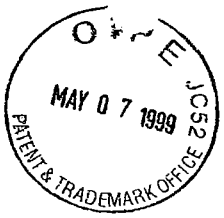

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : Eric FREEMAN and David H. GELERNTER

Serial No. : 08/673,255 Group Art Unit: 2771

Filed : June 28, 1996 Examiner: W. Amsbury

For : DOCUMENT STREAM OPERATING SYSTEM

1185 Avenue of the Americas
New York, New York 10036
May 3, 1999

Assistant Commissioner of Patents
Washington, D.C. 20231

AMENDMENT UNDER 37 C.F.R. §1.115
IN RESPONSE TO NOVEMBER 3, 1998 OFFICE ACTION

This Amendment is filed in response to a November 3, 1998 Office Action and a January 19, 1999 Interview concerning the present application. A response to the Office Action was due February 3, 1999. A three-month extension of time has been requested. Accordingly, a response to the Office Action is now due May 3, 1999. Accordingly, this Amendment is being timely filed.

IN THE CLAIMS

As indicated below, please amend claims 1, 8, 10, 12, 14, 15, 17, 21, and 23-27 by deleting the text in the square brackets "[]" and by inserting the underlined text.

The remaining claims are unchanged from the previous Amendment, but are included below to present all the pending claims in one document.

--1. (Three Times Amended) A computer system [for organizing] which organizes each data unit received by or generated by the computer system, comprising:

means for generating [one or more] a main stream of data [unit streams] units and at least one substream, the [data unit streams including a] main [data unit] stream for receiving each data unit received by or generated by the computer system, and each substream for containing data units only from the main stream;

C1

means for receiving [each data unit] data units from other computer systems;

means for generating data units by the computer system;

means for selecting a timestamp to identify each data unit;

means for associating each data unit with at least one chronological indicator having the respective timestamp;

means for [linking] including each data unit according to the timestamp in the respective chronological indicator [so as to include each data unit] in [at least] the main [data unit] stream; and

means for [storing each data unit stream according to the chronological indicators] maintaining the main stream and the substreams as persistent streams.--

--2. (Unchanged) The computer system of claim 1, wherein each timestamp is selected from the group consisting of: past, present, and future times.--

N.E.

--4. (Unchanged) The computer system of claim 1, wherein each data unit includes textual data, video data, audio data and/or multimedia data.--

--6. (Unchanged) The computer system of claim 1, wherein the means for receiving further comprises means for receiving data units from the World Wide Web.--

N.E.

--7. (Unchanged) The computer system of claim 1, wherein said means for receiving further comprises means for receiving data units from a client computer.--

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15 --8. (Three Times Amended) A method [for organizing] which organizes each data unit received by or generated by a computer system, comprising the steps of:

C2

generating [one or more] a main stream of data [unit streams] units and at least one substream, the [data unit streams including a] main [data unit] stream for receiving each data unit received by or generated by the computer system, and each substream for containing data units only from the main stream;

receiving [each data unit] data units from other computer systems;

generating data units in the computer system;

selecting a timestamp to identify each data unit;

associating each data unit with at least one chronological indicator having the respective timestamp;

[linking] including each data unit according to the timestamp in the respective chronological indicator [so as to include each data unit] in at least the main [data unit] stream; and

[storing each data unit stream according to the chronological indicators] maintaining at least the main stream and the substreams as persistent streams.--

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N.E. --9. (Unchanged) The method of claim 8, wherein each timestamp

is selected from the group consisting of: past, present, and future times.--

C3

--~~10~~ 15. (Twice Amended) The method of claim ~~8~~ 13, further comprising the step of displaying the [data unit] streams on a display device as visual streams.--

N.E.

--11. (Unchanged) The method of claim 8, wherein each data unit includes textual data, video data, audio data and/or multimedia data.--

C4

--~~12~~ 16. (Three Times Amended) The method of claim ~~10~~ 15, wherein the step of displaying the [data unit] streams further comprises the steps of:

a) receiving from a user one or more indications of one or more selected segments of the [data unit] streams corresponding to one or more selected intervals of time, and

b) displaying the selected segments.--

C5

~~22~~ 23~~14~~. (Twice Amended) A computer system for organizing each data unit received by or generated by the computer system, comprising:

means for generating [more than one data unit] a main stream of data units and at least one substream, the main stream for receiving each data unit received by or generated by the computer system, and each substream for containing data units only from the main stream; means for associating each data unit with at least one chronological indicator having a respective timestamp which identifies the data unit; means for [chronologically linking] including each data unit [to other data units] according to the timestamp in a respective chronological indicator in the main stream; means for [storing each data unit

stream according to the chronological indicators] maintaining the main stream and substreams as persistent streams;

means for generating a data unit having indicia to allow access to a first [data unit] stream from a second [data unit] stream;

means for including the data unit having the indicia in the second [data unit] stream; and

C5 Concl.

means for providing access to the first [data unit] stream from the second [data unit] stream in accordance with the indicia.--

