agree that Malamud is deficient as a reference for the reasons stated in the '755 IPR Final Written Decision. It is also my opinion that Malamud, either alone or in combination with Nakagawa or Nielsen, does not teach a system that transmits the “specified content information” required by the Challenged Claims for the reasons discussed above, particularly because Malamud does not send “information to be

displayed” (which as explained above is different from the cursor image data) and therefore cannot meet that limitation. Thus, it is immaterial that the current Petitioner argues that Malamud provides such information to be displayed.

110. Furthermore, the combination of Malamud with Nakagawa or Nielsen is cumulative over the prior attempt to invalidate claims 1 and 53 because they are being used for their teaching of a client/server architecture, just as Anthias was used, and they do not remedy the identified deficiencies of Malamud.

111. I understand that claim 27 was found to be unpatentable in the '755 IPR, but claim 38, which depends therefrom, was not found to be unpatentable over the combination of Malamud, Anthias, and U.S. Patent No. 5,991,781 (“Nielsen II”). It is my opinion that the currently presented Nielsen is deficient because it fails to teach transmitting a cursor display message to modify a cursor, just as Nielsen II did not teach this limitation. Nielsen II is thus cumulative over Nielsen because Nielsen is also being used for the teaching of using HTML to provide instructions to modify information presented to a user, just as Nielsen II was and this does not remedy the identified deficiencies of Malamud.

XIII. CONCLUDING STATEMENT

112. 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 the case and that cross-examination will take place

within the United States. If cross-examination is required of me, I will appear for cross-examination remotely within the United States during the time allotted for such cross-examination at a time and place agreed by counsel.

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

Executed September 13, 2023 at Pittsburgh, Pennsylvania.


Michael I. Shamos