

PROVIDING CONTEXT IN AN ELECTRONIC MESSAGING SYSTEM

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of U.S. Provisional Application Nos. 60/693,605, filed June 24, 2005, and 60/758,828, filed January 13, 2006, both of which are hereby incorporated by reference herein. This application is related to U.S. Patent Application No. 10/789,461, filed February 26, 2004, which is hereby incorporated by reference herein.

BACKGROUND OF THE INVENTION

1. FIELD OF THE INVENTION

[0002] This invention pertains in general to electronic messaging and in particular to categorizing and assigning contexts to messages exchanged using an electronic messaging system.

2. DESCRIPTION OF THE RELATED ART

[0003] Before the introduction of e-mail, business users relied on two forms of communication – the phone and the business letter. The former was momentary and casual, the latter was retained as a business record and was considered formal. E-mail has blurred those two communication requirements into one tool – people use it both formally and casually, but it is retained for an indefinite time period (typically years) depending on how an enterprise's Information Technology (IT) system has been set up.

[0004] A problem with current e-mail systems is that messages are just simple text strings. When a user writes a message, it is formed into the first e-mail, but may then go on to be included in many other e-mails during its lifetime. This results in many copies of the same, user-authored, message in different, unrelated, mail “snapshots.” Storing multiple copies of the same messages is inefficient and undesirable. Moreover, the contents and topics discussed in the e-mails change over time, making it difficult to ascertain which e-mails constitute important business records.

[0005] Enterprises are now searching for a way to deal with the problem of separating messages that constitute business records from the general “chatter” of e-mail. Such business records must be retained in a manner that reflects the business processes to which the content relates. However, there are few, if any, ways to automate the process of filtering, storing, and retrieving business-related e-mails.

[0006] Therefore, there is a need in the art for an electronic messaging system that eases the task of separating business records from general e-mail “chatter” and allows important business records to be retained and retrieved in an effective manner.

BRIEF SUMMARY OF THE INVENTION

[0007] The above need is met by a messaging system that utilizes a knowledge taxonomy having context categories, and supports contexts formed of associations of content to the context categories. In one embodiment, the messaging system treats a set of related messages, such as an e-mail string between two or more people, as a message container having relational references to one or more submessages. A messaging server

stores the messages and submessages as discrete message components having content. In addition, the messaging server includes a context module having a context database. The context module defines a knowledge taxonomy having context categories. The context module creates contexts by associating portions of content from the message components with the context categories. The context module also specifies rights and properties of end-users with respect to the context categories and contexts. The context module performs operations utilizing the contexts. The contexts thus allow an enterprise to structure and operate on information contained within its electronic messages.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] FIG. 1 is a high-level block diagram illustrating a messaging system according to one embodiment.

[0009] FIG. 2 is a block diagram illustrating a representation of a message exchanged according to an embodiment of the messaging system.

[0010] FIG. 3 illustrates a set of interactions that explain the relationship among messages, current submessages, and history submessages.

[0011] FIG. 4 is a high-level block diagram illustrating modules within the messaging server according to one embodiment of the messaging system.

[0012] FIG. 5 is a high-level block diagram illustrating modules within the context module according to one embodiment.

[0013] FIG. 6 illustrates a knowledge taxonomy according to one embodiment and shows the relationship between context categories and content in a message.

[0014] FIG. 7 is a high-level block diagram illustrating modules within the messaging client according to one embodiment of the messaging system.

[0015] FIG. 8 illustrates an embodiment of a GUI generated by the UI module to enable an end-user to create a context.

[0016] FIG. 9 illustrates an embodiment of a GUI generated by the UI module to enable an end-user to view a context for content in the messaging system.

[0017] FIG. 10 illustrates an embodiment of a GUI generated by the UI module to enable an end-user to browse the knowledge taxonomy and view contexts at various nodes in the taxonomy.

[0018] FIG. 11 is a flow chart illustrating steps performed when using the messaging system to create and operate on a context according to one embodiment.