24 23

--15. (Twice Amended) A computer system according to claim 14 further comprising:

means for providing limited access to the first [data unit] stream from the second [data unit] stream by generating a data unit indicating access privileges to the first [data unit] stream.--

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--16. (Unchanged) The computer system according to claim 1, further comprising:

N.E.

means for displaying alternative versions of the content of the data units.--

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7

--17. (Twice Amended) A computer system according to claim 1 further comprising:

C6

means for summarizing the contents of data units in [a data unit stream] one of the streams to generate one or more overview data units and for including the overview data unit in one of the streams.--

9

--18. (Twice Amended) A computer system according to claim 1

further comprising:

means for archiving a data unit associated with a [chronological indicator] timestamp older than a specified time point while retaining the respective chronological indicator and/or a data unit having a respective alternative version of the content of the archived data unit.--

--~~10~~ 8. (Twice Amended) A computer system according to claim ~~11~~ 7, wherein the means for summarizing further comprises means for continuously updating the overview data units to include changes in the contents of data units in the [data unit] stream being summarized.--

C/D cond.

--~~20~~ 18. (Twice Amended) The method of claim ~~8~~ 13, further comprising the step of:

providing access to a first [data unit] stream from a second [data unit] stream by generating a data unit indicating the first [data unit] stream.--

--~~21~~ 19. (Twice Amended) The method of claim ~~8~~ 13, further comprising the steps of:

selecting access privileges to provide to a first [data unit] stream from a second [data unit] stream; and

providing access to the first [data unit] stream from the second [data unit] stream according to the access privileges.--

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--22. (Unchanged) The method of claim 8, further comprising the step of:

N.E.

displaying data from one of the data units in abbreviated form.--

C7

--~~23~~ 21. (Twice Amended) The method of claim ~~8~~ 13 further comprising the step of:

summarizing the contents of data units in a [data unit] stream to generate one or more overview data units and including the overview data unit in one of the streams.--

C8

--~~24~~ 22. (Amended) The method of claim ~~8~~ 13 further comprising the step of:

archiving data units having [chronological indicators] timestamps older than a specified time point.--

C9

--~~25~~ 10. (Amended) The computer system of claim 1, wherein the computer program further comprises:

means for operating on any of the streams using a [one] set of operations [for operating on all data units regardless of the type of timestamp in the respective chronological indicator, the type of timestamp selected from the group consisting of past, present, and future times] selected by a user.--

--~~26~~ 11. (Amended) The computer system of claim 1 further comprising:

means to generate [additional data unit streams] substreams from existing [data unit streams] substreams.--

--~~27~~ 25. (Amended) A computer system for organizing each data unit received by or generated by the computer system, comprising:

means for generating [at least one data unit] a main stream of data units and at least one substream, the main stream for receiving each data unit received by or generated by the computer system, and each substream for containing data units only from the main stream; means for associating each data unit with at

least one chronological indicator having a respective timestamp which identifies the [respective] data unit; means for [chronologically linking] including each data unit [to other data units] according to the timestamp in a respective chronological indicator in the main stream; means for [storing each data unit stream according to the chronological indicators] maintaining the main stream and the substreams as a persistent streams;

C9 cond.

means for representing one or more data units of a selected [data unit] stream on a display device as document representations, each document representation including the timestamp of the respective data unit and the order of appearance of each data representation on the display device determined by the timestamp of the respective data unit;

means for selecting which data units are represented on the display device by selecting one of the document representations and displaying document representations corresponding to data units having timestamps within a range of a timepoint; and

means for selecting one or more of the document representations with a pointing device so that the data units represented by the selected document representations are further displayed with a second document representation comprising an alternative version of the content of the respective data unit.--

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--28. (Unchanged) A computer system as in claim 27, wherein the document representations form a visual stream having a three-dimensional effect.--

N.E.

--29. (Unchanged) A computer system as in claim 27, wherein each document representation comprises a polygon and the polygons overlap to form a visual stream of polygons.--

--30. (Unchanged) A computer system as in claim 28, wherein the three-dimensional effect further comprises a perspective view.--

--31. (Unchanged) A computer system as in claim 27, wherein the alternative version is an abbreviated version.-

--32. (Unchanged) A computer system as in claim 27, wherein the alternative version is a caption version.-

N.E.

--33. (Unchanged) A computer system as in claim 27, wherein the alternative version is an expanded version.-

--34. (Unchanged) A computer system as in claim 27, further comprising:

means for selecting one or more alternative versions of the content of a respective data unit to display another alternative version of the content of the data unit.--

--35. (Unchanged) A computer system as in claim 1, further comprising:

means for generating a data unit comprising an alternative version of the content of another data unit; and

means for associating the alternative version data unit with the chronological indicator of the another data unit.--

--36. (Unchanged) A computer system as in claim 27, further comprising:

means for updating the display device to provide a document representation for data units associated with chronological indicators having timestamps which become the present time.--

REMARKS

Claims 1-2, 4, 6-12, and 14-36 were pending in this application. Claims 1, 8, 10, 12, 14, 15, 17-21 and 23-27 have been amended by this Amendment. Accordingly, claims 1-2, 4, 6-12, and 14-36 are presently being examined.

