

# EXHIBIT 23

UNITED STATES DISTRICT COURT  
EASTERN DISTRICT OF TEXAS  
TYLER DIVISION

MIRROR WORLDS, LLC

Plaintiff,

v.

APPLE INC.

Defendant.

Civil Action No. 6:08-CV-88 LED

JURY TRIAL DEMANDED

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APPLE INC.

Counterclaim Plaintiff

v.

MIRROR WORLDS, LLC,  
MIRROR WORLDS TECHNOLOGIES, INC.

Counterclaim Defendants.

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**EXPERT REBUTTAL REPORT OF JOHN LEVY, Ph.D.**  
**REGARDING VALIDITY**

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## I. INTRODUCTION

1. I, John Levy, submit this Expert Report in connection with my preparation to testify at the trial in the above-captioned case on issues relating to the validity of Mirror Worlds' United States Patent Nos. 6,006,227 ("the '227 patent"), 6,638,313 ("the '313 patent"), 6,725,427 ("the '427 patent"), and 6,768,999 ("the '999 patent") (collectively, "the Mirror Worlds Patents").

2. This report is based upon information currently known to me and I reserve the right to rely upon any additional information I become aware of after the date of this report and to respond to any arguments or opinions regarding the subject matter of my declaration raised by Apple or its experts after the date of this report, including at trial.

3. In addition, I specifically reserve the right to amend this report to further address references that Apple has only recently brought to Mirror Worlds' attention. Those references include recently identified materials regarding the Workspace Project, Retrospect, Spatial Data Management Systems, MEMOIRS and additional new background references cited in Dr. Feiner's report and Apple's Second Amended Invalidation Contentions. (*See* Feiner's Report,<sup>1</sup> pp. 105-07, 109-10, 155-58, 176-90, 4-69; Defendant's Second Amended Invalidation Contentions, pp. 70-86). I understand that there is a motion pending to strike portions of Dr. Feiner's report relating to those newly cited references and preclude Apple's Second Amended Invalidation Contentions. My review of those recently identified references is ongoing. I note that those references were not in Apple's initial invalidity contentions but, I understand, were available to Apple at that time.

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<sup>1</sup> Expert Report of Steven K. Feiner, Ph.D. Re: Invalidation of U.S. Patent No. 6,006,227, U.S. Patent No. 6,638,313, U.S. Patent No. 6,725,427 and U.S. Patent No. 6,768,999 ("Feiner's Report).

## **II. PROFESSIONAL BACKGROUND AND QUALIFICATIONS**

4. I am the sole proprietor of John Levy Consulting, a consulting firm that specializes in consulting on managing development of high tech products, including computers and software.

5. I have a Bachelor of Engineering Physics degree from Cornell University, a Master of Science degree in Electrical Engineering from the California Institute of Technology (“Caltech”), and a Ph.D. in Computer Science from Stanford University.

6. From 1965 to 1966 at Caltech, my field of study was information processing systems. My coursework included systems programming, including the construction of compilers and assemblers.

7. During my employment at Stanford Linear Accelerator Center while I was a graduate student at Stanford University, I was a programmer and I participated in the design and implementation of a real-time operating system for use in data acquisition and display.

8. From 1966 to 1972, during my doctorate at Stanford, my field of study was in computer architecture. My coursework included systems design, programming and operating systems. My Ph.D. thesis research related to computer systems organization and programming of multi-processor computers. I developed and measured the performance of several parallel programs on a simulated 16-processor system.

9. I have spent over thirty years in the computer systems, software and storage industry. After earning my doctorate from Stanford University in Computer Science, I worked as an engineer at a number of leading companies in the computer and hard disk industry, including Digital Equipment Corporation, Tandem Computer, Inc., Apple Computer, Inc., and Quantum Corporation.

10. From 1975 to 1976, I supervised an operating system development group at Digital Equipment Corporation. During this time, I reviewed design changes and bug reports and fixes for two operating systems. While working for Digital Equipment Corporation, I wrote a long-term strategic plan for I/O buses, I/O controllers and operating systems for Digital Equipment Corporation.

11. During my employment at Quantum, I was involved in the design of file systems and of hard disk input/output drivers used in personal computers.

12. In the past 10 years, I have consulted for various companies on managing software development, which included review of the design of systems and application software.

13. I am a named inventor on seven United States patents. I have been disclosed as an expert in over 25 cases and have testified at trial and deposition. A list of my testimony over the last four years is attached hereto as Exhibit A. I also have served as a technical advisor to two United States District Judges. A complete copy of my curriculum vitae, which includes a list of my publications, is attached as Exhibit B.

14. I base my opinions below on my professional training and experience and my review of documents and materials produced in this litigation, as well as documents I uncovered in researching this assignment. A list of materials I considered in arriving at my opinions is attached as Exhibit C. My compensation for this assignment is my standard rate of \$475 per hour. My compensation is not dependent on the substance of my opinions or my testimony or the outcome of this case.

### **III. BACKGROUND**

#### **A. THE MIRROR WORLDS PATENTS**

##### **1. TECHNOLOGY OVERVIEW**

15. The patents-in-suit relate to a new model and system for managing electronic information which uses a time-ordered stream and stream filters to organize and locate stored information, as well as incoming information. *See, e.g.*, ‘227 patent, col. 3, lines 62-65.<sup>2</sup>

16. The patents-in-suit recognize that conventional systems, which require users to access stored information through filenames and folders, become unwieldy when the amount of information stored on a computer becomes large. And, the patents-in-suit further recognize that what users really want is a way of retrieving all documents pertaining to a particular topic regardless of whether the document is a piece of correspondence, bill, picture, movie, email or even a document relating to a future event, such as a calendar entry. The patents-in-suit also provide a unique, intuitive way of displaying that information for the user.<sup>3</sup> The technology of the Mirror Worlds patents represents a fundamental shift in the way users interact with files and data stored in a computer.

17. The arrival of graphical user interfaces (GUIs) opened up an infinite array of possibilities for displaying things to a user and for user interactions. The “desktop metaphor” first demonstrated by Englebart in 1968 and subsequently refined at Xerox PARC established many of the two-dimensional representations, including overlapping windows and overlapping pages familiar to users of today’s personal computers. The desktop metaphor, however, has serious deficiencies that are overcome by the technology of the Mirror Worlds Patents. In the following, I refer to “Dr. Gelernter’s contribution” and “the invention” in talking about the

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<sup>2</sup> Citations to the ‘227 patent in this declaration apply also to the corresponding portions of the ‘427 patent and ‘313 patent.

<sup>3</sup> Further information regarding the technology in the Mirror Worlds patents and the Apple patent was provided in connection with Mirror Worlds’ Technology Tutorial, which I incorporate by reference.



technology of the Mirror Worlds Patents. I understand that other inventors were involved in that technology, and I do not exclude them when I use these phrases.

18. Dr. Gelernter's contribution cannot be measured only by the evolution in graphical representation of documents or only by particular instances of user interactions with a small collection of documents, because he created a paradigm for interaction that changes the entire basis for users' concept of their "digital life." Rather than paying attention to individual documents, or collections of documents that are put into folders or otherwise individually associated with each other, Dr. Gelernter teaches the stream concept. A stream represents a time history of all of a user's interactions with the system, as represented by a stream of documents or "data units."

19. Streams enable a user to think about data and documents in a computer in a new way – a way that is more natural, because it aligns with the way people think about their lives. We all remember events and items we have interacted with in the past in an implicit time history that is always with us in our minds. Streams model this implicit time history by revealing an explicit time history on a screen and reflecting that history in the underlying structures in the computer system.

20. Dr. Gelernter anticipated the explosion of digital storage on personal computers. His stream model allows users to deal in a natural way with very large numbers of files and "data units" not yet seen on personal computers in 1996.

21. The invention provides the basis for interactions that a user can easily relate to, including natural time-ordering, visual perspective in the representation of a stream, automatic accumulation of newly added data units, easy searching and creation of sub-streams, visible cues that make it easy to distinguish different types of data units, automatic archiving of data units

and transparent access to archived data units and other particular refinements of the stream model claimed in the patents.

22. Having been active in the personal computer industry at the time of the invention, I am aware of the commercial availability of personal computer file systems, operating systems and user interfaces at that time. In spite of all the theoretical work on graphical displays, operating systems and file systems before 1996, no one in the industry had yet offered a system that implemented the stream concept. Furthermore, to the best of my knowledge, there was no academic or industry publication that exposed sufficient details of the stream concept to enable or suggest the implementation of it prior to 1996.

23. I understand from the report of Mr. Bratic that Apple was aware of this technology through a product of Mirror Worlds Technologies (Scopeware) and made contact with Mirror Worlds Technologies in 2001. (Bratic, ¶ 129, pp. 84 – 85). I understand that Apple’s CEO also specifically referred to this technology again in 2002 via an email that pointed to the Scopeware website. (Bratic, ¶ 129, pp. 84 – 85). I also understand from Mr. Bratic’s report, that in 2007 and again in 2008 the owner of the patented technology was offered substantial sums for rights to the technology. (Bratic, p. 80, ¶ 122). In my opinion, these expressions of interest in the patented technology are consistent with the importance of the invention. Also consistent with the importance of the invention is Apple’s characterization of its Spotlight feature that implements portions of the invention, as follows: “Spotlight isn’t just a fast Find command. It’s an enhancement that’s so deep, convenient and powerful, it threatens to reduce the 20-year-old Mac/Windows system of nested folders to irrelevance.” (APMW0430469-75 at 0430470; Bratic, p. 87, ¶ 133 ).

## **2. LEVEL OF ORDINARY SKILL IN THE ART**

24. In his report, Dr. Feiner states, “I believe that a person of ordinary skill in the art in 1996 would have had a Ph.D. in computer science or some combination of education and experience that provided sufficient competence in the appropriate aspects of computer science, such as graphical user interface design, and some knowledge of document processing, software design and development, data structures, operating systems, backup and archiving systems, and client–server computing.” (Feiner, p. 94)

25. I disagree with Dr. Feiner’s characterization of a person of ordinary skill in the art in 1996, because “provided sufficient competence in the appropriate aspects of computer science” is an ambiguous specification of skill in the art. Naturally, “sufficient” competence in the “appropriate” aspects are needed, but Dr. Feiner lists some of the possible aspects without further specifying which ones of them are most appropriate to the inventions of the patents at issue. (Feiner, p. 94)

26. Dr. Feiner objected to my characterization of the level of ordinary skill in the art in my prior declaration regarding claim construction, stating that he believed that the number of years of experience in the field of computer operating systems that I stated is “too high and is a narrower requirement than warranted by the range of technical areas related to the asserted claims of the Mirror Worlds patents.” (Feiner Report, p. 95)

27. Dr. Feiner’s objection to experience in the field of operating systems (for example, “a post-graduate degree in computer science, computer engineering or the equivalent, and 1–2 years of experience in the field of computer operating systems”) is misplaced, since it is unlikely that a person with less than 1 year of experience in computer operating systems would understand the context and the import of the inventions in the patents at issue. (Feiner, p. 95)

## **B. GENERAL DISCUSSION OF CITED PRIOR ART**

### **1. Piles**

28. U.S. Patent 6,243,724 by Richard Mander et al. (“Mander ’724” or “Mander”) describes a system for organizing files in a computer system in piles. *See also*, Mander et al. paper, “A ‘Pile’ Metaphor for Supporting Casual Organization of Information” in CHI ’92. (APMW0000846-853).

29. Using Piles technology, a user creates a pile by stacking one document on another within the desktop metaphor. Piles can also be created by having the system perform automatic matching of words in documents with a template selected or described by the user.

30. Piles can be moved around on the desktop the same way icons are moved. In the preferred embodiment described in the ‘724 patent, piles are represented as vertical stacks of rectangles, with each rectangle representing one document. All of the example piles shown in the patent contain relatively few documents. In my opinion, this is because a pile containing even as few as 50 documents would be unwieldy and difficult to manage on a computer representation of a desktop, if indeed it could even be displayed within the space of one screen. My opinion is further supported by a 1992 draft document entitled “Implementation of the Sybil Piles Concept,” which was part of Exhibit 7 to the Salomon deposition, in which Dan Rose, a person working with the Piles team, states “[i]n other words, I’m not likely to have a pile of more than about 50 documents because it would take up too much screen space.” (APMW-0009451). Indeed, Gitta Salomon, an inventor on the ‘724 patent, co-author of the CHI ’92 paper and the manager of the Piles project recognized the problem that arise should a pile get too big. (Salomon Tr. 73:16-74:25).

31. The user can enter a browsing mode (to view a miniature version of a document) in a pile by “hovering” the pointer or cursor over a particular document in a pile for a

predetermined length of time. [“... step 753 in which the system *arranges the pile for viewing*” ‘724 patent, col. 27, ll. 14-15)]

32. The CHI '92 paper gives some indication of the reasons for using “hovering” rather than holding down the mouse button: the authors were concerned that the user would find it too stressful to hold the button down for extended periods. Additionally, Gitta Salomon’s deposition testimony provided another motivation when she testified, “. . .but I could tell you based on what I do for a living, that you don't want to show people stuff when there wasn't intent. So if somebody is just running their cursor across the screen, you don't want this thing flashing. They would have to stay there for -- and I don't know what the predetermined period of time was, but if they sat their cursor there, then it should take the action because it was deliberate on their part.” (Salomon Tr., 124:2-6).

33. In connection with user experiments described in the CHI '92 paper, the authors acknowledged that users found it “difficult to gauge where they were within the pile” (p. 633) and that there were “questions about how the pile metaphor fits into the current Macintosh desktop metaphor.” (p. 632 @ APMW851-852)

34. In my opinion, these problems point out shortcomings of the pile metaphor relative to the stream concept, in particular the failure of piles to establish a new paradigm showing all documents in a natural ordering, the awkwardness of piles for large numbers of documents, and the problem of requiring the user to invoke a distinct browsing mode in order to view a preview of a document.

## **2. Lotus Magellan**

35. Lotus Magellan creates a word index of files and then allows a user to search using a keyword or a fragment of a word. It also allows sorting of search results. As the related technology is described in the U.S. Patent No. 5,303,361 (“the ‘361 patent”), it is “[a] text search

and retrieval system which builds an index representing every word in stored files created by a variety of applications, searches for requested words using the index and ranks the files based on the relative strength of match with the search request.” (Abstract)

36. As described in “Semantic File Systems,” by Gifford, Jouvelot, Sheldon and O’Toole (ACM’91) (APMW0018268–APMW0018277), Magellan allows “word-based associative access to file system contents,” (Gifford, p. 17), “permit[s] searches based upon Boolean combinations of words,” “require[s] users to explicitly create indexes,” and is “limited to a list of words for file description.” (Gifford, p. 17).

37. While the tables can be sorted based on a date associated with the files, Magellan does not disclose data structures that facilitate the natural time-sequence aspect of users’ information. Also, the results are displayed only in tables, not graphically.

“Indexes are used exclusively for **searching for information in files**. By itself, the Index command does nothing particularly useful. The indexes produced by the Index command are used by the Explore and Path commands. When you use either of these two commands to perform **search involving a keyword** in the Concerning section of the Explore dialog box, the current index lets Magellan look for the ‘concerning’ strings. (string is another word for text). Magellan cannot explore information in files that have not been indexed” (Using Lotus Magellan, p. 148, emphasis added)

38. Magellan neither discloses nor implements a main stream.

39. On p. 135 of his report, Dr. Feiner mischaracterizes the capabilities of Lotus Magellan. He refers to “the search and archiving features of Lotus Magellan.” (Feiner, p. 135). While Lotus Magellan does indeed perform searching, it has no archiving feature of its own. Archive files, as mentioned in Magellan, are files in which data has been compressed for economy of storage. Such files may be created by the user, using utility programs provided by vendors other than Lotus.

40. Magellan refers to the archive file in the following way:

“You can use programs such as Laplink with MAGELLAN.LST to transfer the files listed in MAGELLAN.LST to another computer and **you can use PKZIP** formerly PKARC with MAGELLAN.LST **to direct the listed files to be added into an archive file**” (Using Lotus Magellan, p. 277, APMW0000342, emphasis added)

“Another example of {Path} as command parameter is the keyword’s use with a file decompression utility such as PKUNPAK. PKUNPAK is program that **allows you to extract files from a compressed archive file** with the extension ARC. If you make an archive file the current file and include the {Path} keyword in the Command field, that archive file is automatically unpacked when Magellan launches the PKUNPAK program” (Lotus Magellan, p. 140, APMW0000205, emphasis added)

41. Placing Magellan information into archive files and extracting that information back for use in Magellan is entirely manual and voluntary on the part of the user. Thus, Magellan has nothing resembling an “automatic archiving” feature.

### **3. Retrospect**

42. Retrospect is a software product from Dantz Development Corporation and was available for use on Macintosh computers in 1989-1995. Retrospect is cited in Dr. Feiner’s report for the purpose of showing that archiving is not new.

43. However, the issue is whether a system which purports to implement streams has *automatic* archiving of data units older than a certain date and permits seamless searching and retrieval of archived information. (’227 patent, col. 10, ll. 17-20; col 16, ll. 61-64). Archiving is not automatic in the Retrospect product, and therefore it does not represent proper prior art to the patents at issue. In addition, Retrospect does not permit users to search archived data—instead it permits users to search for files based only on their file or folder name. (APMW0000521).