[0019] The figures depict an embodiment of the present invention for purposes of illustration only. One skilled in the art will readily recognize from the following description that alternative embodiments of the structures and methods illustrated herein may be employed without departing from the principles of the invention described herein.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0020] FIG. 1 is a high-level block diagram illustrating a messaging system 100 according to one embodiment. In one embodiment, the messaging system 100 is utilized by an enterprise such as a corporation or governmental entity to provide messaging among end-users associated with the enterprise. Therefore, much of this discussion assumes that the messaging system is being used by a single enterprise. In other embodiments, the messaging system 100 is utilized by end-users not necessarily associated with a common enterprise.

[0021] The messaging system 100 of FIG. 1 includes a messaging server 112 and multiple messaging clients 114. A network 110 couples the server 112 and clients 114. End-users of the messaging clients 114 use the messaging system 100 to send messages to other end-users. The end-users can create contexts that associate message content with categories of a knowledge taxonomy, and can perform searches and other operations based on the contexts. Thus, using contexts provides a way to organize, search, and retrieve knowledge represented within the messages.

[0022] FIG. 1 and the other figures use like reference numerals to identify like elements. A letter after a reference numeral, such as “114A,” indicates that the text refers specifically to the element having that particular reference numeral. A reference numeral in the text without a following letter, such as “114,” refers to any or all of the elements in the figures bearing that reference numeral (e.g. “114” in the text refers to reference numerals “114A” or “114B” in the figures).

[0023] In the embodiment of FIG. 1, the messaging system 100 shares characteristics with the system described in U.S. Patent Application no. 10/789,461, which is incorporated by reference herein. As described in that application, the messaging system uses a relational model to represent and store messages exchanged among the end-users.

[0024] As used herein, the term “message” refers to a data communication sent by one end-user to one or more end-users of the messaging system or another messaging system. In one embodiment, described below, a message is a container having relational references to content, context data, audit data, and/or other types of data. In other embodiments, the messages are emails, Short Message Service (SMS) messages, Instant Messages (IMs), Multi-Media Message (MMS) and/or other types of messages. The term “message” can also include media files, such as discrete and/or streaming audio and/or video, still images, etc. and files created by other applications. An end-user can perform various actions on messages, including composing, sending, reading, replying to, and forwarding. In addition, an end-user can assign a context to all or a portion of a message.

[0025] The network 110 enables data communication between and among the entities connected to the network and allows the entities to exchange messages. In one embodiment, the network 110 is the Internet. In another embodiment, the network 110 is an enterprise network.

[0026] In one embodiment, the network 110 uses standard communications technologies and/or protocols. Thus, the network 110 can include links using technologies such as Ethernet, 802.11, integrated services digital network (ISDN), digital subscriber line (DSL), asynchronous transfer mode (ATM), etc. Similarly, the

networking protocols used on the network 110 can include multiprotocol label switching (MPLS), the transmission control protocol/Internet protocol (TCP/IP), the User Datagram Protocol (UDP), the hypertext transport protocol (HTTP), the simple mail transfer protocol (SMTP), and the file transfer protocol (FTP). The data exchanged over the network 110 can be represented using technologies and/or formats including the hypertext markup language (HTML), the extensible markup language (XML), etc. In addition, all or some of links can be encrypted using conventional encryption technologies such as the secure sockets layer (SSL), Secure HTTP and/or virtual private networks (VPNs). In another embodiment, the entities can use custom and/or dedicated data communications technologies instead of, or in addition to, the ones described above.

[0027] In one embodiment, the messaging server 112 is a computer system acting as a central repository for messages received by the end-users of the messaging system 100. The messaging server 112 communicates with the messaging clients 114 via the network 110. In some embodiments, the messaging server 112 also communicates with messaging servers and clients of other messaging systems via the network 110. The messaging server 112 provides interfaces that allow other entities in the messaging system 100, such as the messaging clients 114, to exchange messages with each other.

[0028] The messaging server 112 includes a message store database 120 that stores information about messages exchanged using the messaging system, or at least a designated subset of the messages exchanged using the system. In one embodiment, the stored information includes the content of the message and any audit, context, governance policy, and/or other information that are associated with the message. As used herein, the term “database” refers to an information store and does not imply that the

data within the database are organized in a particular structure beyond that described herein.