These Remarks are divided into three sections: (1) a discussion of amendments to the claims and definitions which address concerns raised in a telephonic Interview with the Examiner; (2) a general discussion of how the amended claims distinguish over the cited art; and (3) a specific discussion addressing each rejection in the Office Action.

A. Interview Discussion

Applicants wish to thank the Examiner for extending the courtesy of a telephonic Interview on January 19, 1999. During the Interview, the Examiner expressed concern about the breadth of coverage of the claims because of inherent ambiguity in the claim language. Applicants agreed to amend the claims to address these concerns as stated in the January 19, 1999 Interview Summary prepared by the Examiner: "[i]t was agreed that Applicants would refine the claim language in the direction of addressing that stream of documents (in the broadest sense) that are of significance to the user and which thus determine the events of direct user interest in the timeline of a computing system, without regard to whether their generation is external or internal."

Primarily, among other amendments discussed more fully below, applicants have amended the claims to recite the stream of documents (data units) of significance to the user (in the broadest sense) by reciting that "each data unit received by or

generated by the computer system" is received by the "main stream". In other words, all the data units, without regard to whether a data unit was generated internally or externally, are of significance to the user. Furthermore, the amended claims now explicitly recite "substreams" (which were formerly recited only in claim 26). Substreams contain "data units only from the main stream". Accordingly, substreams allow a user to determine the events of direct user interest from the stream of data units of significance to the user (main stream).

Also, to clarify key terms in the amended claims which were also discussed during the interview, definitions based on the present specification are provided below.

(1) A "data unit" is a 'document' because a "document can contain any type of data", see page 11, lines 20-22 of the present specification.

(2) A "stream" is a time-ordered sequence of documents (data units) that functions as a virtual object (diary), see page 11, lines 11-12 of the present specification. A stream can be persistent, that is, dynamically updated by the addition of new data units, see page 13, lines 19-22 of the present specification.

(3) A "main stream" is a type of stream which receives every data unit received by (external) or generated by (internal) the computer system, see page 11, lines 13-15 of the present specification.

(4) A "substream" is a type of stream having one or more data units only from the main stream, see page 14, lines 7-10 of the present specification.

(5) A "timestamp" is a date/time used to uniquely identify each data unit, see page 12, lines 6-7 and page 20, lines 14-20 of the present specification. Note: a counter which overflows

periodically can not be a timestamp, since the timestamp would then not uniquely identify a data unit.

Thus, applicants have amended the claims and indicated where in the specification key terms are defined to more clearly express the breadth of the subject matter of the present invention and to remove any ambiguities.

B. General Discussion

In this Amendment, each of the following documents are referred to by the short form provided in the parenthesis following the full title of the document:

(1) "The Cyber-Road Not Taken" by David Gelernter from The Washington Post dated April 3, 1994 ("Gelernter Article");

(2) U.S. Patent No. 5,530,859 to Tobias, II et al. ("Tobias");

(3) "Getting Results with Microsoft Outlook 97", pp. 28-29 ("Outlook");

(4) U.S. Patent No. 5,297,032 to Trojan et al. ("Trojan"); and

(5) Robert Cowart, "Mastering Windows™ 3.1 Special Edition", Chapter 12, pp. 398-417 (1993) ("Cowart").

Applicants note that the paradigm set forth in the Gelernter Article briefly describes a new way to organize computer documents (data units). This paradigm shifts away from conventional computer document organization schemes, such as provided by Windows 95, by presenting a virtual object called a "lifestream". Indeed, the Gelernter Article teaches away from being combined with "files" of a conventional computer system. This lifestream, according to the Gelernter Article, archives (stores) documents received by a user in a chronological order and allows a user to graphically access and display the

documents.

While the paradigm described in the Gelernter Article is useful, the present invention, as recited in the amended claims, presents new and unobvious innovations for the paradigm which do not exist in the cited art; particularly because the other references (Outlook, Tobias, Trojan, and Cowart) cited by the Office Action do not teach or suggest any relationship to the streams of the paradigm. That the other references are not related to streams is shown by how the alleged similar timelines and buffers are treated in those systems. For example, none of the cited references provide for the buffer or timeline to be manipulated as a virtual object, for example, to be copied as a stream into another stream or to be summarized. Thus, applicants submit that the streams, as recited in the amended claims, are not merely buffers or timelines but include additional properties described in the specification and recited in the amended claims. Accordingly, applicants respectfully submit that the lack of any teaching or suggestion to treat the buffers or timelines of the cited art as virtual objects show that one of skill in the art would not be led to combine the teachings of the Gelernter Article with any of the cited references.

Furthermore, all the pending claims recite a property of the present invention which is not present in any of the cited art, including the Gelernter Article, that is, substreams containing data units only from the main stream. Such substreams take advantage the useful aspect of the lifestream of the Gelernter Article (a primary archival system) while also providing additional virtual objects, that is substreams, which provide additional capabilities for organizing data units.