44. With respect to automatic archiving, the user must perform each of the following steps to get the Retrospect product to perform backups:

45. Create one or more “StorageSets” to be backed up. Each StorageSet is defined by the user naming specific files, folders and/or volumes to be included in the StorageSet. To do this, the user must traverse the conventional file system’s volumes, folders and subfolders.

46. Initiate an Instant Backup using the StorageSet, or

47. Alternatively, create a Schedule on which backups using the StorageSet are to be done, and then wait until the schedule invokes backup at least once.

48. After the system has done at least one full backup and possibly one or more incremental backups on a StorageSet, the user may then run another program of Retrospect to select files to be Restored from the backup volume.

49. The process described above is not “automatic archiving” within the meaning of the ‘227 patent, and therefore Retrospect does not teach automatic archiving.

#### **4. Lucas ‘330**

50. The United States Patent No. 5,499,330 (Lucas ‘330) is primarily concerned with how to generate a graphical display of rectangular objects. “A screen object is the visual representation of a document. It may be visible or hidden at any given time. Screen objects are generally rectangular.” (Lucas ‘330, 3:1-6)

51. The Abstract of Lucas ‘330 begins, “A system for displaying documents on a computer controlled display device is disclosed. The system displays documents either in a completely free-form, user controlled configuration or as strands, such that documents in a strand follow a strand path. The strand path is a two dimensional line through a three dimensional display space.”

52. “A document is the primary object in the system. All data are contained in documents. A document contains some number of attributes, each attribute having a name and a



value. The set of attributes for any given document is arbitrary; and *no particular attributes are required of all documents.*” (2:61-67, emphasis added)

53. Thus, Lucas ‘330 does not disclose time-sequences of documents—documents are not required even to have time-related attributes associated with them.

54. Lucas ‘330 is cited primarily for the appearance of two illustrations having perspective, Figures 3 and 5. These are related to “strands” or user controlled paths on the screen. As described in Lucas ‘330, “Strands are a system for positioning screen objects in a three-dimensional workspace. Strands allow grouping of documents, so that they can be manipulated as groups.” (Lucas ‘330, col. 8, ll. 33-9:4)

55. “A strand is associated with a first document (the “strand parent”), and constrains the location of a set of documents not containing the strand parent. A strand is a process that maps a (possibly discontinuous) line into 3 space.” (Lucas ‘330, col. 8, ll. 33-9:4)

56. Lucas ‘330 also describes a pile as an example of strands: “A pile is an example of a strand where all the documents attached to a strand are constrained to be next to each other in the shape of a pile.” (Lucas ‘330, col. 8, ll. 51-54)

57. Piles, according to Lucas ‘330, contrast with Tiles. “A ‘tile’ of documents is a set of documents placed next to each other so that the complete contents of their current screen objects are showing. A tile is defined as a strand having a strand path substantially parallel to the glass of the screen.” (Lucas ‘330, col. 9, ll. 2-4)

58. Regarding use of strands, Lucas ‘330 says “A strand is an object on the display device, and the user can pick up the strand by using the mouse to select the parent document of the strand. All of the strand’s children are moved when the strand itself is moved.” (Lucas ‘330, col. 10, pp. 8-13)

59. Thus, Lucas '330 describes ways of moving groups of documents around on the screen, and of ways for users to add documents to or remove documents from a group.

60. While perspective is used in the rendering of rectangles in Figures 3 and 5 of Lucas '330, a person of ordinary skill in the art at the time of the Mirror Worlds invention would not have found guidance in the Lucas '330 on how to organize, browse through or view time-sequenced documents in a consistent, natural way.

### **5. Thompson-Rohrlich '852 and Inside Macintosh**

61. The '852 patent is primarily directed to performing searches and displaying the results in a window within the desktop metaphor:

“A method for creating and organizing aliases for files stored on a computer system in which the stored files are searched according to defined search criteria. For files meeting the search criteria, aliases to the files are created, and the aliases are organized together in a display window for presenting the results of the search to the computer user. ...”  
(Abstract)

62. The primary artifact of the '852 patent is a Viewer. “A Viewer acts as an intelligent folder that continually searches for files meeting a specification supplied by the user.”  
(1:59-61) The contents of a Viewer are aliases, rather than the files themselves.

63. Since a Viewer in the '852 patent is displayed as a folder, it remains within the files-and-folders paradigm of conventional file systems, and thus does not point the way to the invention.

64. Dr. Feiner points to the HFS file system described in Inside Macintosh as disclosing a main stream. Feiner Report, p. 140. To the contrary, the HFS file system is a conventional, hierarchical file system.—it is not a stream or main stream as described and claimed in the Mirror Worlds Patents.

65. A stream is “a time-ordered sequence of documents that functions as a diary of a person or an entity’s electronic life and that is designed to have past, present and future portions.”(Preliminary Order at p. 2) Dr. Feiner’s analysis does not give weight to the various aspects of a stream, as that term was construed by the Court—he fails to account for the requirement that a stream “functions as a diary of a person or entity’s electronic life,” that it is a time-ordered sequence of documents, and that it is designed to have past, present and future portions.

66. In addition, as set forth below, Inside Macintosh fails to disclose many of the specific limitations recited in the claims.

67. Also, contrary to Dr. Feiner’s assertion, the HFS file system described in Inside Macintosh does not disclose a file system that “indexes all files along with any metadata.” Feiner Repoert, p. 140. Indexing all files based on, for example, modification date, would entail creating a data structure that provides access to files in date-sequence order, not just displaying a sorted table.

68. Second, Dr. Feiner’s statement that “a main stream of data units can be received by or generated by a running System 7 computer in the form of a ‘catalog file [that] lists all the files and directories on a volume, as well as some of the attributes of those files and directories”” (Feiner Report, p. 140) is misleading. A main stream is not received by or generated by a system, but is composed of data units that are received by or generated by the system. And a “catalog file [that] lists all the files and directories on a volume” is not a main stream. A catalog file is a file used in Macintosh to navigate through the directory hierarchy of the file system.

“The File Manager uses a file called the **catalog file** to maintain information about the hierarchy of files and directories on a volume.”  
(Inside Macintosh, p. 144)

69. Dr. Feiner is simply incorrect in saying that the ability to navigate through a directory hierarchy in order to “list[] all the files and directories on a volume” in some way implies that the system has a main stream. (Feiner Report, p. 140) Finally, Dr. Feiner asserts that Thompson–Rohrlich ’852 and Inside Macintosh disclose a substream, because the HFS file system “associates these files with aliases that can be displayed in Viewers as described in Thompson–Rohrlich ’852.” *Id.*

70. However, since the HFS system does not have or disclose a stream or main stream, “aliases [that] are organized together in a display window for presenting the results of the search to the computer user,” is not a substream.

#### **6. On Location and Lucas ’330 and/or Mander ’724**

71. In describing the capabilities of On Location 2.0.1, Dr. Feiner mistakenly claims that it indexes files by date. (Feiner Report, p. 173). In particular, his report states, “In addition to indexing the contents of the files, On Location also indexes file metadata, such as name, path, size, type and date. See, e.g., On Location Manual, p. 4, 6–7, 9 (APMW0080553, APMW0080554, APMW0080555). Thus, a document may be found, categorized, and displayed based on date and/or time. See, e.g., On Location Manual, p. 4, 9 (APMW0080553, APMW0080555).” (Feiner Report, p. 173, emphasis added).

72. In fact, On Location creates indexes only of the words contained in files. “An index contains the names of the files, and, optionally, for files containing text, all the words in the files.” (On Location, p. 1, APMW0080551).

73. While the display of search results can be ordered by date, this does not imply that it has “teachings for providing a time–ordered stream” (Feiner Report, p.175).

### **IV. INVALIDITY: ANALYSIS AND OPINION**

#### **A. Legal Standards**

## **1. Anticipation**

74. I have been informed that in order to anticipate a claim, a prior art reference must disclose all elements of the claim within the four corners of the document, and those elements must be disclosed arranged or combined in the same way as in the claim.

## **2. Obviousness**

75. I understand that question of obviousness involves a determination of whether the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains.

76. I understand that obviousness is determined based on four underlying factual inquiries: (1) the scope and content of the prior art, (2) the differences between the prior art and the claims at issue, (3) the level of ordinary skill in the pertinent art, and (4) secondary considerations of non-obviousness.

77. I further understand that the non-obviousness of a claim can be supported by secondary considerations that include: (1) commercial success; (2) long-felt, but unresolved, needs; (3) failure of others; (4) skepticism or disbelief before the invention; (5) copying by others; (6) praise; (7) unexpected results; and (8) industry acceptance. I've also been informed that commercial success or other secondary considerations must be attributable to the claimed features.

78. I also understand that even if each limitation of a claim is disclosed in the prior art secondary considerations may rebut an argument that the claim is obvious.

## **B. Secondary Considerations Support a Finding of Non-Obviousness**

79. I believe that secondary considerations overwhelmingly support the non-obviousness of the asserted claims of the Mirror Worlds Patents. In forming my opinion, I have reviewed the Expert Report of Walter Bratic.

**1. Commercial Success.**

80. I understand that in assessing commercial success, an infringer's commercially success can be considered as a secondary consideration of non-obviousness of a patented invention.

**a. Spotlight in Tiger**

81. Apple introduced Spotlight as part of its Mac OS X Tiger operating system that debuted April 29, 2005. As noted by Mr. Bratic, Spotlight was cited as one of the primary reasons users would consider upgrading to Tiger. Spotlight was named as the "key feature" of Tiger by the Wall Street Journal. (Bratic, p.56, ¶¶ 59,60). "Tiger was the fastest selling Mac OS release ever delivering its two millionth copy by mid-June, less than one and one half months after its introduction." (Bratic, p.56, ¶ 60).

82. In his report, Mr Bratic further noted that Apple surveys found that 71% of respondents used Spotlight at least weekly, and 33% used it daily; of these users, 91% said they were satisfied with it. (Bratic, p.105). Additionally, Apple's surveys also found that the number one reason for upgrading to Tiger OS was features/technology with Spotlight being the feature most often mentioned (45%). (Bratic, p.105) Furthermore, Spotlight was the feature most often cited as the most beneficial feature. (Bratic, p.105 ). Accordingly, it is my opinion that commercial success of the Tiger OS can be traced to the functionality of Spotlight, which infringes Mirror Worlds patents-in-suit.

**b. Spotlight with Cover Flow and Time Machine in Leopard**

83. On October 26, 2007, Apple introduced Mac OS X Leopard, a follow-up to Tiger. (Bratic, p.56, ¶ 61). As noted by Mr. Bratic, Apple considered Cover Flow and Time Machine its “marquee features.” (Bratic, p.56, ¶ 61). Various publications, including the Wall Street Journal, New York Times, and USA Today stated that Time Machine and Cover Flow were among the most significant new features. (Bratic, p.57, ¶ 62). Leopard Sales far outpaced Tiger, previously the most successful Apple OS. (Bratic, p.57, ¶ 62).

84. As with the Tiger release, Apple conducted surveys, which, as noted by Mr. Bratic, showed that “Most Leopard users upgraded from Tiger to have the most up-to-date technology and new features, where Time Machine was mentioned the most; Time Machine is rated as the most beneficial Leopard feature, it exceeds expectations, and receives high marks for ease of use.” (Bratic, p. 106). Finder with Cover Flow was ranked by Apple as the number two top feature of Leopard. (Bratic, p. 108).

85. Mr. Bratic also noted, and I concur, that the three infringing features (Spotlight, Cover Flow, and Time Machine), in combination, provide synergistic benefits. (Bratic, p. 107).

86. Accordingly, it is my opinion that commercial success of the Leopard OS can be traced to the functionality of Spotlight, Cover Flow, and Time Machine, which individually, and in combination, infringe Mirror Worlds’ patents-in suit.

## **2. Long Felt Need**

87. I note that the Mirror Worlds Patents address a difficult problem that has existed in computer science for a very long time. The patents-in-suit recognize that conventional systems, which require users to access stored information through filenames and folders, become unwieldy when the amount of information stored on a computer becomes large, and that a new paradigm is needed for accessing and managing that information. The press has recognized this problem “In regard to the file-folder reporters generally acknowledge that **it is in desperate need**

**of an overhaul.”** (Bratic, p. 12) Apple, and the press, reviewing Spotlight also highlighted this need, e.g., Apple selected the following quote from David Pogue of the New York Times “Spotlight isn’t just a fast Find command. It’s an enhancement that’s so deep, convenient and powerful, it threatens to reduce the **20-year-old Mac/Windows system** of nested folders to irrelevance.” (Bratic, p. 33)

### **3. Failure of Others**

88. I note that the prior art cited by Apple describe various systems directed to information management and organization—to my knowledge, none of those systems, with the exception of Retrospect (which is a only an archiving utility), are currently implemented as commercial products.

### **4. Copying**

89. Apple looked to copy Mirror Worlds Technologies’ Scopeware software. (*See, e.g.*, Wednesday, 24 Sep 2003 email from: Dominic Giampaolo “Have you guys seen the Windows programs . . . or Scopeware? . . . I think we need . . . take a look at what they offer so that we don't miss the boat on features that people will want.I'd be curious to know what you think about them, APMW0938230). At least one press article recognized Apple’s copying of Dr. Gelernter’s patented ideas, “[b]ack in 2001, noted computer scientist David Gelernter started a company called Scopeware that proposed a similar scheme to view files in a time line. The market wasn't ready to rethink the desktop back then. Jobs and his team have refined Gelernter's vision and this time it looks far more promising.” (“Mac OS X: Leopard Lacks And Likes,” Thomas Claburn, InformationWeek, June 12, 2007, <http://www.informationweek.com/story/showArticle.jhtml?articleID=199903269>)

### **5. Praise**



90. Mr. Bratic's reports cites a plethora of articles that praised Mirror Worlds Technologies' Scopeware software that relates to the Mirror Worlds Patents. These articles praised the novelty and originality of the Scopeware software. See e.g. (Bratic, pp. 11-13, 82-84). Similar praise was later heaped upon Spotlight, Cover Flow, and Time Machine. See e.g. (Bratic, pp. 26-51, 87-101). It is my opinion that the press and the industry recognized the non-obviousness of the invention.

## **6. Industry Acceptance**

91. All Apple Mac operating systems made since 2005 incorporate Spotlight. All Apple Mac operating systems since 2007 incorporate Time Machine and Cover Flow. Apple holds a substantial market share in the relevant market.

## **7. Dr. Feiner's assertion that streams are a flawed metaphor is incorrect.**

92. In the Secondary Considerations section of his report, Dr. Feiner's report attempts to discredit the value of the invention by setting up a straw man to knock down.

93. Dr. Feiner states, "These two premises [time-sequenced documents and no requirement for naming] belie a fundamental flaw in the lifestream metaphor: not all data is suitable for a purely temporal metaphor/organization. Some data is impractical for organizing in a temporal fashion. For example, suppose I create a PowerPoint presentation whose slides are created in a different order than the intended sequence for the presentation. Organizing these slides by their creation dates could create a nightmare for retrieving these slides in their intended presentation order." (Feiner report, p. 235)

94. Nothing in the stream concept requires a multi-part document (such as a slide presentation) to be broken apart and entered into the stream as individual components. A user

naturally treats such a document as a unit and naturally expects an application that creates slides to manage the sequencing and re-sequencing of those slides, as indeed PowerPoint does.

95. The placement in a stream of slide presentations is a natural way to organize such documents, and the stream is a very practical basis for browsing and retrieving them.

96. Dr. Feiner's second objection is no more appropriate. His report states, "substreams can be generated from the main stream or other substreams by filtering data by attributes other than time such as name or subject matter. See e.g., '227 patent 4:62 67. Such nontemporal filtering implicitly recognizes that temporally-based organization is not always suitable for all types of data." (Feiner Report, p. 235)

97. Creating a substream by filtering a main stream or other substream is very natural, particularly because streams and substreams are all organized as time-sequenced data units. A substream defined by a filter that includes or removes certain data units based on their name or subject matter is still a substream, and it is a substream with fewer data units in it than the main stream or substream. Thus it may be easier for the user to browse and find a particular data unit in the new substream, while still operating within the time-sequenced data unit paradigm.

**C. Dr. Feiner's Obviousness Determinations are the Result of the Improper Application of Hindsight.**

98. I understand that obviousness is determined as a matter of foresight, not hindsight. I further understand that a patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the art. Additionally, lack of a finite number of identified, predictable solutions would tend to indicate non-obviousness. Furthermore, I understand that secondary considerations can support a finding that the combination of known elements was not obvious.

99. Finding prior art related to individual components of an invention is relatively easy, and assembling these components in combinations in order to assert invalidity is straightforward, so long as one uses hindsight. By analogy, it is akin to providing the reader a kit full of components, rather than offering an assembled product. Knowing what product to assemble, in other words having the invention of the patents at issue at hand to serve as an instruction manual, it is easy to assert that it is obvious to make such a product—enabled by 20-20 hindsight.