[0029] Although only a single database 120 is illustrated in FIG. 1, embodiments of the messaging server 112 can utilize multiple databases. In addition, the database 120 can be local or remote to the messaging server 112. In FIG. 1, the database 120 is illustrated as being local to the messaging server 112 for purposes of clarity.

[0030] The messaging client 114 is a device utilized by an end-user to compose, send, and view messages. In addition, the end-user uses the messaging client 114 to associate contexts with content within messages, and to perform operations based on the associated contexts. The contexts are used by individual end-users to help structure their own message content, and are also used collaboratively among end-users to assist in knowledge sharing, storage, and retrieval for the enterprise.

[0031] The messaging client 114 is connected to the network 110 and can communicate with the messaging server 112 and/or other entities coupled to the network. In one embodiment, the messaging client 114 is a personal computer. In other embodiments, clients 114 is another type of electronic device, such as a personal digital assistant (PDA), a cellular telephone with text messaging functionality, a portable email device, etc.

[0032] FIG. 2 is a block diagram illustrating a representation of a message 200 exchanged according to an embodiment of the messaging system 100. A message 200 can be thought of as a container with relational references. The container itself does not contain content, but rather points to submessages and/or attachments in which content

resides. In addition, the container can point to other information about the message 200, such as audit, contest, and governance policy information. A message 200 can also be conceptualized as a document having multiple paragraphs, where each paragraph can be individually identified and isolated. Multiple people can contribute paragraphs to the document, and the document itself can be formed of references to paragraphs written by the different authors. In one embodiment, the message container is extensible, and can point to other types of data such as patient codes, embedded graphics, and questionnaires. This description uses the term “message components” to refer to the message, submessages, and attachments.

[0033] When an end-user composes and sends a message, she is actually composing content for a submessage, and then sending a message 200 containing a reference to the submessage to other end-users. The submessage composed and sent by the end-user is called the “current submessage” 210. Any submessages that were previously in the message 200 are called “history submessages” 212, 214. For example, if an end-user receives a message 200 containing one submessage, at the time of receipt the single submessage is the current submessage. When the end-user composes and sends a reply, the submessage containing the reply becomes the current submessage, and the other submessage becomes a history submessage.

[0034] The end-user can also associate one or more attachments with a submessage. In one embodiment, the attachments are relationally-referenced within a message in the same manner as submessages. Thus, attachments can be treated in the same manner as submessages and descriptions of submessages contained herein are equally applicable to attachments. The exemplary message 200 of FIG. 2 contains one current submessage

210 and two history submessages 212, 214 representing previously sent submessages within the message 200.

[0035] FIG. 3 illustrates a set of interactions that explain the relationship among messages 200, current submessages 210, and history submessages 212, 214. The figure illustrates three people, Alice 310, John 312, and Peter 314. Initially, Alice 310 composes a message 316 containing submessage A and sends it to John 312. John 312 replies 318 and also copies the message to Peter 314. In the reply 318, submessage B is the current submessage and submessage A becomes a history submessage. Next, Alice 310 replies to both John 312 and Peter 314 and sends a third version 320 of the message having a new current submessage C, and two history submessages A and B.

[0036] FIG. 4 is a high-level block diagram illustrating modules within the messaging server 112 according to one embodiment of the messaging system 100. In the illustrated embodiment, the messaging server 112 includes a message module 410, an audit module 412, a context module 414, and a governance module 422. These modules respectively contain a message database 416, an audit information database 418, a context database 420, and a governance policy database 424. In one embodiment, these databases collectively form the message store database 120 shown in FIG. 1.

[0037] Although separate modules and databases are illustrated in FIG. 4, in some embodiments these elements are combined and/or distributed in different manners than shown. Other embodiments contain additional and/or different databases and modules than the ones shown in FIG. 4. As used herein, the term “module” refers to computer

program logic and/or data for providing the specified functionality. A module can be implemented in hardware, firmware, and/or software.