As discussed above, the only cited reference which contains a main stream is the Gelernter Article. However, the Gelernter

Article lacks the substreams recited in the amended claims. Indeed, the Gelernter Article teaches away from substreams because the Gelernter Article emphasizes the simplicity of a single stream, "[y]our lifestream captures your whole life...", see page 4, paragraph 3 of the Gelernter Article.

Although the Gelernter Article allows a user to "view [the lifestream] selectively" (emphasis added), see page 4 in paragraph 3 of the Gelernter Article, one of skill in the art is taught to generate the viewed portion as a simple list lacking the dynamic properties of a substream (for example, having new data units added) because to generate additional 'persistent streams', runs afoul of allowing a user to spend "no time whatsoever organizing", see page 4, paragraph 2 of the Gelernter Article.

In contrast to the Gelernter Article, Outlook teaches multiple timelines of segregated data lists. Even if, arguendo, the timelines could be construed to be multiple main streams, Outlook does not provide any teaching or suggestion of substreams, which, as recited in the amended claims, contain data units only from the main stream. Indeed, one of skill in the art is taught by Outlook to use the multiple streams to segregate the data units as received by the computer program according to the particular application, such as E-mail or phone calls. Thus, each timeline does not include data units found in other timelines. In contrast, the amended claims specifically recite that the substreams contain data units only from the main stream. Thus, even if one were to combine the teachings of Outlook with the Gelernter Article to obtain multiple streams, the multiple streams would not include substreams.

Tobias does not teach or suggest either main streams or substreams as recited in the amended claims of the present

invention. Instead, Tobias teaches a timeline which does not include every object (data unit) generated by or received by the computer system, see for example, column 18 in lines 10-21 of Tobias where clock objects are placed in the timeline and a particular graphic object/sequence may or may not become associated with a clock object. Because a graphic object which is not associated with a clock object is not in the timeline, the timeline of Tobias does not function as a "main stream" as recited in the amended claims. Also, Tobias lacks any teaching or suggestion of substreams. For example, 'sub'-timelines which include clock objects only found on a 'main' timeline are wholly absent from Tobias. Therefore, because neither the Gelernter Article nor Outlook teach or suggest substreams, combining Tobias with this cited art fails to teach or suggest the substreams of the present invention as recited in the amended claims.

Trojan also does not have substreams. Instead, Trojan provides a buffer for sending low-level communication data packets of the same type between computers on a network. While Trojan does have more than one buffer within the computer network, Trojan fails to teach or suggest 'sub'-buffers containing data packets only found in a 'main' buffer. Therefore, even in the unlikely event that one of skill in the art would look to the low-level buffer of Trojan for a teaching or suggestion of how to implement substreams, Trojan fails to provide any such teaching. Thus, even if, arguendo, one were to combine Trojan with the Gelernter Article, Outlook, and/or Tobias, one of skill in the art could find no teaching or suggestion of substreams as recited in the amended claims.

Cowart teaches display of data units in overlapping windows. However, Cowart does not teach or suggest using such windows to display document representations of main streams or substreams.

Indeed, the overlapping windows of Cowart are part of an alphabetic, not a time-oriented, list, see page 406 of Cowart. Even if one were to combine the other cited art with Cowart despite any teaching or suggestion to do so, one of skill in the art would provide displays of separate, independent timelines instead of displays of a main stream and substreams as recited in the amended claims.

While not explicitly cited in the Office Action, applicants submit that the present invention as recited in the amended claims is both novel and unobvious over conventional electronic mail (E-mail) and/or calendar applications. A conventional E-mail application receives electronic messages from other computer systems and places these electronic messages in the order in which the electronic messages are received in a primary queue. After the user retrieves the messages using the E-mail application, the messages can be deleted, retained in the queue, or removed from the queue for storage elsewhere in the computer system, for example, into separate text files. In contrast, the present invention as recited in the amended claims does not permit data units to be removed from the main stream and still remain in the computer system because, as recited in the amended claims, a data unit of the computer system must be included in the main stream. The requirement that a data unit be in the main stream, as recited in the amended claims, results from the inherent structure of the main stream as the storage backbone of the present invention. The separate text files of a conventional E-mail system, as described above, do not operate like data units recited in the amended claims at least because the purpose of a separate text file is to save the message, but without leaving the message in the primary queue of the E-mail application. Substreams, in contrast, allow a user to determine the data units

of direct interest while also maintaining the data unit in the main stream of the computer system.

A conventional calendar application allows a user to generate historical or reminder messages, and to associate these messages with specific dates and/or times into a timeline. Conventional calendar applications are even more limited than the Outlook timeline at least because such calendar systems do not receive data units generated from other computer systems as recited in the amended claims, and like Outlook, lack any teaching or suggestion of substreams containing data units only from the main stream.

Applicants also note that the use of timestamps of the application-independent data units in the present invention allows for each data unit to be treated as an event itself without having to be separately declared as an event to the computer system. For example, if a user wishes to send an E-mail message data unit at 12:01 pm on July 4, 1999 according to the present invention, the user need only generate a timestamp for the chronological indicator of a data unit with that time and date and the data unit will be placed at that time and date on the main stream. In contrast, an E-mail queue lacks this 'future' capability, since new mail is always placed at the present timepoint. Also, while a calendar computer system can set 'appointments' for future dates, such appointments are only for use by the calendar computer system. In contrast, the timestamp of the present invention allows for a data unit which is not an E-mail message or a calendar 'appointment', to be treated as an event such that the data unit will appear on at least the main stream at the time and date of its timestamp.