100. The invention disclosed in the Mirror Worlds Patents establishes the basis for a new paradigm that cannot be encapsulated in a component view of the systems it enables. Thus, even though I refute point by point the obviousness claims made by Dr. Feiner, the larger picture shows clearly that none of the references he cites, piecewise or in combinations, is convincing evidence of the obviousness of the invention.

101. The Scopeware product made by Mirror Worlds Technologies met with great critical acclaim (see, for example, the concurrent report by Mr. Bratic), even if not great commercial success. Indeed, Mr. Bratic's report states that the product was downloaded 20,000 times—a very large number of trial users for the time—and that 10% of those users purchased the product.

102. The interest of Apple – and the licensees of the MWT technology – in that technology is evidence of its value and uniqueness at the time of the invention. This accords with my own experience as a person active in the industry at the time of the invention.

**D. Dr. Feiner's Determinations Regarding Anticipation and Obviousness are the Result of His Failure to Accord Due Weight to the Specific Terms and Language of the Asserted Claims.**

103. Throughout his report, Dr. Feiner uses claim terms and language in a way that is not consistent with the Court's construction and the plain claim language. In many instances,

which I have attempted to identify in the analysis below, Dr. Feiner asserts that references disclose a limitation when it is simply not the case based on a correct application of the claim terms and language.

104. For example, Dr. Feiner uses the terms “stream” and “main stream” in a way that is not consistent with the Court’s constructions and the terms’ use in the specification and claims of the Mirror Worlds Patents. References such as Lotus Magellan and On Location do not disclose a stream or main stream, as recited in the claims, and combining them with references describing certain graphical interfaces, such as Mander ‘724 or Lucas ‘330, does not render the claims obvious.

105. To take another example, Dr. Feiner concludes, for example, that even a conventional file system discloses the stream and main stream limitations. *See, e.g.*, Feiner, Ex. 6A, pp. 3-4. That is incorrect.

**E. The Asserted Claims of the Mirror Worlds Patents Are Not Anticipated or Obvious.**

106. Dr. Feiner asserts that the asserted claims of the Mirror Worlds patents are invalid on the following bases:

**1. Mander ‘724 Patent/Piles Project**

107. Dr. Feiner asserts that the Mander ‘724 patent, and other materials regarding Apple’s Piles project, anticipate and/or render obvious the following claims of the Mirror Worlds patents:

- (1) ‘227 patent claims 13, 14, 15, 16, 17, 20;
- (2) ‘427 patent claims 16, 17, 18, 19, 22, 24, 25, 26, 29, 31, 32, 33, 34, 37, 39; and

- (3) '999 patent claim 1.<sup>4</sup>

Feiner Report, pp. 96-97.

108. Dr. Feiner also asserts that the Mander '724 patent, and other materials regarding Apple's Piles project, render obvious the following claims of the Mirror Worlds patents in view of Retrospect, Lucas '330/Workscape, Thompson-Rohrlich '852/Smart Folders, Lotus Magellan, SDM/SDMS, On Location and/or Memoirs:

- (1) '227 patent claims 13, 14, 15, 16, 17, 20, 22;
- (2) '313 patent claims 1, 2, 3, 4, 9, 10, 11;
- (3) '427 patent claims 1, 2, 5, 7, 8, 9, 10, 13, 15, 16, 17, 18, 19, 22, 24, 25, 26, 29, 31, 32, 33, 34, 37, 39; and
- (4) '999 patent claim 1.

Feiner Report, p. 97.

109. I disagree with Dr. Feiner—the above claims are not anticipated or rendered obvious by the references he cites.

**a. The Mander '724 Patent/Piles Project Does Not Anticipate Any of the Asserted Claims of the Mirror Worlds Patents.**

110. Mander '724 is directed to an implementation of a “desktop metaphor,” which is described in the background sections of the Mirror Worlds Patents. (See '227 patent, col. 1, lines 32-33 ). In Mander, directories and subdirectories or folders are replaced with “piles” that mimic the physical piles of paper on a desk. A pile according to Mander is simply another way of presenting to the user the contents of a folder of a conventional operating system based on directories and subdirectories or folders. Mander, col. 9, lines 29-39. As Mander explains, when

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<sup>4</sup> On p.113 of his Report, Dr. Feiner also asserts that Mander '724 anticipates '313 patent claims 1-4, 10 and 11. This is inconsistent with pp. 96-97 of his report and the claim charts attached to his report. Dr. Feiner's report contains other such examples of inconsistent invalidity assertions—I have not attempted to exhaustively list each one in this report.

a user puts documents in a pile, this modifies the pathnames of the documents to reflect the fact that they are now “in a pile which is a new form of a subdirectory,” or puts aliases of the documents in the pile. Mander, col. 9, lines 29-39. In the preferred embodiment described in Mander, a user can scan through the contents of a folder by first positioning the cursor over a pile for a predetermined period of time to initiate browsing, and then pointing at specific document icons within the pile, which in turn causes a proxy for the selected file to appear. Mander, col. 9, lines 54-65. Piles may be created manually by a user (e.g., by manually dragging a document icon onto a pile) or by the system according to a script or other means for grouping documents. In an alternative embodiment, the pile is depicted as a singular static icon that does not depict each document in the pile. Mander, col. 7, lines 29-33.

111. Mander ‘724 is fundamentally different from the Mirror Worlds Patents, including, but not limited to, the fact that (i) a Mander “pile” is not a “stream,” (ii) Mander does not disclose a main stream, and (iii) Mander does not display a stream (or even a pile) as a “receding, foreshortened stack.”

**i. Mander does not disclose a “stream.”**

112. The following claims either recite a “stream,” “document stream operating system” or a “stream-based operating system,” or are dependent claims that refer back to such a claim: ’227 patent claims 13, 14, 15, 16, 17, 20, 22; ’313 patent claims 1, 2, 3, 4; ’427 patent claims 1, 2, 5, 7, 8, 9, 10, 13, 15, 25, 26, 29, 31; and ’999 patent claim 1.

113. As set forth in the Court’s preliminary order on claim construction, a “stream” is “a time-ordered sequence of documents that functions as a diary of a person or an entity’s electronic life and that is designed to have three main portions: past, present, and future.” The Court construed the terms “document stream operating system” and “stream-based operating system” both to mean an operating system that is based on streams.

114. As construed by the Court, a “stream” is not just any “time-ordered sequence of documents,” but, instead must “function[] as a diary of a person or entity’s electronic life.”

115. Based on the common meaning of the term diary, and as explained in the Mirror World patents, a diary is a continuous, unbounded log of information significant to a user or entity. (See ‘227 patent, col. 4, ll. 6-30; Feiner Tr. 143:14-144:10.) In the context of the Mirror Worlds patents, that information is referred to as data units, or documents. Thus, a stream may contain any number of data units—subject only to the implementation details of the system.

116. In addition, a diary provides a single place for a user to obtain the information he or she wants. In the context of the Mirror Worlds patents, a hierarchical file system comprised of directories and subdirectories is not itself a diary since the user must know where within the directory/subdirectory structure particular items are located. In contrast, a stream eliminates the need for the user to know where particular items are located—the user need only consult the stream to locate the item. As the Mirror Worlds patents put it, in a stream, the actual location of file storage is transparent to the user. (‘227 patent, col. 2, ll. 20-24).

117. Also, as set forth in the Court’s construction, a stream is designed to have past, present, and future portions. And it is a time-ordered sequence of documents.

118. Mander ‘724 does not disclose a “stream,” “document stream operating system,” or “stream-based operating system.” *First*, Mander does not describe an underlying time-ordered collection of documents, which is one aspect of a stream. Instead, Mander relates only to piles, which are substitutes for conventional folders and subdirectories.

119. *Second*, piles displayed as a stack of document icons, as in Mander ‘724’s preferred embodiment, cannot be unbounded in number (another aspect of a stream) because they would then overwhelm the available screen space. Notably, in Mander, a pile is displayed

in its entirety—no mechanism is provided for displaying only a portion of a pile while other portions of the pile are not displayed. Mander, in fact, teaches away from such a feature—explaining that piles and all other items on the desktop “remain visible” so that the user can “maintain the context.” *See, e.g.*, ‘724 patent, col. 13, lines 23-33. Indeed, Mander, distinguishes its piles system, in which the piles remain visible, from prior computer systems on the basis that “prior computer systems ... have subdirectory ‘containers’ such as folders which might disappear or be obscured from view when the container is opened to view the contents of the container.” *See* ‘724 patent, col. 13, lines 25-28.

120. *Third*, Mander does not provide for or disclose including *future* documents in piles, which is yet another aspect of a stream.

121. *Fourth*, the Mander piles are not a system in which the location of file storage is transparent to the user—the piles are simply a new form of subdirectory, which require the user to know where specific documents are located.

122. Dr. Feiner asserts that Mander discloses a stream (and main stream)—but in so doing he fails to account for the important aspects of a stream identified above. (*See, e.g.*, Feiner Report, Ex. 1A, pp. 4-8; Feiner Report, pp. 113-17). In particular, Dr. Feiner ignores the requirement, set forth in the Court’s claim construction, that a stream “functions as a diary of a person or an entity’s electronic life.” (Order, D.I. 178). As described above, that requirement is not superfluous—instead, it relates to aspects of the Mirror Worlds patents.

123. Dr. Feiner asserts that Mander discloses a future portion of the stream because a user could point to them middle of a pile sorted by time and then the cursor is “conceptually pointing to the present time” and “the proxies beneath this proxy are in the past and the proxies above it are in the future - with respect to the proxy being pointed to.” (Feiner Report, Ex. 1A, p.



5). The Mirror World Patents, however, refer to the capability of having items in a stream that are actually in the future, not just conceptually. Under Dr. Feiner’s interpretation, the requirement that a stream be capable of including future items would be eliminated—any time-ordered sequence of documents could be divided in the manner suggested by Dr. Feiner.

124. Dr. Feiner also asserts that “one of ordinary skill in the art would understand that the Macintosh operating system inherently has a user-adjustable system clock that could be manipulated to change the current date of the computer to a date in the past or in the future.” *Id.* But there is no disclosure at all in Mander ‘724 of doing so. Dr. Feiner’s assertion is simply an application of impermissible hindsight—using the Mirror Worlds Patent itself to suggest features that are not otherwise disclosed in a reference.

**ii. Mander does not disclose a “main stream.”**

125. The following claims either recite “a main stream” or are dependent claims that refer back to such a claim: claim: ’227 patent claims 13, 14, 15, 16, 17, 20, 22; ’313 patent claims 2, 3, 4.

126. As set forth in the Court’s preliminary claim construction order, a “main stream” is a “a stream that is inclusive of every data unit, or document, received by or generated by the computer system.” No such “main stream” is disclosed in Mander.

127. A main stream is not simply a pile. And there is no disclosure in Mander of a pile containing each data unit, or document, received by or generated by the computer system.

128. Moreover, even if such a pile were disclosed (which it is not), it would not be a main stream. For example, as described in the Mirror Worlds patents, a substream may be a subset of data units, or documents, yielded by a filter on the main stream, the filter identifying certain documents within the main stream. ‘313 patent, col. 5, lines 15-17 (“A substream remains in existence until destroyed by the user and acts as a filter by examining each new

document that enters the main stream.”) Such a relationship between a main stream and substreams is completely absent in Mander.

129. Dr. Feiner asserts that the index described in Mander is a main stream. Feiner Report, Ex. 1A, p.4. I disagree. The index described in Mander only contains information about the words in the documents. It is not a stream, or main stream, for the reasons given above.

**iii. Mander does not disclose “a substream for containing data units only from the main stream.”**

130. The following claims either recite “a substream for containing data units only from the main stream” or are dependent claims that refer back to such a claim: claim: ’227 patent claims 13, 14, 15, 16, 17, 20, 22; ’313 patent claims 2, 3, 4, 11.

131. As set forth in the Court’s preliminary claim construction order, a “substream” is “a stream that is a subset of data units, or documents, yielded by a filter on a stream, the filter identifying certain documents within the stream.” (Order).

132. No such substreams are disclosed in Mander. *First*, as explained above, Mander does not disclose a stream or main stream and therefore cannot disclose a substream of the main stream.

133. *Second*, as described in the ’227 patent, a substream presents the user with a “‘view’ of a document collection,” such as the main stream. ’227, col. 4, lines 51-54. It is not a subdirectory in a conventional operating system. A pile, in contrast, is a form of subdirectory. *See* Mander, col. 9, lines 29-39. For example, Mander discusses modifying the pathname of a file to reflect the fact that it is now in a pile. *Id.* That would not be the case for a substream, since the file remains in the main stream.

134. Mander, col. 3, lines 60-64 and Figs. 18a and 18b, for example, describes the creation of subpiles. A subpile, however, is plainly not a substream as described and claimed in

the Mirror Worlds Patents. For example, a “subpile” does not provide a view of selected documents in a “pile” (as a substream does to a main stream), but instead replaces the “pile”—in other words, when a pile is divided into subpiles the original pile no longer exists, though it can be recreated. *See, e.g.* Mander, col. 21, lines 57-65 (“If the user is satisfied with the results of the subpiling process shown in FIG. 13b, the user may retain this structure by selecting the “Ok” button icon 571. Otherwise, the user may cause the documents in the subpiles to be reassembled into the original pile 550 by selecting the “Revert” button icon 570. If the user selects ‘Ok’ 581, the filing system creates a new pile for each subpile, which in one implementation involves changing the pathname of each document in each subpile in the manner described above.”).

135. Dr. Feiner points to subpiles for the substream limitation. (Feiner Report, Ex. 1A, p. 5). That is incorrect, as described above.

**iv. Mander does not disclose including each data unit in the main stream “according to the timestamp in the respective chronological indicator.”**

136. The following claims either recite including each data unit in the main stream “according to the timestamp in the respective chronological indicator,” or are dependent claims that refer back to such a claim: ’227 patent claims 13, 14, 15, 16, 17, 20, 22.

137. This limitation is not disclosed in Mander ’724. *First*, again, Mander does not disclose a *main stream* and therefore cannot disclose this limitation, which relates to including documents in the *main stream*. *Second*, while Mander discusses ordering a pile based on time, it does not disclose including a data unit in a pile, much less a main stream, according to the data unit's timestamp.

138. Dr. Feiner points to portions of Mander relating ordering piles by date and searching by date for this limitation. Feiner Report, Ex. 1A, p. 13. Neither implies that this limitation is met by Mander.

**v. Mander does not disclose displaying at least some of the documents as “a receding, foreshortened stack of partly overlapping documents.”**

139. The following claims either recite displaying at least some of the documents as “a receding, foreshortened stack of partly overlapping documents,” or are dependent claims that refer back to such a claim: ’313 patent claims 1, 2, 3, 4, 9, 10, 11; and ’427 patent claims 1, 2, 5, 7, 10, 18, 25, 26, 29, 31, 32, 33, 34, 37, 39.

140. The Mirror Worlds claims recite not just any stack of documents, but instead, a “receding, foreshortened stack” of documents. The term “receding, foreshortened stack” is commonly understood to refer to a representation of a stack that uses perspective to create the illusion of increasing distance from the viewpoint implied by the image.

141. The feature of displaying a receding, foreshortened stack of partly overlapping documents is absent from Mander ’724.

142. The piles depicted in Mander are not a “receding, foreshortened stack,” as required by the claims—*i.e.*, the documents in the pile do not appear to be moving away from an observer, nor do they appear to become fainter or more distant.

**vi. Mander does not disclose “responding to user-controlled sliding without clicking of the cursor over said displayed stack to display a glance view of a document whose document representation is currently touched by the cursor or pointer.”**

143. The following claims either recite “responding to user-controlled sliding without clicking of the cursor over said displayed stack to display a glance view of a document whose

document representation is currently touched by the cursor or pointer” or are dependent claims that refer back to such a claim: ’427 patent claims 1, 2, 5, 7, 8, 9, 10, 13, 15, 16 , 17, 18, 19, 22, 24, 25, 26, 29, 31. .” This limitation is not disclosed in Mander ’724 for the reason provided below. Mander does not disclose “responding automatically to touching a document representation in the stack with a user-operated cursor or pointer, without further action by the user.”

144. The following claims either recite “responding automatically to touching a document representation in the stack with a user-operated cursor or pointer, without further action by the user” or are dependent claims that refer back to such a claim: ’427 patent claims 32, 33, 34, 37, 39. .” This limitation is not disclosed in Mander. Mander instead discloses requiring the user to enter a browsing mode by causing the cursor to remain positioned over an item for a predetermined period of time, which is an action by the user. (“... browse by positioning the cursor at an item in the pile *for a predetermined period of time to reveal* a proxy within a viewing cone. After that predetermined period of time ...” Mander column 9, lines 55-59.)

**vii. Mander does not disclose “said glance views being displayed essentially in real time in response to passing a cursor over respective ones of the browse cards.”**

145. Claim 1 of the ’999 patent requires that “the glance views are displayed essentially in real time.”

146. As set forth in the Court’s preliminary claim construction order, “essentially in real time” means “without significant delay as perceived by a user.” Mander lacks this limitation.