[0038] The message module 410 controls the message database 416. This database 416 stores messages, submessages, attachments, and other related data. These data are stored as logically discrete components, meaning that each message component can be accessed separately. In one embodiment, the message database 416 associates a unique ID with each message component. These IDs are utilized throughout the messaging system to refer to the components.

[0039] The audit module 412 generates audit information and interacts with the audit information database 418. The audit information describes the usage of the messaging system 100. Audit information thus indicates which end-users composed which submessages, which users read which submessages, which users replied to and/or forwarded which submessages, etc. The audit information can also describe characteristics of the message components such as sensitivity levels for particular submessages, whether the messages can be viewed by an end-user when the end-user's messaging client 114 is offline, etc.

[0040] The context module 414 supports activities in the messaging system 100 involving contexts and controls the context database 420. In one embodiment, the context module 414 provides a structured taxonomy of knowledge to which end-users can associate content, such as message components and portions of components. Each classification in the taxonomy is called a "context category." An association of a context category to content is termed a "context" of the content. The context module 414

supports operations on the content based on the associated contexts. For example, the context module 414 supports a search to identify all content having a particular context. In one embodiment, a context is a type of message component.

[0041] The governance module 422 (also called a “compliance module”) applies governance policies (also called “compliance policies”) to the messaging system 100 and controls the governance policy database 424. The database 424 stores compliance policies that are established on the messaging system 100. A compliance policy describes the set of rules that apply to message components during their lifecycles in the messaging system. In one embodiment, each message component in the messaging system is associated with one or more compliance policies. When an action occurs that involves a message component, the messaging system identifies the relevant compliance policy in the governance policy database 424 and applies it.

[0042] FIG. 5 is a high-level block diagram illustrating modules within the context module 414 according to one embodiment. Other embodiments have additional and/or different modules than the ones shown in FIG. 5. In addition, in other embodiments the functionalities are distributed among the modules in a different manner. In one embodiment, administrators, end-users, and/or other people associated with the enterprise uses messaging clients 114 to interact with the context module 414 and access the functionality provided by its various modules.

[0043] A taxonomy definition module 510 defines and maintains one or more knowledge taxonomies utilized by the enterprise. A knowledge taxonomy categorizes the knowledge possessed and/or activities performed by the enterprise, by an end-user,

and/or by another entity. In one embodiment, a knowledge taxonomy is hierarchical. The taxonomy is represented as an inverted tree, in which each node and leaf is a context category. Context categories can thus have parent context categories (the context category above them in the hierarchy) and context subcategories (any context categories below them in the hierarchy). In one embodiment, properties assigned to context categories in the knowledge tree are inheritable. Thus, nodes of the tree inherit properties from their parent nodes. In other embodiments, the knowledge taxonomy is described by a non-hierarchical representation and lacks inheritable properties.

[0044] An end-user uses a messaging client 114 to interact with the taxonomy definition module 510 and define and/or access a knowledge taxonomy. In one embodiment, an enterprise-wide knowledge taxonomy is utilized by all end-users of the messaging system 100 to structure content. The enterprise-wide knowledge taxonomy is defined by an administrator or other person with the appropriate authority. In some embodiments, end-users also create personal taxonomies that enable them to structure their own content. If desired, an end-user can inherit a node from an enterprise taxonomy or another existing knowledge taxonomy and then define personal context categories beneath that node. In addition, some embodiments have knowledge taxonomies that are shared by a subset of the end-users in the enterprise.

[0045] In one embodiment, the taxonomy definition module 510 interfaces with an external data source in order to receive and/or create a knowledge taxonomy. For example, the taxonomy definition module 510 can receive a taxonomy from an external knowledge management tool. Similarly, the taxonomy definition module 510 can

interface with an external directory, such as a lightweight directory access protocol- (LDAP) or Active Directory-based directory, to identify the taxonomic structure.

[0046] A content association module 512 associates content with the context categories defined by the taxonomy definition module 512. In one embodiment, an end-user instructs the content association module 512 to associate content with a category. An end-user can associate content with context categories at varying granularities. For example, entire messages and message components can be associated with a context category. In addition, portions of message components, such as a few words or sentences within a submessage, can be associated with a context category. Moreover, the same content can be associated with multiple context categories.