In addition, both the queue of a conventional E-mail application and the timeline of a conventional calendar

application can not receive each data unit received by or generated by the computer system. For example, if a data unit is not a proper E-mail message or calendar entry, such as a bit-mapped graphic having only graphic information without any E-mail message/calendar indicia, the application will reject the data unit. In contrast, the main stream of the present invention as recited in the amended claims receives and includes each data unit received by the computer system and provides, if necessary, a chronological indicator and timestamp to allow the data unit to be identified and included in the main stream. In contrast, even if an E-mail or calendar application deletes or stores a data unit of an unknown format elsewhere, such a data unit is not placed in the primary queue or timeline. Thus, for at least this reason, a conventional E-mail and/or calendar system teaches away from the present invention as recited in the amended claims.

Therefore, applicants submit that a conventional E-mail application, a conventional calendar application, and the cited art, taken alone or in combination, fail to teach or suggest at least the main stream and substreams recited in the amended claims.

C. Specific Discussion

Applicants have amended claims 1, 8, 10, 12, 14, 15, 17-21, and 23-27 to incorporate the clarifications discussed above. Specifically, amended independent claims 1, 8, 14 and 27 recite that: (1) the computer system organizes data units received or generated by the computer system; (2) means for generating provide a main stream for receiving each data unit and at least one substream; (3) the substreams containing data units only from the main stream; and (4) the main stream and the user streams are persistent. Additionally, the claims have been amended to refer to streams of, including, or containing, data units rather than

"data unit streams" to more clearly recite the composition of the main stream and substreams.

Support for amendment (1) of the independent claims can be found, inter alia, on page 11 in lines 13-14 of the present specification.

Support for amendment (2) of the independent claims can be found, inter alia, on page 11 in lines 13-14 and on page 13 in lines 8-13 of the present specification.

Support for amendment (3) of the independent claims can be found, inter alia, on page 13 in lines 8-13 of the present specification.

Support for amendment (4) of the independent claims can be found, inter alia, on page 13 in lines 19-22 of the present specification.

Claims 10, 12, 15, 17-21, and 23-26 have been amended to conform to the modifications of claims 1, 8, and 14. Further, claims 17 and 23 also have been amended to recite that the overview data units are included in the main stream and substreams. Support for this amendment can be found, inter alia, on page 14 in lines 12-24 of the present specification. Claims 1, 14, 18, 24 and 27 also have been amended to more clearly refer to the timestamp in the chronological indicator as recited in claim 8. Support for this amendment can be found, inter alia, on page 12 in lines 13-23 of the present specification. In addition, claim 25 has been amended to recite that the operations on the data units are selected by a user. Support for this amendment can be found, inter alia, on page 12 in lines 11-23 of the present specification.

Section 2 of the Office Action rejects claims 1-2, 6-10, 12, and 14-36 under 35 U.S.C. §112, second paragraph, as being indefinite. According to the Office Action, "each data unit" is

intended by the specification to have "predetermined attributes" for particular applications, but that in the claims, the data units are interpreted as "each data unit received" by a stream.

Applicants hereinabove have amended all the independent claims, and therefore implicitly, all the other claims, to more clearly recite that the data units are both received by or generated by the computer system, see for example, the calling cards (access data units) and browse cards (overview data units) discussed in present specification from page 21, line 22 to page 23, line 19, and on page 14 in lines 12-24.

Further, the data units, as recited, are not required to have "predetermined attributes" for particular applications. Instead, as stated on page 11 in lines 11-22 of the present specification, a data unit "can contain any type of data" related to "an entity's electronic life." Thus, applicants respectfully submit that the term "data unit" as recited in the amended claims is consistent with the present specification, that is, each unit is received by or generated by the computer system and thus, is not indefinite.

In view of the amendments and the remarks above, applicants respectfully request that the rejection of claims 1-2, 6-10, 12, and 14-36 as being indefinite with respect to "data units" be reconsidered and withdrawn.

Section 3 of the Office Action rejects claims 1-2, 4, 6-12, and 14-36 under 35 U.S.C. §112, second paragraph, as being indefinite. According to the Office Action, the recitation of timestamps as "past, present and future" in at least claims 2 and 12 is ambiguous, since past, present and future are categories implying separate storage for the three categories. However, the Office Action notes that the claims recite a computer system having only one stream which would have to include all three

categories.

Applicants respectfully submit that the past, present, and future timestamps are not categories, but, as recited in the amended claims, are indications of the three possible types of time. The amended claims do not mean separate categories for storage, but were provided in at least claims 2 and 9 to explicitly distinguish over present-to-past archive systems that do not provide for the future. Indeed, the present specification specifically refers to streams having "three main portions: past, present and future", see page 15 at line 18 of the present specification. Thus, as stated in the specification, the past, present, and future timestamps are not storage categories, but refer to types of timestamps that are found in a stream.