147. The '999 Patent points out that in the prior art “when the user hovers the cursor on the document icon ... [a] pop-up window appears only after a brief delay, usually 1-2 seconds” (column 7, lines 16-19), but contrasts this with creating “a pop-up window ... that appears instantly, as perceived by the user, as he/she hovers the cursor over the document’s representation” in the invented process ('999 Patent, col. 7, ll. 23-27). The '999 Patent’s glance view thus appears “[e]ssentially instantly, at least as perceived by the user.” (column 7, line 47). According to the '999 Patent, “the glance view information essentially instantly changes at S513 as the user moves the cursor over other browse cards” (column 8, lines 6-8). This is the very definition of “real time”—*i.e.*, essentially instantly, at least as perceived by the user—as distinguished from adding a deliberate delay.

148. Mander, in contrast, requires that a user hover over a pile for a predetermined period of time (such as 2-3 seconds) in order to initiate browsing of the pile in which proxies of the documents can be displayed. “[B]rowse by positioning the cursor at an item in the pile for a predetermined period of time to reveal a proxy within a viewing cone” (Mander '724 column 9, lines 55-57, emphasis added)] Mander’s artificially added delay of 2-3 seconds, thus, does not meet the “essentially in real time” limitation.

**viii. Mander does not disclose a display facility that displays “at least selected [ones of said] document representations”**

149. The following claims either recite a display facility that displays “at least selected ones of said document representations” or are dependent claims that refer back to such a claim: '427 patent claims 1, 2, 5, 7, 8, 9, 10, 13, 15, 16, 17, 18, 19, 22, 24, 25, 26, 29, 31. This limitation is not disclosed in Mander '724.

150. This feature can be seen, for example, in Fig. 1 of the '427 Patent, in which a selected subset of the documents in a stream are displayed. The selection is accomplished, for

example, using scroll bar 20 in the lower left portion of Fig. 1. (*See, e.g.*, '427 patent, col. 6, lines 34-46; *see also*, col. 9, line 53-col. 10, line 2). In this particular example, the scroll bar is used to select for display a segment of the document representations in the entire sequence of document representations in the graphical view of the stream. The claimed display facility is thus capable of displaying a sequence of a large number of document representations, since only a segment of that sequence need be displayed at any one time.

151. No such display facility is provided in Mander. To the contrary, in Mander, a pile is displayed in its entirety—no mechanism is provided for displaying only a user-selected portion of a pile while other portions of the pile are not displayed. Indeed, Mander teaches away from such a feature, explaining that piles and all other items on the desktop "remain visible" so that the user can "maintain the context." *See, e.g.*, '724 patent, col. 13, lines 23-33. Indeed, Mander distinguishes its piles system, in which the piles remain visible, from prior computer systems on the basis that "prior computer systems ... have subdirectory 'containers' such as folders which might disappear or be obscured from view when the container is opened to view the contents of the container." *See* '724 patent, col. 13, lines 25-28. A piles system would thus display all document representations, not selected ones. And, again, there is no description of displaying a portion of a pile, while other portions might disappear or be obscured from view. In fact, Mander states that an advantage of piles over the prior art is that that would not occur.

**ix. Mander does not disclose "markings that are visible in the displayed stack of document representations," each marking "common to a class of documents."**

152. Claim 34 of the '427 patent recites that the document representations in the receding, foreshortened stack recited in parent claim 32 include markings that are "visible in the

displayed stack of document representations" and each marking is "common to a class of documents." Mander does not disclose this limitation.

153. Mander '724 describes, at col. 20, lines 40-43, using color "for mapping the measure of date/age of the document." However, this is not a proposal to use color to differentiate between different classes of documents, e.g., memos from pictures. Mander's col. 11, lines 57-60 and col. 11, line 65 - col. 12, line 3 propose exaggerating certain content of documents, e.g., a grid in a spreadsheet. However, this proposal is limited to exaggerating pre-existing content of documents and does not extend to placing different markings on different classes of displayed document representations.

154. Moreover, there is no teaching in Mander that such exaggeration would be "visible in the displayed stack." In fact, such exaggerated content may be visible only if it happens to be in the top document in the pile. This would not satisfy the requirement of claim 34 that markings, not just a single marking, be visible in the displayed stack even if exaggerated content could be considered a marking identifying respective different classes of documents.

**x. Mander does not disclose "an enterprise information management system."**

155. Claim 1 of the '999 patent recites "an enterprise information management system" Mander lacks this limitation.

156. As set forth in the Court's preliminary claim construction order, "an enterprise information management system." is "a system that manages information for an enterprise or organization."

157. As further recited in claim 1, the enterprise information management system includes at least one server and further includes a number of personal computers—the server(s) and the personal computers selectively communicate with each other.



158. The claimed process thus operates not just any system, but a system that includes at least one server and a number of personal computers that selectively communicate with each other. The claim language requires the method steps to be performed when operating the specified system.

159. An enterprise information management system is potentially global in scope and may comprise hundreds or thousands of networked personal computers. *See, e.g.*, ‘999 Patent, col. 12, lines 3-10 (“In addition, the system servers within the network need not be physically close in proximity. For example, a client in a truly global organization with locations and system servers on several continents can query and retrieve sales results across all system servers and clients through a federated search. In essence, the disclosed system creates a virtual store from all documents accessible to any system server or client either centralized or decentralized.”). The ‘999 Patent specification uses the term “enterprise” in relationship to a system that operates multiple computers and personal computers. *See, e.g.*, ‘999 Patent, col. 14, lines 19-41.

160. In contrast, *an individual* user-based system of the type described Mander ‘724 is focused on a single personal computer and does not manage information across the multiple computers that are present in an enterprise or organization, as in an *enterprise system*. For example, Mander is devoid of any discussion of searching for and accessing information that may be resident on servers or other computers within an enterprise or organization, rather than a user’s own computer. It does not concern information that is accessible to others in an enterprise or organization. With respect to email, neither of the sending and receiving computers of Mander’s type can search the emails stored in the other computer. With respect to Internet access, in Mander’s type of system, again, Internet access and search results on one computer do

not create information assets that can be searched and accessed by other computers or servers within an enterprise to which an individual computer belongs.

161. Mander, again, is exclusively directed to and discusses the storage and display of documents within a single computer. Mander's Fig. 1 and the Abstract refer solely to a single computer made up of the conventional components (CPU, memory, etc.) interconnected through the conventional "system bus 15 (Mander, column 5, line 51). Nothing in Mander teaches operating a system of at least one server and a number of personal computers. In column 8, lines 14-28, Mander refers to "a mail window 61 which contains electronic mail documents received over a network system or other electronic mail system," but teaches nothing about operating not just the single computer but also other personal computers and servers in an enterprise information management system as recited in claim 1 of the '999 Patent.

162. The CHI '92 article described on pp. 160-61 of Feiner's report and SIGIR '93 "Content Awareness in a File System Interface: Implementing the 'Pile' Metaphor for Organizing information" by Rose, Mander, Oren, Ponceleon, Saloon and Wong (APMW0000812-APMW0000821), described on pp. 159-160 of Feiner's report, do not fill in any of the limitations missing from '724 patent.

**b. The Mander '724 Patent and Piles Project Does Not Render Any of the Asserted Claims of the Mirror Worlds Patents Obvious in View of the References Cited by Dr. Feiner.**

163. Dr. Feiner asserts that various claims, identified above, are rendered invalid by Mander '724 and the Piles Project in view of Retrospect, Lucas '330/Workspace, Thompson-Rohrlich '852/Smart Folders, Lotus Magellan, SDM/SDMS, On Location and/or Memoirs. Those references are treated separately within this report and I have identified limitations of the asserted claims that each lack. I have also addressed separately within this report whether a

person of ordinary skill in the art would be motivated to combine various references in the manner that Dr. Feiner suggests in his report. I address below additional limitations in the asserted claims that are absent in Mander '724 and the Piles Project.

- i. Mander '724 does not disclose “automatically archiving documents received from diverse applications in different formats such that the archived documents can be searched for documents meeting selected criteria,” “automatically archiving the received documents together with said time-based indicators,” or “selectively searching said archived documents for documents meeting selected criteria and generating and displaying a substream comprising documents identified in said searching.”**

164. The following claims recite “automatically archiving documents received from diverse applications in different formats such that the archived documents can be searched for documents meeting selected criteria,” and “automatically archiving the received documents together with said time-based indicators” or are dependent claims that refer back to such a claim: '313 patent claims 9, 10, 11.

165. '313 patent claim 11 additionally recites “selectively searching said archived documents for documents meeting selected criteria and generating and displaying a substream comprising documents identified in said searching.”

166. The above limitations are not disclosed in Mander '724.

167. Dr. Feiner asserts that this limitation is disclosed in Retrospect and that it would have been obvious to one of ordinary skill in the art to combine that reference with Mander '724 to arrive at the claimed invention. Feiner, Ex. 1B, pp. 42-44. I disagree.

168. Retrospect is a back-up utility cited solely in connection with archiving. It permits users to locate files based only on their filename or folder. (APMW0000521) There is

no disclosure in Retrospect of automatically archiving documents received from diverse applications in different formats such that the archived documents can be searched for documents meeting selected criteria, automatically archiving the received documents together with said time-based indicators and selectively searching said archived documents for documents meeting selected criteria and generating and displaying a substream comprising documents identified in said searching.

169. Elsewhere in his report, Dr. Feiner also asserts that Magellan discloses archiving. As explained above, Magellan, simply makes a passing reference to archive files created by utility programs that are not part of Magellan. It also does not disclose the claimed features.

170. In addition, as also explained above, in my opinion, it would not have been obvious to one of ordinary skill in the art to combine the references in the manner suggested by Dr. Feiner.

**ii. Mander '724 does not disclose “automatically archiving the documents and indicators in consistent format for selective retrieval.”**

171. The following claims either recite “automatically archiving the documents and indicators in consistent format for selective retrieval” or are dependent claims that refer back to such a claim: '427 patent claims 1, 2, 5, 7, 8, 9, 10, 13, 15. This limitation is not disclosed in Mander '724.

172. Dr. Feiner asserts that this limitation is disclosed in Retrospect and that it would have been obvious to one of ordinary skill in the art to combine that reference with Mander '724 to arrive at the claimed invention. Feiner, Ex. 1C, pp. 9-10. I disagree for the reasons explained above. Retrospect (and Magellan) do not disclose automatically archiving documents and indicators in consistent format for selective retrieval. In addition, as also explained above, in my

opinion, it would not have been obvious to one of ordinary skill in the art to combine the references in the manner suggested by Dr. Feiner.

**iii. Mander '724 does not disclose “automatically archiving the received documents.”**

173. The following claims recite “automatically archiving the received documents” or are dependent claims that refer back to such a claim: '313 patent claims 1, 2, 3, 4. This limitation is not disclosed in Mander '724.

174. Dr. Feiner asserts that this limitation is disclosed in Retrospect and that it would have been obvious to one of ordinary skill in the art to combine that reference with Mander '724 to arrive at the claimed invention. Feiner, Ex. 1B, pp. 10-11. I disagree for the reasons explained above. It would not have been obvious to one of ordinary skill in the art to combine the references in the manner suggested by Dr. Feiner.

**2. Lucas '330/Workscope**

175. Dr. Feiner asserts that Lucas '330 and Workscope anticipate and/or render obvious the following claims of the Mirror Worlds patents:

- (1) '227 patent claims 13, 14, 15, 16, 17, 20, and 22.

(Feiner, pp. 97-98).

176. Dr. Feiner also asserts that Lucas '330 and Workscope render obvious the following claims of the Mirror Worlds patents in view of Lotus Magellan, Mander '724/Piles project, Retrospect, SDM/SDMS, On Location, and/or Memoirs:

- (1) '227 patent claims 13, 14, 15, 16, 17, 20, 22;
- (2) '313 patent claims 1, 2, 3, 4, 9, 10, 11;
- (3) '427 patent claims 1, 2, 5, 7, 8, 9, 10, 13, 15, 16, 17, 18, 19, 22, 24, 25, 26, 29, 31, 32, 33, 34, 37, 39; and
- (4) '999 patent claim 1.

(Feiner, p. 98).

177. I disagree with Dr. Feiner—the above claims are not anticipated or rendered obvious by the references he cites.

**a. Lucas ‘330 and Workscape Do Not Anticipate Any of the Asserted Claims of the Mirror Worlds Patents.**

178. Lucas ‘330 describes a system that addresses a problem with conventional file systems—namely that documents in directories, or containers, are “hidden from the user.” (‘330, col. 1, ll. 25-31). The system solves this problem by “display[ing] documents either in a completely free-form, user controlled configuration or as strands.” (‘330, col. 1, ll. 56-60). A strand has a parent document and child documents, which are configured along a two dimensional path through a three-dimensional display space. (*Id.*, col. 1, ll. 60-63). Strands are “a mechanism for arranging screen objects without hiding them.” (*Id.*, col. 8, ll. 45-46).

179. “Workscope” refers to a number of documents that Apple produced shortly before the deadline of this expert report. My review of those documents is ongoing and I reserve the right to amend this expert report based on that review. Based on my review to date, my conclusions explained below with respect Lucas ‘330 are not changed by Workscope.

**i. Lucas ‘330 does not disclose a “stream.”**

180. ’227 patent claims 13, 14, 15, 16, 17, 20, 22 either recite the term “stream” or are dependent claims that refer back to a claim that does.

181. An explanation of the term “stream” is provided above in connection with Mander ‘724. No such “stream” is disclosed in Lucas ‘330.

182. *First*, Lucas ‘330 does not describe an underlying time-ordered collection of documents, which is one aspect of a stream. Instead, Lucas ‘330 is directed only to the display of documents in a strand.

183. Dr. Feiner asserts that Lucas ‘330 discloses a stream, but fails to identify in Lucas any such time-ordered collection of documents. *See, e.g.*, Feiner, Ex. 4A, p. 8.

184. *Second*, Lucas ‘330 does not describe a system intended to handle an unbounded number of items (another aspect of a stream, as described above). Lucas ‘330 displays all the documents within a strand—which addresses the problem, identified in Lucas ‘330, that in conventional file systems documents in directories are hidden from the user. ‘330, col. 1, ll. 25-31, col. 8, ll. 46-47 (“Strands are not containers, but rather are a mechanism for arranging screen objects without hiding them.”). That number cannot be unbounded.

185. *Third*, Lucas ‘330 does not provide for or disclose including *future* documents in strands, which is yet another aspect of a stream. Dr. Feiner identifies no such disclosure in his report. *See, e.g.*, Feiner, Ex. 4A, p. 50.

186. *Fourth*, Lucas ‘330 does not provide a system in which the location of file storage is transparent to the user. Indeed, Lucas ‘330 addresses only the graphical display of strands and does not address file location generally. Dr. Feiner does not address this aspect of a stream.

**ii. Lucas ‘330 does not disclose a “main stream.”**

187. ’227 patent claims 13, 14, 15, 16, 17, 20, 22 either recite the term “main stream” or are dependent claims that refer back to a claim that does..

188. An explanation of the term “main stream” is provided above in connection with Mander ‘724. No such “main stream” is disclosed in Lucas ‘330.

189. There is no disclosure in Lucas ‘330 of a stream at all, much less a stream containing each data unit, or document, received by or generated by the computer system (*i.e.*, a “main stream”). Dr. Feiner asserts that “Lucas describes generating a main strand (e.g., set of documents that follow a path corresponding to ‘a two dimensional line through a three dimensional display space’) of data units,” citing Lucas ‘330 at 1:57-61, 9:8-13, 8:51-53, 8:33-

35, 9:26-29, Fig. 1. Feiner, Ex. 4A, p. 8. But Lucas '330, in fact, never discloses a strand containing each data unit received by or generated by a computer system. It also never uses the term "main strand."

**iii. Lucas '330 does not disclose a "substream for containing data units only from the main stream."**

190. '227 patent claims 13, 14, 15, 16, 17, 20, 22 either recite the term "substream" or are dependent claims that refer back to a claim that does.

191. An explanation of the phrase "substream for containing data units only from the main stream." is provided above in connection with Mander '724. No such substream is disclosed in Lucas '330.

192. *First*, as explained above, Lucas '330 does not disclose a stream or main stream and therefore cannot disclose a substream of the main stream.

193. *Second*, as described in the '227 patent, a substream presents the user with a "view" of a document collection," such as the main stream. '227, col. 4, lines 51-54. A substrand, which is what Dr. Feiner points to for this limitation (*see* Feiner, Ex. 4A, pp. 8, 11-12) clearly does not provide such a view of a document collection. Indeed, Lucas '330 only describes displaying an entire strand, which may be visually separated into substrands by one or more knots. *See, e.g.*, Lucas '330, Fig. 9. It does not describe a substrand that acts as a filter on a strand.

**iv. Lucas '330 does not disclose including each data unit in the main stream "according to the timestamp in the respective chronological indicator."**



194. '227 patent claims 13, 14, 15, 16, 17, 20, 22 either recite including each data unit in the main stream “according to the timestamp in the respective chronological indicator” or are dependent claims that refer back to a claim that does.

195. Again, Lucas '330 does not disclose a *main stream* and therefore cannot disclose this limitation, which relates to including documents in the *main stream*. In addition, Lucas '330 does not disclose including a data unit in a strand, much less a main stream, according to the data unit's timestamp. The portions of Lucas '330 cited by Dr. Feiner do not disclose this feature. Feiner, Ex. 4A, pp. 43-44.