In view of these remarks and the general remarks above, applicants respectfully request that the rejection of claims 1-2, 4, 6-10, 12, and 14-36 as being indefinite with respect to "past, present, and future" be reconsidered and withdrawn.

Section 4 of the Office Action generally comments on the arguments of the previous Amendment noting the ambiguities discussed in Sections 2 and 3 of the Office Action and also states that by tagging the data units in chronological order provides for storage by "implicit or explicit linking", and that any other type of storage for data units so tagged would require "proactive intervention".

Applicants have already addressed the ambiguities with respect to Sections 2 and 3. Because, as noted above, neither the specification nor the claims recite or discuss the present invention as organizing the data units in any order other than chronological order, applicants respectfully submit that the comments in Section 4 of the Office Action relating to "proactive intervention" for alternative tagging are moot.

Section 5 of the Office Action maintains the previous rejection of claims 1-2, 4, and 8-11 under 35 U.S.C. 102(b) as being clearly anticipated by the Gelernter Article. According to the Office Action, applicants fail to appreciate the breadth of the claims as noted in Sections 2-4 of the Office Action, which reads on the Gelernter Article. The Office Action states that the Gelernter Article provides a "stream of data of interest" to the user and means to display such a stream. Also, the Office Action notes that the argument that the inventor did not intend to include future events is "not tenable".

Applicants hereinabove have amended claims 1, 8, 14 and 27 to recite "substreams"; the substreams containing data units only from the main stream. As discussed above in the General Discussion, although the Gelernter Article teaches a stream of data units, the Gelernter Article also teaches away from having substreams because substreams which, unlike a listing, are persistent, complicate the computer system and therefore require time for "organizing one's life". Thus, the Gelernter Article neither teaches nor suggests to one of skill in the art to include substreams as recited in the amended claims.

In addition, with respect to claims 2 and 9, the inventor, David Gelernter stated during the Interview, that he conceived an "archive" (present-to-past) system at the time of the Gelernter Article, and was not considering future events. Dr. Gelernter is willing to provide an Affidavit to this effect if such an Affidavit would be helpful.

In view of the amendments and the remarks above, applicants respectfully request that the rejection of claims 1-2, 4, and 8-11 as being anticipated by the Gelernter Article be reconsidered and withdrawn.

Section 6 of the Office Action maintains the previous

rejection of claims 6-7, 12, 16-19, and 22-24 under 35 U.S.C. 103(a) as being unpatentable over the Gelernter Article. According to the Office Action, sections 2-4 of the Office Action demonstrate how these claims are unpatentable over the Gelernter Article.

As noted above with respect to Section 5 of the Office Action, applicants hereinabove have amended claims 1, 8, 14 and 27 to recite that "substreams" containing data units only from the main stream are generated by the computer system of the present invention, which is taught away from by the Gelernter Article.

Since each of the claims rejected in Section 6 is dependent on one of these independent claims, each of these claims is not unpatentable for at least the reasons discussed above with respect to Section 5.

In view of the amendments to the claims and the remarks above, applicants respectfully request that the rejection of claims 6-7, 12, 16-19, and 22-24 as unpatentable over the Gelernter Article be reconsidered and withdrawn.

Section 7 of the Office Action rejects claims 1-2, 4, and 8-12 under 35 U.S.C. 102(a,e) as being anticipated by, and claims 6-7, 16-19, and 22-24 under 103(a) as being unpatentable over, Tobias.

The Office Action states that the rejection made in the previous Office Action is maintained and refers to sections 2-4 of the Office Action. In particular, the Office Action states that Tobias has a timestamp as found in the amended claims.

Applicants have amended all the independent claims 1, 8, 14 and 27, and therefore implicitly, all the claims, to more clearly recite subject matter of the present invention by reciting that the main stream includes each data unit. In Tobias, in contrast,

data units can be placed in none, one, or more timelines. Thus, the amended claims are not anticipated by or obvious over Tobias for at least this reason.

More specifically, applicants note that only the special clock data structures of Tobias are placed on a timeline. Other data units must be associated with the clock data structures to be activated as an event at a particular time. In contrast, the independent claims of the present invention recite that each data unit has a timestamp placed in its chronological indicator and that each data unit is placed in the main stream. Thus, instead of a timeline composed solely of special data structures having timestamps, every data unit of the present invention is related to a timestamp in a chronological indicator. Accordingly, if one of skill in the art were to use the suggestions and teachings of Tobias, one would only assign timestamps to those data units which need to be assigned a time for some purpose. The present invention, in contrast, assigns a timestamp to each data unit at least for identification purposes, thereby permitting each data unit to be treated as an event without having to be associated with a special clock data structure.

Further, as set forth in the General Discussion, Tobias also fails to teach or suggest substreams having data units only from a main stream as recited in the amended claims.

In view of the amendments and remarks above, applicants respectfully request that the rejection of claims 1-2, 4, 8-12 as being anticipated by, and claims 6-7, 16-19, and 22-24 as being unpatentable over, Tobias be reconsidered and withdrawn.