**v. Lucas '330 does not disclose “persistent streams.”**

196. '227 patent claims 13, 14, 15, 16, 17, 20, 22 either recite “persistent streams” or are dependent claims that refer back to a claim that does.

197. As set forth in the Court’s preliminary claim construction Order, a “persistent streams” are “streams that are dynamically updated.” No such persistent streams are disclosed in Lucas '330. To the contrary, as described in Lucas '330, a FIND operation may be used to create a strand—in which case once the FIND operation completes, there are no more updates to the strand. *See* Lucas '330, col. 18, ll. 50-56.

198. Dr. Feiner asserts that Lucas '330 discloses “maintaining streams of data units through searching that are persistent streams,” citing Lucas at col 8, ll. 7-10. Feiner, Ex. 4A, p. 47. I disagree. The cited portion of Lucas '330 describes “a special FIND tool,” serving as an IN BOX, that identifies shared files directed to a user’s attention and brings them into the user’s workspace. This “special FIND tool” is in essence a mechanism for receiving documents on a local computer system. It is not a persistent stream or substream as claimed in the Mirror Worlds patents.

**vi. Lucas ‘330 does not disclose selecting each timestamp “from the group consisting of past, present, and future times.”**

199. ’227 patent claim 14 recites selecting each timestamp “from the group consisting of past, present, and future times.” As explained above, Lucas ‘330 lacks this limitation. In particular, it does not provide for or disclose including *future* documents in a strands, or a stream. Dr. Feiner identifies no such disclosure in his report. *See, e.g.*, Feiner, Ex. 4A, p. 50.

**vii. Lucas ‘330 does not disclose “receiving from a user one or more indications of one or more selected segments of the streams corresponding to one or more selected intervals of time” and “displaying the selected segments.”**

200. ’227 patent claim 16 recites “receiving from a user one or more indications of one or more selected segments of the streams corresponding to one or more selected intervals of time” and “displaying the selected segments.” These limitations are not disclosed in Lucas ‘330.

201. Dr. Feiner cites the “fish-eye lens effect” described at Lucas ‘330, col. 5, lines 14-21 for this limitation (Feiner, Ex. 4A, p. 72), but that effect essentially enlarges a portion of a strand that is already displayed—it does not result in displaying a selected segment of the strand.

202. Dr. Feiner also states that “users can specify certain subsets of documents to be displayed in ‘substrands.’” (Feiner, Ex. 4A, pp. 72-73). But strands are displayed in their entirety—a user does not select a substrand for display.

**b. Lucas ‘330 and Workscape Do Not Render Any of the Asserted Claims of the Mirror Worlds Patents Obvious in View of the References Cited by Dr. Feiner.**

203. Dr. Feiner asserts that various claims, identified above, are rendered invalid by Lucas ‘330 and Workscape in view of Lotus Magellan, Mander ’724/Piles project, Retrospect, SDM/SDMS, On Location, and/or Memoirs. Those references are treated separately within this

report and I have identified limitations of the asserted claims that each lack. I have also addressed separately within this report whether a person of ordinary skill in the art would be motivated to combine various references in the manner that Dr. Feiner suggests in his report. I address below additional limitations in the asserted claims that are absent in Lucas '330 and Workscape.

**i. Lucas '330 does not disclose a “stream,” “document stream operating system” or a “stream-based operating system.”**

204. '313 patent claims 1, 2, 3, 4; '427 patent claims 1, 2, 5, 7, 8, 9, 10, 13, 15, 25, 26, 29, 31; and '999 patent claim 1 recite a “stream,” “document stream operating system” or a “stream-based operating system,” or are dependent claims that refer back to a claim that does.

205. Each of the terms “stream,” “document stream operating system,” and “stream-based operating system,” require a stream, as explained above in connection with Mander '724.

206. No such “stream” is disclosed in Lucas '330.

207. Dr. Feiner asserts that this feature is found in other references addressed in this report and that it would have been obvious to one of ordinary skill in the art to combine those references with Lucas '330 to arrive at the claimed invention. I disagree. None of the references cited by Dr. Feiner disclose a stream, document stream operating system or a stream-based operating system. Moreover, it would not have been obvious to one of ordinary skill in the art to combine the references in the manner suggest by Dr. Feiner for the reasons explained above.

**ii. Lucas '330 does not disclose a display facility that displays “at least selected [ones of said] document representations”**

208. '427 patent claims 1, 2, 5, 7, 8, 9, 10, 13, 15, 16 , 17, 18, 19, 22, 24, 25, 26, 29, 31 either recite a display facility that displays “at least selected [ones of said] document

representations” or are dependent claims that refer back to a claim that does. This limitation is not disclosed in Lucas ‘330.

209. An explanation of a display facility that displays “at least selected [ones of said] document representations” is provided above in connection with Mander ‘724. Again, the claimed display facility is capable of displaying a segment of a large number of document representations, since only a segment of that sequence need be displayed at any one time.

210. No such display facility is provided in Lucas ‘330. As explained above strands are displayed in their entirety only. Indeed, Lucas ‘330 teaches away from such a feature—explaining that a problem with known user interfaces, which Lucas ‘330 addresses, is that users “typically cannot see the documents inside a container without opening up the container.” ‘330, col. 1, ll. 29-31.

- iii. Lucas ‘330 does not disclose “automatically archiving documents received from diverse applications in different formats such that the archived documents can be searched for documents meeting selected criteria,” “automatically archiving the received documents together with said time-based indicators,” or “selectively searching said archived documents for documents meeting selected criteria and generating and displaying a substream comprising documents identified in said searching.”**

211. The following claims recite “automatically archiving documents received from diverse applications in different formats such that the archived documents can be searched for documents meeting selected criteria,” and “automatically archiving the received documents together with said time-based indicators” or are dependent claims that refer back to such a claim: ‘313 patent claims 9, 10, 11.

212. '313 patent claim 11 additionally recites “selectively searching said archived documents for documents meeting selected criteria and generating and displaying a substream comprising documents identified in said searching.”

213. The above limitations are not disclosed in Lucas '330.

214. Dr. Feiner asserts that this limitation is disclosed in Retrospect and Magellan and that it would have been obvious to one of ordinary skill in the art to combine those references with Lucas '330 to arrive at the claimed invention. Feiner, Ex. 4B, pp. 127-28. I disagree. As explained above in connection with Mander '724, Retrospect and Magellan do not disclose automatically archiving documents received from diverse applications in different formats such that the archived documents can be searched for documents meeting selected criteria, automatically archiving the received documents together with said time-based indicators and selectively searching said archived documents for documents meeting selected criteria and generating and displaying a substream comprising documents identified in said searching.

215. In addition, as also explained above, in my opinion, it would not have been obvious to one of ordinary skill in the art to combine the references in the manner suggested by Dr. Feiner.

**iv. Lucas '330 does not disclose “automatically archiving the documents and indicators in consistent format for selective retrieval”**

216. The following claims either recite “automatically archiving the documents and indicators in consistent format for selective retrieval” or are dependent claims that refer back to such a claim: '427 patent claims 1, 2, 5, 7, 8, 9, 10, 13, 15. This limitation is not disclosed in Lucas '330.

217. Dr. Feiner asserts that this limitation is disclosed in Retrospect and Magellan and that it would have been obvious to one of ordinary skill in the art to combine those references

with Lucas '330 to arrive at the claimed invention. *Feiner*, Ex. 4C, pp. 20-21. I disagree. As explained above in connection with *Mander '724*, *Retrospect* and *Magellan* do not disclose automatically archiving documents and indicators in consistent format for selective retrieval. In addition, as also explained above, in my opinion, it would not have been obvious to one of ordinary skill in the art to combine the references in the manner suggested by Dr. *Feiner*.

**v. Lucas '330 does not disclose “automatically archiving the received documents.”**

218. The following claims recite “automatically archiving the received documents” or are dependent claims that refer back to such a claim: '313 patent claims 1, 2, 3, 4. This limitation is not disclosed in Lucas '330.

219. Dr. *Feiner* asserts that this limitation is disclosed in *Retrospect* and *Magellan* and that it would have been obvious to one of ordinary skill in the art to combine those references with Lucas '330 to arrive at the claimed invention. *Feiner*, Ex. 4B, pp. 40-41. I disagree. As explained above, in my opinion, it would not have been obvious to one of ordinary skill in the art to combine the references in the manner suggested by Dr. *Feiner*.

**3. Thompson–Rohrlich et al. (the “’852 patent”)<sup>5</sup>**

220. Dr. *Feiner* asserts that U.S. Patent No.5,504,852 by Thompson–Rohrlich et al. (the “’852 patent”) and *Inside Macintosh* render obvious the following claims of the *Mirror Worlds* patents in view of *Mander '724/Piles* project, *Lucas '330/Workscape*, *Lotus Magellan*, *Retrospect*, *SDM/SDMS*, *On Location*, and/or *Memoirs* :

(1) '227 patent claims 13, 14, 15, 16, 17, 20, 22;

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<sup>5</sup> Dr. *Feiner* states that “Thompson-Rohrlich '852 discloses a “Viewer” that ‘acts as an intelligent folder’ (what Apple now calls a ‘smart folder’).” In so doing, he incorrectly implies that “smart folders,” as found in Apple’s Mac OS X 10.4 (Tiger) and beyond implement the system disclosed in the '852 patent. That is incorrect. A “smart folder” in Tiger and beyond is simply a stored search query—it does not contain aliases and other aspects of the system disclosed in the '852 patent.

- (2) '313 patent claims 1, 2, 3, 4, 9, 10, 11;
- (3) '427 patent claims 1, 2, 5, 7, 8, 9, 10, 13, 15,16, 17, 18, 19, 22, 24, 25, 26, 29, 31, 32, 33, 34, 37, 39; and
- (4) '999 patent claim 1.

(Feiner, pp. 98-99).

221. I disagree with Dr. Feiner—the above claims are not rendered obvious by the references he cites.

**a. The '852 Patent and Inside Macintosh Do Not Render Any of the Asserted Claims of the Mirror Worlds Patents Obvious in View of the References Cited by Dr. Feiner.**

222. Dr. Feiner's Report cites the '852 patent and the HFS file system of Macintosh computers as described in the Inside Macintosh document as prior art. The HFS file system of the Macintosh (at the System 7 generation) is a conventional file system using named files and folders in a hierarchical structure (folders are contained in other folders) to organize user data.

223. The '852 patent is primarily directed to performing searches and displaying the results in a window within the desktop metaphor:

“A method for creating and organizing aliases for files stored on a computer system in which the stored files are searched according to defined search criteria. For files meeting the search criteria, aliases to the files are created, and the aliases are organized together in a display window for presenting the results of the search to the computer user. ...”  
(Abstract)

224. The primary artifact of '852 is a Viewer. “A Viewer acts as an intelligent folder that continually searches for files meeting a specification supplied by the user.” (1:59-61)

**i. The '852 Patent and Inside Macintosh do not disclose a “stream.”**

225. The following claims either recite a “stream,” “document stream operating system” or a “stream-based operating system,” or are dependent claims that refer back to such a

claim: '227 patent claims 13, 14, 15, 16, 17, 20, 22; '313 patent claims 1, 2, 3, 4; '427 patent claims 1, 2, 5, 7, 8, 9, 10, 13, 15, 25, 26, 29, 31; and '999 patent claim 1.

226. An explanation of the term “stream” is provided above in connection with Mander '724. As described above, no such “stream” is disclosed in the '852 Patent or Inside Macintosh.

227. *First*, as explained above, neither the '852 Patent nor Inside Macintosh describe an underlying time-ordered collection of documents, which is one aspect of a stream. Instead, the '852 patent is directed only to so-called Viewers and Inside Macintosh describes HFS, a conventional file system in a conventional operating system.

228. *Second*, the '852 patent does not provide for or disclose including *future* documents in Viewers, which is yet another aspect of a stream. Dr. Feiner identifies no such disclosure in his report. *See, e.g.*, Feiner, Ex. 6A, pp. 13-14. Instead, he points only to Inside Macintosh, which describes a conventional file system, not a stream.

229. *Third*, the '852 patent does not provide a system in which the location of file storage is transparent to the user—insofar as the Viewers are themselves folders populated with at least aliases. Again, Inside Macintosh does not solve this deficiency, describing a conventional file system providing the hierarchical directory structure in which the Viewer folders reside.

**ii. The '852 Patent and Inside Macintosh do not disclose a “main stream.”**

230. '227 patent claims 13, 14, 15, 16, 17, 20, 22 either recite the term “main stream” or are dependent claims that refer back to a claim that does..

231. An explanation of the term “main stream” is provided above in connection with Mander '724. As described above, no such “main stream” is disclosed in the '852 Patent or Inside Macintosh.



232. Again, there is no disclosure in the '852 Patent or Inside Macintosh of a stream at all, much less a stream containing each data unit, or document, received by or generated by the computer system (*i.e.*, a “main stream”). Dr. Feiner points only to the “catalog file” in Inside Macintosh for this limitation. Feiner, Ex. 6A, p. 3. However, the “catalog file” is not a main stream.

**iii. The '852 Patent and Inside Macintosh do not disclose a “substream for containing data units only from the main stream.”**

233. '227 patent claims 13, 14, 15, 16, 17, 20, 22 either recite the term “substream” or are dependent claims that refer back to a claim that does.

234. An explanation of the phrase “substream for containing data units only from the main stream.” is provided above in connection with Mander '724. No such substream is disclosed in the '852 Patent and Inside Macintosh.

235. As explained above, neither the '852 Patent nor Inside Macintosh disclose a stream or main stream and therefore cannot disclose a substream of the main stream.

**iv. The '852 Patent and Inside Macintosh do not disclose including each data unit in the main stream “according to the timestamp in the respective chronological indicator.”**

236. '227 patent claims 13, 14, 15, 16, 17, 20, 22 either recite including each data unit in the main stream “according to the timestamp in the respective chronological indicator” or are dependent claims that refer back to a claim that does.

237. Again, the '852 Patent and Inside Macintosh do not disclose a *main stream* and therefore cannot disclose this limitation, which relates to including documents in the *main stream*. In addition, The '852 Patent and Inside Macintosh do not disclose including a data unit in a

stream according to the data unit's timestamp, as explained above. The portions of Lucas '330 cited by Dr. Feiner do not disclose this feature. Feiner, Ex. 6A, pp. 10-11.

**v. The '852 Patent and Inside Macintosh do not disclose selecting each timestamp “from the group consisting of past, present, and future times.”**

238. '227 patent claim 14 recites selecting each timestamp “from the group consisting of past, present, and future times.” As explained above, the '852 Patent and Inside Macintosh lack this limitation. In particular, they do not provide for or disclose including *future* documents in a stream.

**vi. The '852 Patent and Inside Macintosh do not disclose claim limitations relating to the graphical display of a stream.**

239. The '852 Patent and Inside Macintosh do not disclose claim limitations relating to the graphical display of a stream, including, but not limited to, the following:

(i) “a receding, foreshortened stack of partly overlapping documents,” as required by the following claims: '313 patent claims 1, 2, 3, 4, 9, 10, 11; and '427 patent claims 1, 2, 5, 7, 10, 18, 25, 26, 29, 31, 32, 33, 34, 37, 39;

(ii) “responding to user-controlled sliding without clicking of the cursor over said displayed stack to display a glance view of a document whose document representation is currently touched by the cursor or pointer,” as required by '313 patent claims 1, 2, 3, 4, 9, 10, 11; and '427 patent claims 1, 2, 5, 7, 8, 9, 10, 13, 15, 16, 17, 18, 19, 22, 24, 25, 26, 29, 31;

(iii) “responding automatically to touching a document representation in the stack with a user-operated cursor or pointer, without further action by the user,” as required by: '427 patent claims 32, 33, 34, 37, 39;

(iv) “said glance views being displayed essentially in real time in response to passing a cursor over respective ones of the browse cards,” as required by claim 1 of the ‘999 patent; and

(v) The ’852 Patent and Inside Macintosh do not disclose a display facility that displays “at least selected [ones of said] document representations,” as required by ’427 patent claims 1, 2, 5, 7, 8, 9, 10, 13, 15, 16, 17, 18, 19, 22, 24, 25, 26, 29, 31.

240. Dr. Feiner suggests on page 99 of his report that the ’852 Patent and Inside Macintosh in view of various references render the above claims obvious. He does not explain, however, why it would have been obvious to one of ordinary skill in the art to combine the ’852 Patent and Inside Macintosh with any references that he asserts disclose the above missing limitations. *See* Feiner, pp. 137-43. The claim charts that Dr. Feiner attached to his report for the ’852 Patent likewise fail to identify any references for the above limitations. *See* Feiner, Exs. 6B-6D.

241. In my opinion, it would not have been obvious to one of ordinary skill in the art to combine the ’852 Patent and Inside Macintosh with other prior art identified in Dr. Feiner’s report, such as Mander ‘724 and Piles, Lucas ‘330. Incorporating that prior art would make the desk top metaphor more complicated—it would not improve the ‘852 patent but would make it worse.