Section 8 of the Office Action rejects claims 1-2 and 6-10 under 35 U.S.C. 102(a) as being anticipated by, and claims 4, 9, 11-12, 16-19, and 22-24 under U.S.C. 103(a) as being unpatentable over, Outlook.

The Office Action states that the rejection made in the previous Office Action is maintained and refers to sections 2-4 of the Office Action. The Office Action also states that an explicit timestamp must be present because a user can locate a document according to the time the user last worked on the document. Also, the office Action notes that the Journal of Outlook is a "data stream of varying items and is organized by time."

Applicants hereinabove have amended all the independent claims 1, 8, 14 and 27, and thus, implicitly all the claims, to more clearly recite substreams including data units only from the main stream. As discussed in the general remarks above, Outlook does not have substreams which contain data units only from the main stream. Instead, Outlook teaches away from such inclusion by segregating the particular data units (which Outlook chooses to accept) into categories, such as E-mail, phone calls, etcetera. In contrast, the present invention as recited in the amended claims does not permit any segregation from the main stream, but instead requires each data unit to be present at least on the main stream.

Further, Outlook does not have a default timeline for receiving any otherwise uncategorized data units. For example, in the present invention, a word processing document, an E-mail message, and a computer game are all placed in the main stream chronologically. In contrast, Outlook has no provision for placing data units in a default timeline. For example, Outlook pre-sorts received data units into categories, such as E-mail or letters before any chronological linkage. While Outlook may have a single input buffer for receiving data units, such an input buffer is not a main stream, as recited in the amended claims, at least because Outlook does not provide a means for including

the data unit in the input buffer while also placing the data unit in a timeline category. In addition, with respect to amended claims 16-17, 19, and 22-23, Outlook provides no mechanism for displaying or summarizing the data units in such an input buffer.

In view of the remarks above, applicants respectfully request that rejection of claims 1-2, and 6-10 as anticipated by, and claims 4, 9, 11-12, 16-19 and 22-24 as unpatentable over, Outlook be reconsidered and withdrawn.

Sections 9, 10, and 11 of the Office Action reject claims 14-15 and 20-21 under U.S.C. 103(a) as being unpatentable over the Gelernter Article, Tobias, or Outlook, in view of Trojan.

The Office Action maintains the rejection in the previous Office Actions and refers to sections 2-4 of the Office Action.

As discussed above with respect to amended claims 1, 8, and 27, Applicants have amended claim 14 to recite substreams having data units only from the main stream. Trojan, like the Gelernter Article, Tobias and Outlook fails to teach or suggest such substreams. Thus, for at least this reason, amended claims 14-15 and 20-21 are not unpatentable over the Gelernter Article, Tobias, or Outlook in view of Trojan.

Also, as particularly recited in amended claim 14, while Trojan describes a 'channel' in terms of a particular form of data, that is, NASD data, Trojan does not teach or suggest that these buffers are used to pass or create non-NASD data, such as pointers to such buffers. At best, such an ability for buffer referencing is speculative. None of the cited art, including Trojan, discuss a stream which can contain data units that refer to other streams. For example, while Outlook can display multiple chronological lists of data units, none of the lists contain a pointer (calling card) to another of the lists. Thus, for example, clicking on an icon in Outlook's E-mail list will

not retrieve another E-mail list. Similarly, the Gelernter Article and Tobias also fail to discuss such functionality.

In view of the amendments and remarks above, applicants respectfully request that the rejections of claims 14-15, and 20-21 as being unpatentable over the Gelernter Article, Tobias or Outlook, in view of Trojan, be reconsidered and withdrawn.

Section 12 of the Office Action rejects claims 25-27 and 33 under 35 U.S.C. 102(a) as being anticipated by Outlook.

The Office Action states that there is a correspondence between the elements of the claims and the teachings of Outlook. With respect to claim 25, the Office Action states that the Outlook operations are not restricted by the type of timestamp. With respect to claim 26, the Office Action states that Outlook allows for the generation of streams for specific purposes, such as E-mail. With respect to claim 33, the Office Action states that a message in a conventional E-mail system can be expanded. With respect to claim 27, the Office Action states, in part, that:

"...Outlook clearly allows for separation of the input stream into multiple streams. It [is] standard practice to attach timestamps to faxes and E-mail at the least, and to sort E-mail by timestamp. In view of the need to allow for an arbitrary number of such items, fixed storage structures are inappropriate, and the linking together of such entries according to the chronological order is explicit at some level of embodiment."

Applicants hereinabove have amended claim 26, to specifically recite that substreams can be generated from existing substreams. Outlook fails to teach or suggest such substreams. Thus, for at least this reason, amended claim 26 is neither anticipated nor unpatentable over Outlook.

Applicants hereinabove have amended claim 27 to recite that that substreams include data units from only the main stream. As discussed above with respect to Section 8 of the Office Action, applicants respectfully submit that even if Outlook has an input buffer for receiving each data unit, such a buffer is not a "stream" as recited in amended claim 27. For example, Outlook provides no means for displaying the input buffer. In contrast, the main stream of the present invention is displayed, see Fig. 1 of the present specification. Thus, for at least these reasons, amended claim 27 is not anticipated by Outlook.