**vii. The ’852 Patent and Inside Macintosh do not disclose claim limitations relating to automatically archiving documents and searching archived documents.**

242. The ’852 Patent and Inside Macintosh do not disclose claim limitations relating to automatically archiving documents and searching archived documents, including, but not limited to, the following:

- (i) “automatically archiving documents received from diverse applications in different formats such that the archived documents can be searched for documents meeting selected criteria,” and “automatically archiving the received documents together with said time-based indicators,” as required by ’313 patent claims 9, 10, 11;
- (ii) “automatically archiving the documents and indicators in consistent format for selective retrieval,” as required by ’427 patent claims 1, 2, 5, 7, 8, 9, 10, 13, 15; and
- (iii) “automatically archiving the received documents,” as required by ’313 patent claims 1, 2, 3, 4

243. Dr. Feiner suggests on page 99 of his report that the ’852 Patent and Inside Macintosh in view of various references render the above claims obvious. He does not explain, however, why it would have been obvious to one of ordinary skill in the art to combine the ’852 Patent and Inside Macintosh with any reference relating to archiving. *See* Feiner, pp. 137-43. The claim charts that Dr. Feiner attached to his report for the ’852 Patent likewise fail to identify any references for the above limitations. *See* Feiner, Exs. 6B-6D.

244. Dr. Feiner points to Retrospect for these limitations in connection with other primary references. Retrospect, however, does not render claims containing these limitations invalid for the reasons explained above.

**viii. The ’852 Patent and Inside Macintosh do not disclose “an enterprise information management system.”**

245. ’999 patent, claim 1 recites “an enterprise information management system.” This limitation is not disclosed in ’852 Patent. Dr. Feiner does not specifically address this limitation in his report.

#### 4. MEMOIRS

246. Dr. Feiner asserts that “MEMOIRS: A Personal Multimedia Information System,” by M.W. Lansdale, D.R. Young, & C.A. Bass, The Proceedings of the Fifth Conference of the British Computer Society Human Computer Interaction Specialist Group University of Nottingham 5–8 September 1989 (APMW0076640–APMW0076649) (“MEMOIRS”) anticipate and/or renders obvious the following claims of the Mirror Worlds patents:

- (1) ‘227 patent claims 13, 17, and 20.

(Feiner, p. 156).

247. Dr Feiner also asserts that MEMOIRS renders obvious the following claims of the Mirror Worlds patents in view of Retrospect, Lucas ’330/Workscape, Thompson–Rohrlich ’852/Smart Folders, Lotus Magellan, SDM/SDMS, On Location, and/or Mander ’724/Piles project:

- (1) ’227 patent claims 13, 14, 15, 16, 17, 20, 22;
- (2) ’313 patent claims 1, 2, 3, 4, 9, 10, 11;
- (3) ’427 patent claims 1, 2, 5, 7, 8, 9, 10, 13, 15, 16, 17, 18, 19, 22, 24, 25, 26, 29, 31, 32, 33, 34, 37, 39; and
- (4) ’999 patent claim 1.

(Feiner, p. 99-100).

248. I disagree with Dr. Feiner—the above claims are not anticipated or rendered obvious by the references he cites.

##### **a. Memoirs Does Not Anticipate Any of the Asserted Claims of the Mirror Worlds Patents.**

249. The MEMOIRS paper by Lansdale et al. describes psychological principles for user interactions with documents, and an experimental system for exploring those interactions. The basic system uses a “hypertext-style database,” which means a list of links from text

information to the items referred to by the text. It also has links to “a time-structured network (a ‘Timebase’),” which is essentially a calendar or list of dates. As the Abstract says, “the user interface ... is complex ... [and] supports a wide range of strategies and methods for retrieval of information.”

250. MEMOIRS comments that due to inexact user recall, users tend to “leave documents around in semi-organized piles.” Further, over time, “piles become bigger and more disorganized” so that it is difficult to scan and retrieve information from them.

251. MEMOIRS attempts to overcome some of these problems by having a system in which scanned documents are entered into the system, tagged with keywords by the user, and filed in the system. The user chooses his own keywords for each document. The system tags each document with the date it was entered in the system.

252. The system has a representation of a diary (a British term for a calendar/datebook), which is displayed on the screen as a linear, left-to-right sequence of boxes, one for each day. A day in which documents exist is shown as a dark box, as opposed to a white box for days with no documents.

253. The ‘Timebase’ referred to in MEMOIRS is the datebook. User events can also be noted in the datebook.

254. MEMOIRS has a search facility. Results of a search are shown in a conventional window as a collection of icons.

255. MEMOIRS system is vastly different from the stream paradigm described and claimed in the Mirror Worlds’ patents. Although similar to the stream technology in that MEMOIRS uses time as a basis of organization, MEMOIRS lacks the essential features of the asserted claims, as explained below.

256. MEMOIRS does not describe an underlying time-ordered collection of documents, which is one aspect of a stream. Instead, it separates out a diary, files, and attribute libraries, etc.... (MEMOIRS, APMW0076646, APMW0076647).

257. MEMOIRS does not disclose a mainstream, nor does it disclose persistent substreams,

**i. Memoirs does not disclose a “main stream.”**

258. The “Timebase” of the Memoirs system does not include all data units in the way a main stream does. In fact, there is a specific teaching to keep the Diary separate from the Timebase. Furthermore, attribute libraries (i.e., icons, color, sound, keywords, etc...) are also kept separate from the “Timebase.” (MEMOIRS, APMW076646-47).

**ii. MEMOIRS does not disclose “substreams” (persistent or otherwise)**

259. A search performed on a “Timebase” does not create substreams. Instead it highlights time periods of the “Timebase” where relevant documents exist. (MEMOIRS, APMW0076647). To get search results, a search results window is created, in which documents are not arranged in time-order. (MEMOIRS, APMW0076647). There is no disclosure of persistence.

**iii. MEMOIRS does not disclose “archiving”**

260. MEMOIRS specifically states that “there are no archival areas.” (MEMOIRS, APMW0076648).

**iv. MEMOIRS does not disclose any of the visual aspects of Mirror Worlds Patents**

261. MEMOIRS has a very specific interface that has a row of containers representing days with each container including files. (MEMOIRS, APMW0076647). There is no disclosure

of a receding foreshortened stack or any three dimensional elements. (MEMOIRS, APMW0076647) Similarly, there are no glance views. (MEMOIRS, APMW0076647).

**b. MEMOIRS Does Not Render Any of the Asserted Claims of the Mirror Worlds Patents Obvious in View of the References Cited by Dr. Feiner.**

262. Memoirs is a system that specifically teaches away from creation of a main stream by creating a separate diary component that is specifically made to exist within and external to the “Timebase.” A main stream would take away that functionality.

**5. Spatial Data-Management**

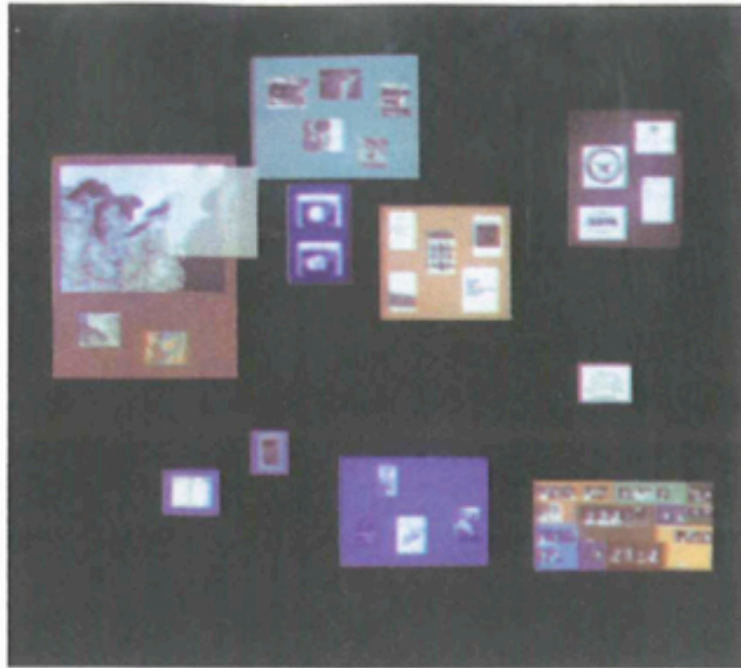
263. Dr. Feiner asserts that “Spatial Data–Management” by Richard A. Bolt (“SDM”) and various aspects of the research on a Spatial Data Management System (“SDMS”) conducted by the Architecture Machine Group at the Massachusetts Institute of Technology in the 1970s anticipate and/or render obvious claims of the patents-in-suit either alone or in combination with other prior art references such as Mander ’724/Piles and Lucas ’330/Workspace. (Feiner, pp. 148-49). I disagree.

264. SDMS, as indicated by its name, is directed to the concept of using spatial relationships to assist with recall. Richard A. Bolt, the author of the reference, describes the “distinguishing characteristic [of SDMS] is that it exploits the **user’s sense of spatiality** for purposes of organizing and retrieving data. . . .” APMW076307. SMDS seeks to create “a spatially **definite** “virtual” world that can be interactively explored and navigated.” APMW0076310 (emphasis added). SDMS is almost the antithesis of the system described in the Mirror Worlds’ Patents. SMDS was complex (describing three screens and multiple control interfaces), did not teach the concept of time ordering, did not describe streams, and did not describe substreams.



265. SDM is a book describing an experimental environment at MIT. The interaction of the user with three screens using various navigational devices is described.

266. The main navigational screen is a small one, reproduced below. It shows the typical two-dimensional nature of SDMobjects.

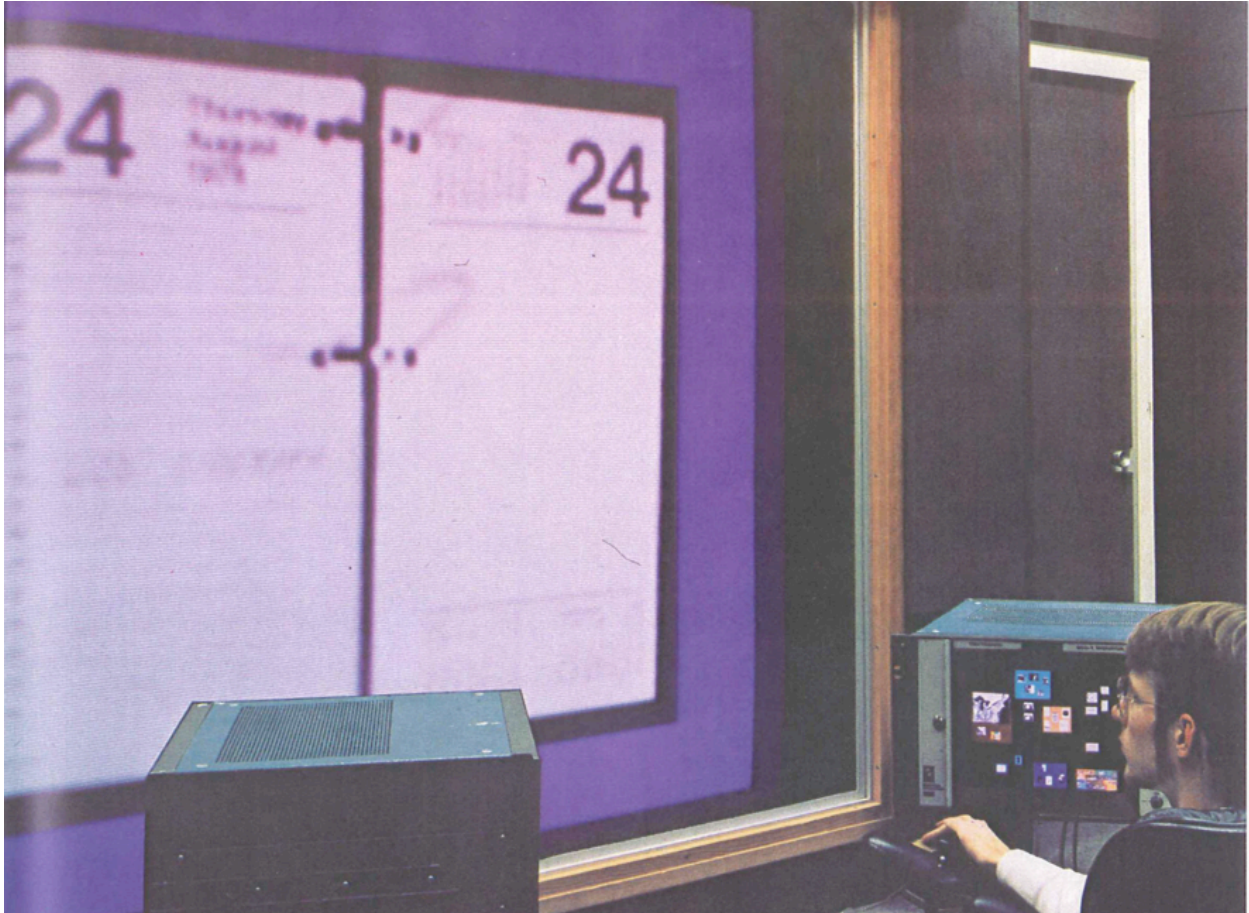


The logical relationship between these two views is akin to a mapping key, which places a particular image within a larger locale. The large screen effectively functions as a "window" and, as we shall see later, a "magnifying glass" onto Dataland.

Dataland as it appears on the "world view" monitor to the user's right. Notice highlighted "you-are-here" rectangle situated over a map of north-eastern United States located in upper-left region of Dataland. "You-are-here" marker is translucent, under joystick control, and indicates the region of Dataland visible on the large screen to user's front.

267. The "world view" monitor serves specifically as a navigational aid to the user in getting around Dataland. The large display of whatever portion of Dataland is so 'close up' that the user would get lost easily if there were not always on view a

268. A larger screen projects a portion of what is on the navigational screen, as illustrated below with a desk calendar.



269. A third screen is sometimes used occasionally used to interact with certain types of files that are selected using a first screen.

**i. Spatial Data Management Project and the Corresponding System does not disclose a “stream.”**

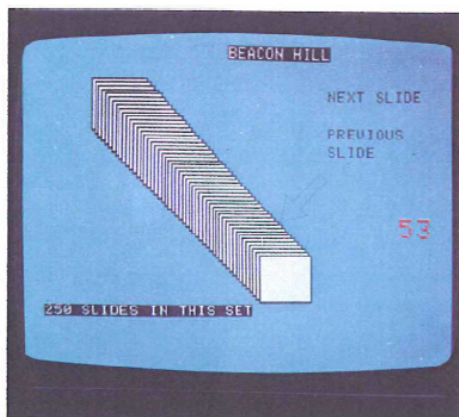
270. SDMS does not disclose a “stream,” “document stream operating system,” or “stream-based operating system.”

271. *First*, SDMS does not describe an underlying time-ordered collection of documents, which is one aspect of a stream. Instead, SDMS relates only to special organization

of data, which is akin to a visual substitute for conventional folders and subdirectories. In fact, adding time-based organization would be contrary to the goal of spatial organization and recognition as time based recognition would either result in a static positioning of documents (if creation date is used) or a constantly changing organization (if the date of update is used).

272. Dr. Feiner states that “SDMS was also capable of organizing and presenting documents such as movies temporally,” but his conclusion does not follow from the disclosure. (Feiner, p. 152). SDMS describes an interface for “controlling events that are oriented over a time span” i.e., playback of recordings. This is vastly different from organizing data units over a time span. APMW0076334. SDMS only discusses browsing through a recorded sequence, not organizing a plurality of such sequences much less temporally organizing recorded sequences and other types of data units. Id. *Second*, Dr. Feiner identified two views found on the third screen of the SDMS, as disclosing a visual stream. However, the first view was similar to a

Close-up of slide collection key map used to access videodisc still frames. Region along spine of stacked “slides” permits sliding of cursor arrow by fingertip. Alternately, the captions “Next slide” and “Previous slide” can be tapped for one-by-one viewing, or continuously touched for rapid sequential showing.



The interactive aspect of this key map is that the user can slide a colored-arrow “cursor” along the top edge of the diagonal row of “boxes” representing slides about Boston available to be seen. The analogue for more conventional media is that of remembering a slide tray. Moving the cursor up and down causes slides to be flashed in succession on the large screen as indicated by the finger touching and moving the display cursor.

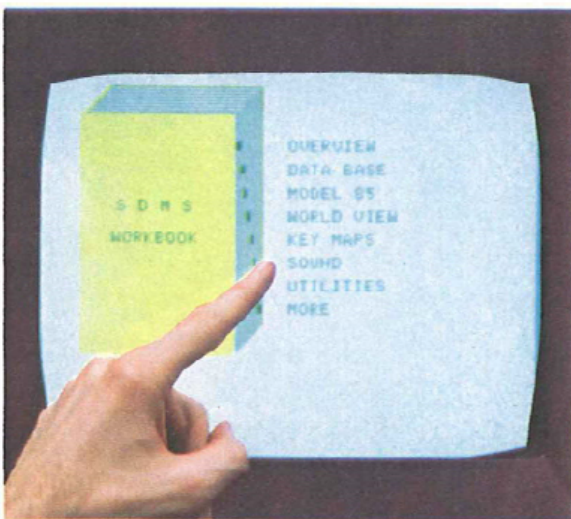
limited pile, and not at-all similar to streams:

273. APMW0076342

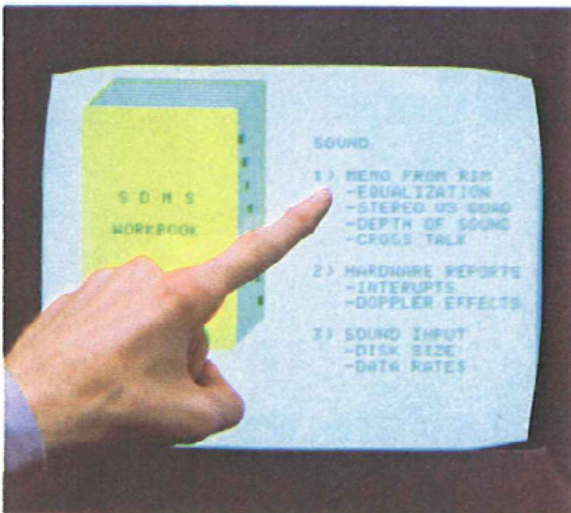
274. According to Richard A. Bolt, the above view is particular to picture slides, and is meant to be analogous to a slide tray. Accordingly, it is not unbounded in the way a stream would be. Notably, in SDMS, the “row of ‘boxes’ is displayed in its entirety—no mechanism is

provided for displaying only a portion of the row, while other portions of the row are not displayed. SDMS, in fact, teaches away from such a feature as the purpose of the system is spatial arrangement, and having invisible portions would be contrary to the goal. Finally, this view does not suggest previews.

275. The second view identified by Dr. Feiner, is a mere three dimensional icon representing a book.



Notice that the table of contents can “expand” to show a finer breakdown of content area when the user selects a major heading of interest. In concert with the activity on the key map monitor screen, the main large-screen view will “go to” the section of the book selected by the user through the interactive key map so that the user may read the material.



There is yet further interaction with the data type of book: that of turning its pages. This action is initiated by a specific user action: a page turning gesture given as a right-to-left, top-to-bottom stroke on either of the touch-sensitive pads on the arms of the user chair. Any page can be turned back by a stroke across the pad in the opposite direction. The accompanying visual action is the display of an “animation” of a page actually turning. The upper right-hand corner of the page on view progressively “lifts” away and sweeps leftwards across the screen, immediately revealing the new page below.

276. APMW0076328

277. This icon does not change, and is not representative of multiple documents, as shown in the description above. The icon includes controls to the right of it that can be used to browse through pages in a book, and are displayed on the separate screen. The individual pages have no correlation to the icon that represents the book.

278. *Third*, SDMS does not provide for or disclose including *future* documents in piles, which is yet another aspect of a stream.

279. *Fourth*, the SDMS piles are not a system in which the location of file storage is transparent to the user—indeed, the displayed plane is simply a new form of subdirectory, which require the user to know where specific documents are located.

**ii. Spatial Data Management Project and the Corresponding System do not disclose a “main stream.”**

280. For the same reasons as described above with respect to why SDMS does not disclose a stream, SDMS cannot disclose a main stream.

**iii. Spatial Data Management Project and the Corresponding System do not disclose “a substream for containing data units only from the main stream.”**

281. For the same reasons as described above with respect to why SDMS does not disclose a stream, SDMS can not disclose a substream.

**iv. Spatial Data Management Project and the Corresponding System do not disclose including each data unit in the main stream “according to the timestamp in the respective chronological indicator.”**

282. For the same reasons as described above with respect to why SDMS does not disclose a stream, SDMS can not disclose including each data unit main stream. As also

discussed above, SDMS is concerned with spatial organization, which is incompatible with temporal organization (which is not disclosed or discussed in Richard Bolt's paper).

**v. Spatial Data Management Project and the Corresponding System do not disclose receiving data from various applications**

283. Although the SDMS is shown as interacting with various types of data (text, video, image, etc.) there is no teaching of diverse applications that would open this data, instead the data is opened and modified by the SMDS itself.

**vi. Spatial Data Management Project does not teach archiving**

284. Because SDMS is intended to be traveled visually and spatially, archiving would defeat this, supposed advantage.

**vii. Spatial Data Management Project Teaches Away From Combinations That Include Streams and Substreams**

285. In order for SDMS to be successful, the environment needs to be largely static. Constant movement of items within the Dataland plane would confuse users. Streams on the other hand are constantly changing. Accordingly, a person of ordinary skill in the art would not use the disclosures of SDMS together with any stream technology.

**6. AAI Fall '95 Symposium Paper**

286. Dr. Feiner asserts that the AAI Fall '95 symposium paper by Eric Freeman and Scott Fertig, "Lifestreams: Organizing your Electronic Life," AAI Fall 1995 Symposium on AI Applications in Knowledge Navigation and Retrieval. (YALE 000551-000558, APMW0012897-APMW0012903) ("AAI" or "AAI Fall '95 symposium paper") anticipates and/or renders obvious the following claims of the Mirror Worlds patents:

- (1) '227 patent claims 13, 14, 15, 16, 17, 20, 22;

- (2) '313 patent claims 1, 2, 3, 4, 9, 10, 11;
- (3) '427 patent claims 1, 2, 5, 7, 8, 9, 10, 13, 15,16, 17, 18, 19, 22, 24, 25, 26, 29, 31, 32, 33, 34, 37, 39; and
- (4) '999 patent claim 1.

(Feiner, p. 100).

287. Dr Feiner also asserts that AAAI Fall '95 symposium paper renders obvious the following claims of the Mirror Worlds patents in view of Mander '724/the Piles Project, Retrospect, Lucas '330/Workscape, Thompson–Rohrlich 852/Smart Folders, Lotus Magellan, SDM/SDMS, On Location, and/or Memoirs:

- (1) '227 patent claims 13, 14, 15, 16, 17, 20, 22;
- (2) '313 patent claims 1, 2, 3, 4, 9, 10, 11;
- (3) '427 patent claims 1, 2, 5, 7, 8, 9, 10, 13, 15, 16, 17, 18, 19, 22, 24, 25, 26, 29, 31, 32, 33, 34, 37, 39; and
- (4) '999 patent claim 1.

(Feiner, p. 100-01).

288. I disagree with Dr. Feiner—this paper is not prior art and therefore the above claims are not anticipated or rendered obvious by it.

289. Furthermore, as described by Dr. Gelernter during his deposition, the AAAI did not disclose archiving documents in a format that is still searchable. (Gelernter 6/18/2009 Tr. 126:3-6). Furthermore, the AAAI failed to disclose browse cards. (Gelernter 6/18/2009 Tr. 125:21-23).

## **7. TR-1070/Lifestreams**

290. Dr. Feiner asserts that the the paper TR–1070 (“The ‘Lifestreams’ Approach to Reorganizing the Information World,” YALEU/DCS/TR 1070 (1995) (YALE000430–YALE000441, APMW0014792–APMW0014802, APMW0026102–APMW0026116)) and/or

the Lifestreams implementation (as described in TR–1070, RR–1083 (“Lifestreams: Organizing Your Electronic Life,” YALEU/DCS/RR–1083 (1995) (YALE000551–YALE000558)), TR–1083 (“Lifestreams: Organizing Your Electronic Life,”YALEU/DCS/TR–1083 (1995) (YALE000577–YALE000584) anticipates and/or renders obvious the following claims of the Mirror Worlds patents:

- (1) ’227 patent claims 13, 14, 17, 20, 22; and
- (2) ’999 patent claim 1.

(Feiner, p. 101).

291. Dr Feiner also asserts that TR–1070 and/or Lifestreams render obvious the following claims of the Mirror Worlds patents in view of Mander ’724/the Piles Project, Retrospect, Lucas ’330/Workscape, Thompson–Rohrlich ’852/Smart Folders, Lotus Magellan, SDM/SDMS, On Location, Memoirs, and/or the AAAI Fall ’95 symposium paper:

- (1) ’227 patent claims 13, 14, 15, 16, 17, 20, 22;
- (2) ’313 patent claims 1, 2, 3, 4, 9, 10, 11;
- (3) ’427 patent claims 1, 2, 5, 7, 8, 9, 10, 13, 15,16, 17, 18, 19, 22, 24, 25, 26, 29, 31, 32, 33, 34, 37, 39; and
- (4) ’999 patent claim 1.

(Feiner, p. 101-02).

292. I disagree with Dr. Feiner— this paper is not prior art and therefore the above claims are not anticipated or rendered obvious by it. It also does not disclose features claimed in the Mirror Worlds Patents.

## **8. ’227 Patent**

293. Dr. Feiner asserts that the ’227 patent anticipates and/or renders obvious claim 1 of the ’999 patent. (Feiner, p. 102). I disagree.



294. Dr. Feiner's argument is misplaced in light of the reexamination of Mirror Worlds patents. Specifically, Mirror Worlds' July 27, 2009 petition to correct the inventorship of the '999 patent to include Drs. David Gelernter and Eric Freeman, and USPTO's March 24, 2010 acceptance of that petition. With the corrected inventorship, the '227 patent is not prior art to the '999 patent.

### **9. Additional References cited by Dr. Feiner**

295. On pages 102-111 of Dr. Feiner's Report re Invalidity, Dr. Feiner asserts that other references render the Mirror Worlds patents obvious when combined with the references identified above. I reserve the right to respond to any specific arguments raised by Dr. Feiner.

### **10. Claim Charts**

296. On pages 111-12 of Dr. Feiner's Report re Invalidity, Dr. Feiner identifies claim charts for the references and combinations identified above, as well as numerous other claim charts that he adopted and incorporated by reference from Apple's (First) Amended Invalidity Contentions dated May 11, 2009 and Apple's Second Amended Invalidity Contentions dated May 18, 2010. In my opinion, none of those claim charts establish the invalidity of any of the asserted claims of the Mirror Worlds Patents.

## **F. The Asserted Claims Are Not Invalid Under §112 Or §101**

### **1. 35 U.S.C. § 112—Lack of Antecedent Basis**

297. I understand that even without explicit antecedent basis, if the scope of the claim would be reasonably ascertainable by those skilled in the art, then the claim is not indefinite. If the meaning of a claim is discernible, even though the task may be formidable and the conclusion may be one over which reasonable persons will disagree, claims are not invalid due to indefiniteness. Furthermore, I understand that when determining the meaning of a term, it must be reviewed based on its context within the claims.

298. I note that each claim limitation that Dr. Feiner alleges renders a claim invalid for indefiniteness can be easily resolved by a person of ordinary skill in the art. A person of ordinary skill in the art would know that “[a]n operating systems” of ‘427, claim 9 refers back to the controlling operating system of independent claim 8; “[a]n operating system” of ‘427, claim 10 refers back to the controlling operating system of independent claim 8, and “a stream-based operating system” in claims 13 and 15 refers back to and limits the controlling operating system of claim 8.

299. Similarly, a person of ordinary skill in the art would know that “[a]n operating systems” of ‘427, claim 17 refers back to the controlling operating system of independent claim 16; “[a]n operating system” of ‘427, claim 18 and 19 refers back to the controlling operating system of independent claim 16, and “a stream-based operating system” in claims 22 and 24 refers back to and limits the controlling operating system of claim 16.

300. Likewise, a person of ordinary skill in the art would know that “[a]n stream-based operating system” of ‘427, claims 29 and 31 refers back to and limits the document stream operating system of claim 16.

301. Also, a person of ordinary skill in the art would understand that claims 37 and 39 limit the method of claim 32.

#### **G. Materiality**

302. I disagree with Dr. Feiner’s assessment of the materiality of the CHI ’92 Piles article, TR 1070, and Memoirs.

303. With respect to the CHI ’92 Piles article, Dr. Feiner fails to consider the fact that that article related to a desktop metaphor which was contrary to the goals of ‘227 patent. In addition, the ‘724 patent, which describes the same subject matter as that article, was of record during prosecution of related applications leading to the ‘313, ‘427 and ‘999 patents—the

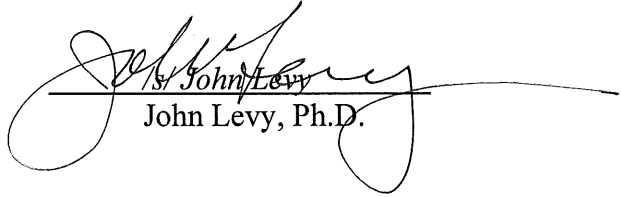
USPTO did not reject the claims of those applications over the '724 Patent, indicating that the Patent Office did not believe that Piles technology effected the patentability of those claims

304. With respect to TR-1070, I understand that that reference is not prior art and, therefore, cannot be material.

305. With respect to Memoirs, it does not effect the patentability of the Mirror Worlds Patents for the reasons explained in this report and discloses concepts that are cumulative to the Lansdale reference that was of record.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed on June 4, 2010 at New York, NY.

  
/s/ John Levy  
John Levy, Ph.D.

**CERTIFICATE OF SERVICE**

I hereby certify that a copy of the foregoing document is being served this 4th day of June 2010 via email upon counsel for Apple at the following address:

[MirrorWorlds@paulhastings.com](mailto:MirrorWorlds@paulhastings.com)

*/s/ Alexander Solo*

# **Exhibit A**

## **John Levy, Ph.D. – testimony as expert in the last 4 years**

### **2008-2009:**

#### **Chamberlain v. Overhead Door 08-CV-3806**

Patent related to garage door operator  
Role: expert for defendant Overhead Door  
Status: **expert report & deposition**  
*Latham & Watkins, Chicago*  
Ken Schuler 312 876-7700  
Kevin May 312 876-7677

#### **Convolve v. Compaq 00 Civ. 5141 (JSM)**

Patents and trade secrets related to hard disk drive management  
Role: testifying expert for defendant Compaq (HP); **expert report; deposition**  
Status: MSJ filed  
*Bartlit Beck Herman, Chicago*  
Chris Landgraaf 312 494-4477  
Brian O'Donoghue 312 494-4402

#### **Griffin v. Dell Canada 06-CV-309738 CP**

Class action related to putative computer failures  
Role: expert for defendant Dell Canada; **expert declaration, deposition**  
Status: pending class certification hearing  
*Gowling Lafleur Henderson, Toronto*  
Malcolm Ruby 416 862-4314

### **2006 - 2007:**

#### **Pub Util Dist No. 1 of Snohomish Co, Washington v. Black & Veatch Construction**

J A M S Arbitration no. 1160015776  
Contract dispute related to design and installation of hardware and software  
Role: **testimony at arbitration hearing** and **expert report** for respondent Black & Veatch  
Status: arbitration ruling issued  
*Husch & Eppenberger, Kansas City*  
Leonard Wagner 816 283-4634  
John Power 816 283-4651

### **2005-2006:**

#### **Chang v. SBC, San Francisco Superior Unlimited Action No. CGC-04-434039**

Personal injury suit related to ASIC design engineering  
Role: testifying expert for plaintiff Chang, **deposition**  
Status: settled  
*Meisel & Krentsa, San Francisco,*  
Andrew Meisel 415 788-2035

## John Levy, Ph.D. – Litigation Support Experience

### Summary of experience:

*Engaged as an expert* in over 35 cases

*Trial testimony* in four cases

*Deposition* in five cases

*Expert reports/declarations* in 8 cases in the past 4 years

*Advisor to Federal District Court Judges* in 3 cases

Note: underlined engagements are currently active

### 2007-2008:

#### **OPTi v. AMD et al.** 2:07-cv-278-TJW

Patents related to low-pin-count bus for PC

Role: consulting expert for defendant AMD

Status: in discovery

*Ropes & Gray, Palo Alto*

Gabrielle Higgins 650 617-4015

#### **Seagate v. STEC** CV 08 1950 HRL

Patent related to storage device self-test

Role: consulting expert for plaintiff Seagate

Status: in discovery

*Heller Ehrman, Menlo Park*

Beth Pehrson 650 324-6732

#### **Network Appliance v. Sun Microsystems** 3:07-cv-06053-EDL

Patents related to storage networks

Role: consulting expert for defendant Sun Microsystems

Status: in discovery

*DLA Piper, Washington, DC & Reston, VA*

Clayton Thompson 703 773-4143

#### **LG Electronics v. Hitachi** C07-06511 CW

Patents related to bus, memory controller and cache memory

Role: consulting expert for defendant Hitachi

Status: in discovery

*Kirkland & Ellis, Chicago*

Bill Devitt 312 861-2003

#### **Ecompare v. Priceline.com** C07-00236 JW

Trade secrets related to software technology

Role: consulting expert for defendant Priceline.com; **expert report**

Status: in discovery

*Sedgwick Detert Moran & Arnold, Los Angeles*

James Nelson 213 615-8084



**Superspeed v. IBM** 2:07-cv-00089-TJW

Patents related to I/O caching on a network

Role: consulting expert for defendant IBM

Status: in discovery

*Jones Day, Chicago & Dallas*

David Witkoff 312 269-4259

Hilda Galvan 214 220-3939

**Papst Licensing v. Matsushita et al.** 1:07-mc-00493-RMC

Patents related to interface used in cameras

Role: consulting expert for defendant Matsushita

Status: unknown

*Hogan & Hartson, Los Angeles*

Rachel Capoccia 310 785-4744

**Convolve v. Compaq** 00 Civ. 5141 (JSM)

Patents and trade secrets related to hard disk drive management

Role: testifying expert for defendant Compaq (HP); **expert report; deposition**

Status: in discovery

*Bartlit Beck Herman, Chicago*

Chris Landgraft 312 494-4477

Brian O'Donoghue 312 494-4402

**CCCC v. Intel**, C 05-01766 RMW (HRL)

Patent related to cache coherency in multiple-bus systems

Role: testifying expert for defendant Intel, **expert report** for claim construction, **testimony** at tutorials in 2006 and 2008