With respect to amended claims 25 and 33, because a claim which depends on another claim is subject to all the limitations of that other claim, amended claims 25 and 33 which are dependent on amended claims 1 and 27, respectively, are not anticipated by Outlook for at least the same reasons discussed above with respect to amended claims 1 and 27.

In view of the remarks above and the amendments to claims 25-27, and 33, applicants respectfully request that the rejections of claims 25-27 and 33 as being anticipated by Outlook be reconsidered and withdrawn.

Section 13 of the Office Action rejects claims 31-32 and 34-36 under 35 U.S.C. 103(a) as being unpatentable over Outlook.

The Office Action states that there is a correspondence between the elements of the claims and the teachings of Outlook. With respect to claims 31-32, the Office Action states that, while not shown in Outlook, display and/or embedding of abbreviated (captioned) versions of documents with icons or captions, which are used to obtain expanded versions is known in the art.

Applicants hereinabove have amended claims 1 and 27 to recite that the substreams of the present invention include data

units only from the main stream.

Since claims 31-32, and 34-36 depend on claims 1 or 27, and because a claim which depends on another claim is subject to all the limitations of that other claim, applicants respectfully submit that claims 31-32, and 34-36 are not unpatentable over Outlook for at least the reasons discussed above with respect to claims 1 and 27.

With respect to claim 36, however, applicants also submit that one of skill in the art would not place a future data unit, that is, a data unit with a timestamp newer than the current time in the main stream of data units absent the teaching of the present invention. For example, while a new E-mail message "pops" into the display of an E-mail system when received at the present time, neither Outlook nor any of the cited art, provides a means for placing the future E-mail into a stream in advance of the present time. Although Outlook allows for placement of future appointments in an appointment list, this appointment list will not cause the new appointment to "pop" into the present time of a main stream as taught by the present invention.

In view of the remarks above and the amendments to claims 31-32, and 34-36, applicants respectfully request that the rejections of claims 31-32, and 34-36 as being unpatentable over Outlook be reconsidered and withdrawn.

Section 14 of the Office Action rejects claims 28-30 under 35 U.S.C. 103(a) as being unpatentable over Outlook in view of Cowart.

The Office Action states that there is a correspondence between the elements of the claims and the teachings of Outlook in view of Cowart. The Office Action states that the display of documents in a "perspective representations" is well known in the art and that it would have been obvious to one of skill in the

art to combine Cowart with the data stream of Outlook.

Applicants hereinabove have amended claim 27, upon which claims 28-30 depend, to recite that substreams of the present invention include data units from only the main stream.

Since claims 28-30 depend on claim 27, and because a claim which depends on another claim is subject to all the limitations of that other claim, applicants respectfully submit that claims 28-30, are not unpatentable over Outlook for at least the reasons discussed above with respect to claims 27. Also, applicants submit that while overlaid windows are known in the cited art, displaying such windows in chronological order with the timestamps is not. For example, Outlook uses separate timelines outside of the data representations and the windows in Cowart are not chronologically presented.

With respect to claim 30, applicants also submit that Cowart shows an orthogonal view of windows, that is, the windows do not get smaller toward the bottom of the stack. Thus, Cowart does not display a perspective view. This important distinction highlights a key aspect of the streams of the present invention, that is, as data units become older, the user considers the data less immediately important. Accordingly, only if one of skill in the art would consider older documents as being of less import than newer ones, would one "shrink" the size of the data displayed. In contrast, Outlook and Cowart do not recognize this key aspect of streams by teaching away from such diminishment. Indeed, both Outlook and Cowart present all displayed data units as the same size. While one can shrink a window's size, such automatic shrinkage (perspective), as recited in the amended claim 30 is not performed by any of the cited art.

In view of the remarks above and the amendments to claims 28-30, applicants respectfully request that the rejections of

claims 28-30 as being unpatentable over Outlook in view of Cowart be reconsidered and withdrawn.

In view of the remarks and amendments in this Amendment, applicants respectfully request that the rejections in the Office Action be withdrawn and earnestly solicits the allowance of claims 1-2, 4, 6-12, and 14-36, as amended.

Applicants respectfully submit that another telephonic interview could be of assistance in advancing prosecution of the subject application. Accordingly, applicants' undersigned attorney invites the Examiner to telephone him at the number provided below.

No fee is deemed necessary in connection with the filing of this Amendment. However, if any fee is required, authorization is hereby given to charge the amount of any such fee to Deposit Account No. 03-3125.

Respectfully submitted,

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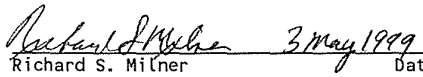
I hereby certify that this paper is being deposited this date with the U.S. Postal Service as first class mail addressed to: Assistant Commissioner for Patents Washington, D.C. 20231.



Richard S. Milner — 3 May 1999
Reg. No. 33,970 — Date