Status: Motions for Summary Judgment pending

*Morrison & Foerster, San Francisco, Palo Alto & Los Angeles*

Jim Bennett 415 268-7169

Karl Kramer 650 813-5775

Hector Gallegos 213 892-5255

**McCabe v. Dell** CV06-7811 GAF

**Carideo v. Dell** C06-1772 JLR

Class actions related to putative PC failures

Role: consulting expert for defendant Dell

Status: unknown

*Reeves & Brightwell, Austin, TX*

Kim Brightwell 512 334-4502

**ProMOS Technologies v. Freescale Semiconductor** C06-788 (JJF)

Patents related to cache memories

Role: consulting expert on invalidity for defendant Freescale

Status: settled

*Jones Day, Cleveland, OH*

F. Drexel Feeling 216 586-7199

**Griffin v. Dell Canada** 06-CV-309738 CP  
Class action related to putative computer failures  
Role: expert for defendant Dell Canada; **expert declaration, deposition**  
Status: pending class certification hearing  
*Gowling Lafleur Henderson, Toronto*  
Malcolm Ruby 416 862-4314

**Hitachi Global Storage Technologies v. Samsung Electronics** 9:06-cv-276 RHC  
Patents related to hard disk design  
Role: expert for plaintiff HGST; **expert declaration for claim construction**  
Status: settled  
*McDermott, Will & Emery, Washington, DC*  
Michael Connelly 202 756-8037

## **2006 - 2007:**

**Pub Util Dist No. 1 of Snohomish Co, Washington v. Black & Veatch Construction**  
J A M S Arbitration no. 1160015776  
Contract dispute related to design and installation of hardware and software  
Role: **testimony** and **expert report** for respondent Black & Veatch  
Status: arbitration ruling issued  
*Husch & Eppenberger, Kansas City*  
Leonard Wagner 816 283-4634  
John Power 816 283-4651

**EchoStar v. TiVo**, 5:05-cv-81-DF-CMC  
Patents related to video stream storage  
Role: expert for plaintiff EchoStar  
Status: patent re-examination allowed; case is on hold  
*Morrison & Foerster, Palo Alto*  
Marc Pernick 650 813-5718

## **2005-2006:**

**Gateway v. HP**, 04-cv-0613-B  
Patent related to disk drive reserve area  
Role: expert for defendant Hewlett-Packard  
Status: settled; HP received \$47 million in cross-license agreement  
involving this patent and many others  
*DLA Piper Rudnick Gray Cary, Palo Alto*  
Brent Yamashita 650 833-2348

**LG Electronics v. FIC**, 2002 HC C No. 02150  
(European) patent on memory controller  
Role: expert for defendant FIC  
Status: **expert report & rebuttal report** completed  
*NautaDutilh N.V., Amsterdam, The Netherlands*  
Charles Gielen *Charles.Gielen@nautadutilh.com*  
Maaïke de Jong *Maaïke.deJong@nautadutilh.com*

**Chang v. SBC**, San Francisco Superior Unlimited Action No. CGC-04-434039  
Personal injury suit related to ASIC design engineering  
Role: testifying expert for plaintiff Chang, **deposition**  
Status: settled  
*Meisel & Krentsa, San Francisco,*  
Andrew Meisel 415 788-2035

**SEC matter regarding Quovadx, Inc.**, HO-9822  
Role: consultant related to software industry practice for beta test sites  
Status: **expert declaration** submitted as part of response to Wells Notice  
*Wilson, Sonsini, Goodrich & Rosati, Palo Alto*  
Jared Kopel 650 493-9300

**[individual v. a major PC manufacturer]**  
Potential class action suit related to alleged PC failures  
Role: consultant for defendant [name withheld]; testing of PC units  
Status: settled  
*Morgan Lewis & Bockius, Philadelphia*  
Barry McCoy 215 963-5896

**Measurement Computing v. National Instruments**, 03-10107REK (D. Mass)  
Patent related to industrial control computer systems  
Role: consultant for plaintiff Softwire  
Status: settled  
*Cesari & McKenna, Boston*  
Martin O'Donnell 617 951-3046  
Mike Reinemann 617 951-3060

**Micron v. Motorola**, A04-CA-007, A04-CA-390-LY  
Patent related to ATA interface  
Role: consultant for defendant Motorola  
Status: settled  
*Merchant & Gould, Atlanta & Minneapolis*  
George Jordan 404 954-5088  
Tom Strouse 612 336-4606

**Seagate Technology v. Atmel Corp.**, Santa Clara County Superior Court CV809883  
Product liability related to putative EEPROM chip failures in disk drives  
Role: expert for defendant Atmel; data-mining in failure analysis database; repair center visit  
Status: settled  
*Farella Braun + Martel, San Francisco, CA*  
Nan Joesten 415 954-4415  
Bob Holtzapple 415 954-4939

## **2003-2004:**

**F5 Networks v. Radware, Inc.**, C03-688P  
Patent related to web servers, cookies, http protocol, networking  
Role: neutral expert (technical advisor to Court)  
Status: settled after Markman hearing  
*U.S. District Court, Western District of Washington, Seattle*  
Hon. Marsha Pechman

**Matsushita Kotobuki Electronics v. Maxtor & Quantum, C03-05860 JF**

Patents and trade secrets related to hard disk manufacturing  
Role: expert for plaintiff MKE; factory visit to identify trade secrets  
Status: settled; plaintiff received cash and patent rights in settlement  
*Weil, Gotshal & Manges, New York* – Salvatore Romanello 212 310-8454  
*Dewey Ballantine, New York* – Allan Garcia 212 259-6196

**LG Electronics v. FIC et al., C01-01594 CW, C01-00326 CW**

Patents on memory controller and multiprocessor cache  
Role: testifying expert for defendants FIC and Asustek  
Status: **expert report & deposition** completed; favorable ruling on summary judgment  
*Squire, Sanders & Dempsey, Palo Alto*  
Ronald LeMieux 650 320-1821 (Paul, Hastings, Janofsky & Walker)  
Marc Sockol 650.632.4325 (Brown Raysman Millstein Felder & Steiner)

**LG Electronics v. FIC et al., C01-01375 CW**

Patents on memory controller and multiprocessor cache  
Role: testifying expert for defendant Compal  
Status: **expert report & deposition** completed; favorable ruling on summary judgment  
*Orrick, Herrington & Sutcliffe, Menlo Park*  
Kai Tseng 650 614-7688, Rowena Y. Young 650 614-7370

**Brookhaven Typeset Services v. Adobe C01-20813-RMW**

Alleged misappropriation of software trade secrets and copyright infringement  
Role: neutral expert (technical advisor to Court)  
Status: pending  
*U.S. District Court, Northern District of California, San Jose*  
Hon. Ronald Whyte

**Oak Technologies v. UMC, 97-20959 RMW, C 97-21126 RMW**

Patent on CD ROM controller chip  
Role: neutral expert (technical advisor to Court)  
Status: pending  
*U.S. District Court, Northern District of California, San Jose*  
Hon. Ronald Whyte

**2001:**

**Rambus v. Infineon**

Patents on memory bus  
Role: consultant, research prior art for defendant Infineon  
Status: completed before submission of expert report  
*Kirkland & Ellis, New York* 212 446-4800  
Maxine Y. Graham

**2000:**

**ITC Inv. No. 337-TA-428 "Certain Integrated Chipsets and Components Thereof"**

Patents on bus arbitration  
Role: consultant for respondents FIC and Everex  
Status: settled before submission of expert report  
*Finnegan, Henderson, Farabow, Garrett & Dunner, Washington, DC* 202 408-4000  
Steve Anzalone 202 408-4004

(no cases from 1989 to 1999)

**1988:**

**NEC v. Intel Corp**, C-84-20799-WPG

Alleged copyright infringement of on-chip microcode

Role: consultant, **extensive pre-trial preparation** for plaintiff NEC

Status: completed; NEC won on 3 of 4 points regarding copyright

*Skjerven, Morrill, McPherson, Franklin & Friel, Santa Clara, CA*

Alan McPherson

**1986:**

**Seattle Computer Products v. Microsoft**

King County Superior Court, State of Washington 86-2-02195-7

Contract dispute involving sale and licensing of DOS operating system

Role: testifying expert for plaintiff SCP; **deposition** and **trial testimony**

Status: settled during jury deliberation; plaintiff received settlement of \$925,000

*Bogle & Gates, Seattle, WA*

J. Peter Shapiro *J.P.Shapiro@comcast.net*

**1978:**

**Digital Equipment Corp v. Microcomputer Systems Corp**

Patents on peripheral controller bus

Role: **percipient witness** as inventor for plaintiff Digital, **deposition** and **trial testimony**

U.S. District Court, Northern District of California, San Francisco

*Cesari & McKenna, Boston*

Martin O'Donnell 617 951-3046

## **Additional Recent Consulting Engagements – John Levy, Ph.D.**

### **California State Automobile Association (AAA of Northern California)**

Consulting on business issues related to IT projects and Agile software development  
Mark Williams, Director, Market Capabilities - Sales & Market Development 415 565-2680

### **Aceurity, Inc.** (semiconductor design & marketing for high-definition video consumer devices)

Consulting on intellectual property, business partnerships, hard disk storage,  
general business issues; the company is seeking venture funding

Vijay Desai, CEO & CMO 510 673-7863

Pankaj Patel, CTO 408 888-3441

### **Reactrix Systems, Inc.** (designs and manufactures interactive video display systems)

Consultation on intellectual property strategy, evaluation of patent applications and  
competitive technology

Matthew Bell, Chief Scientist 650 400-6288

Peter Bardwick, CFO 650 980-2775

### **Pure Digital Technologies, Inc.** (designs and manufactures digital one-time-use cameras)

Evaluation of patent applications and search for further patentable inventions;

Consultation for VP-Engineering on product development process and engineering  
organization

John Furlan, VP-Engineering 650-888-9942

Andre Neumann-Loreck, VP-Operations 415 519-3954

### **Veritas Software Corporation**

Independent audit of a Cisco/IBM Storage Area Network software product, to determine  
compliance with a Cisco/Veritas contractual agreement

*Latham & Watkins, Chicago*

David Nelson 312 876-7700

### **Solidus Networks dba Pay By Touch**

Patent portfolio evaluation preparatory to an acquisition

Steve Zelinger (in-house counsel) 650 438-3434

# **Exhibit B**

## **JOHN LEVY, Ph.D.**

505 Mesa Road, Suite 1, P.O. Box 1419, Point Reyes Station, CA 94956  
415 663-1818 <http://johnlevyexpert.com> [info@johnlevyexpert.com](mailto:info@johnlevyexpert.com)

### **SUMMARY OF EXPERIENCE**

Dr. Levy is a technical leader in the computer, software and hard disk industry with over thirty years experience; his Ph.D. in Computer Science is from Stanford University.

His areas of expertise include:

Bus design – system bus - local area network – LAN – bus bridge  
Standards - ATA – ATAPI – IDE - 1394 FireWire I-Link - SCSI - Futurebus  
Computer design – CPU – multiprocessor – cache – memory controller  
Hard disk - storage networks – SAN – NAS  
Internet protocol – http – cookies  
Software - firmware - embedded systems  
Operating systems - file systems – input/output – I/O controller  
Simulation - performance - benchmark

He is an inventor on seven patents and has authored several published technical papers. He has been disclosed as an expert witness in over 30 cases, has testified in deposition and at trial. He has been a technical advisor to two Federal District Court judges.

### **PROFESSIONAL EXPERIENCE**

**1999 to Present John Levy Consulting**  
**& 1982 to 1992 Management Consultant**

Management of engineering of computers, software and storage devices.  
General business consulting for small firms, both for-profit and nonprofit.  
Expert witness in intellectual property and contract dispute cases.

**1993 to 1998**                      **Quantum Corporation**  
Director, Systems Engineering

Hired and managed an engineering organization of 27 people; Made Quantum a leader in hard disk interface technology - ATA/33, /66, SCSI-160M; Developed software/hardware tools for firmware & system validation; Led disk drive performance enhancements in caching, system performance modeling & simulation, Windows 98/NT software drivers.

**1979 to 1982**                      **Apple Computer, Inc.**  
Engineering Supervisor

Hardware & firmware development of local area network, Lisa development team; design of hardware/firmware interpreter for Pascal p-machine.



## JOHN LEVY, Ph.D.

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415 663-1818 <http://johnlevyexpert.com> [info@johnlevyexpert.com](mailto:info@johnlevyexpert.com)

**1977 to 1979**                    **Tandem Computer, Inc.**  
Senior Engineer

Advanced development of next-generation multi-processor systems;  
work on rollback-recovery in distributed databases.

**1972 to 1977**                    **Digital Equipment Corp.**  
Consulting Engineer

Development of computer hardware & operating system software; I/O subsystems  
development; bus design for high-speed I/O channels and for minicomputer  
systems.

### EDUCATION

Ph.D., Computer Science, Stanford University, 1973

M.S., Electrical Engineering, California Institute of Technology, 1966

B. Engineering Physics, Cornell University, 1965

**LITIGATION RELATED EXPERIENCE** – Please see separate summary

### PUBLICATIONS

"If Extreme Programming is Good Management, What Were We Doing Before?"  
*EDN Magazine*, November 13, 2003.

"Twelve Things to Ask Your Software Development Team,"  
*ComputerWorld Online*, September 22, 2003.

"A File Structure for Non-Erasable Media," with Wayne Wang,  
*Ninth IEEE Symposium on Mass Storage Systems*, pp. 72-76, 1988.  
[also published as "An Operating System-Independent WORM File System" in  
*Software for Optical Storage*, Meckler Corp., 1989, pp. 23-54]

"Small Image Retrieval System," with Wayne Wang,  
*Ricoh Technical Report No. 16*, pp. 93-95, 1987.

"Buses, the Backbone of Computer Structures," chapter 11 of  
*Computer Engineering*, ed. by Bell et al., Digital Press, 1978.

"Computing with Multiple Microprocessors," (Ph.D. Thesis)  
*Stanford Linear Accelerator Center Report No. 161*, 1973

## JOHN LEVY, Ph.D.

505 Mesa Road, Suite 1, P.O. Box 1419, Point Reyes Station, CA 94956  
415 663-1818 <http://johnlevyexpert.com> [info@johnlevyexpert.com](mailto:info@johnlevyexpert.com)

### U.S. PATENTS

<u>Patent Number</u>	<u>Year Issued</u>	<u>Title</u>
4,245,303	1981	Memory for Data Processing System with Command and Data Buffering
4,229,791	1980	Distributed Arbitration Circuitry for Data Processing System
4,232,366	1980	Bus for a Data Processing System with Overlapped Sequences
4,045,781	1977	Memory Module with Selectable Byte Addressing for Digital Data Processing System
4,007,448	1977	Drive for Connection to Multiple Controllers in a Digital Data Secondary Storage Facility
3,999,163	1976	Secondary Storage Facility for Data Processing Systems
3,911,400	1975	Drive Condition Detecting Circuit for Secondary Storage Facilities in Data Processing Systems

### PROFESSIONAL AFFILIATIONS & AWARDS

Association for Computing Machinery

Institute of Electrical and Electronics Engineers – Computer Society  
National Lecturer on bus design

Forensic Expert Witness Association

### UNIVERSITY-LEVEL TEACHING

#### University of San Francisco, Fromm Institute

2008 & 2006 The Digital Revolution in the Home  
2007 & 2005 Computers - the Inside Story  
2006 High Tech Business in the Era of Globalization

#### San Francisco State University

1980-81 Computer Input/Output Architecture, upper-division course

# **Exhibit C**

## **EXHIBIT C**

### **Items Considered by John Levy, PhD.**

#### **Patents:**

US 6,006,227

US 6,638,313

US 6,725,427

US 6,768,999

#### **File Histories:**

US 6,006,227 (MW-000001-251)

US 6,638,313 (MW-000252-419)

US 6,725,427 (MW-000420-552)

US 6,768,999 (MW-000553-667)

#### **Deposition Transcripts and Exhibits:**

Gelertner, David

Saloman, Gitta

Feiner, Steven

#### **Pleadings:**

Claim Construction Order dated February 17, 2010

#### **Expert Reports:**

Expert Report of Walter Bratic dated May 20, 2010 and references cited therein.

Expert Report of Steven K. Feiner, Ph.D. Re: Invalidity of U.S. Patent No. 6,006,227, U.S. Patent No. 6,638,313, U.S. Patent No. 6,725,427 and U.S. Patent No. 6,768,999 dated May 20, 2010 and references cited therein.