[0047] In one embodiment, the content association module 512 allows an end-user to associate context categories with content external to the messaging system 100. For example, the content association module 512 can associate a file or portion of a file on an end-user's local client 114 with a context category. The end-user can thus assign content in files such as MICROSOFT WORD documents, EXCEL spreadsheets, and/or POWERPOINT presentations to a context category. Further, in one embodiment the content association module 512 allows an end-user to associate different versions of the same file with context categories. This assignment is accomplished, for example, by interfacing with a document management system that tracks the file creation and editing process. In one embodiment, the content association module 512 allows an end-user to associate context categories with content on the Internet or another network. For example, the end-user can associate a context category with a portion of a blog written by the end-user or another person and posted on a publicly-accessible web server. In one

embodiment, the content association module 512 copies external content having a context into the context database 420 and/or to another data store. In another embodiment, the content association module 512 stores a pointer to the external content instead of the content itself.

[0048] In one embodiment, the content association module 512 monitors content passing through the messaging system 100 and automatically creates contexts by associating content with context categories. An embodiment of the content association module 512 uses keyword searching to identify portions of submessages having specified characteristics and associates the portions with context categories according to rules provided by an end-user.

[0049] In one embodiment, the content association module 512 interfaces with an external module that performs automated filtering and/or indexing of message system content (and/or external content) and generates context suggestions. The external module provides the context suggestions to the content association module 512. The content association module 512 can create the contexts suggested by the external module or store the suggestions for further review. An end-user evaluates the suggested contexts and either validates or rejects the suggestions. In one embodiment, suggested contexts are distinguished from other contexts through the use of patterns, colors, and/or other user interface (UI) elements when displayed to an end-user.

[0050] A context rights module 514 controls administration and/or access rights associated with contexts and context categories. In one embodiment, the context rights module 514 associates context rights to end-users of the messaging system 100. Each

right has one or more associated actions that end-users having the right are allowed to perform. In one embodiment, end-users are organized into groups and the administrative and/or access rights are granted on a per-group basis.

[0051] In one embodiment, the administrative rights that the context rights module 514 supports include the right to change a context category's properties, right to control which end-users can add contexts to the context category, and/or right to control which end-users can view the context category. In addition, the rights include the right to create context categories underneath a context category in the knowledge taxonomy. Administrative rights are not "all or nothing" rights. Thus, each allowable action represented by a right can be individually granted to an end-user. For example, end-users can be granted rights allowing creation of new context categories beneath an existing context category, but not allowed to change the viewing rights associated with the context categories.

[0052] In one embodiment, the access rights that the context rights module 514 can associate with an end-user include usage rights and viewing rights. An end-user having usage rights for a given context category can associate content with the context category by creating a context. In addition, an end-user having usage rights can edit associations of content to context categories, and delete previously-made associations. Again, these usage rights are comprised of a set of allowable actions, and the allowable actions can be individually granted to an end-user.

[0053] In one embodiment, the allowable actions associated with usage rights specify which content the end-user can use. An action can allow an end-user to create a context

for content the end-user creates, to create a context for content the end-user receives, to utilize context content in a message, and/or to create a context for content created or received by other end-users. In addition, the usage rights and allowable actions can have limitations such as times of day that they are applicable, the maximum permissible size of content that can be associated with a context category, etc.

[0054] An end-user having viewing rights for a given context category can view the category and content associated with that category. The viewing rights have a set of allowable actions, including viewing a context category, viewing given content linked to a context category only when the end-user has received the content directly as part of a message, and/or viewing content associated with a context by browsing the knowledge taxonomy, without having needed to receive the content in a message. An end-user can have different viewing rights for different context categories.

[0055] Having viewing rights to a context category is different than having viewing rights to the content associated with it through contexts. For example, a junior Human Resources (HR) clerk can have viewing rights to all HR contexts. However, a governance policy enforced by the governance module 422 can specify that the junior HR clerk cannot view certain content, even though the content has an HR context. Thus, the governance policy rights can supersede the context viewing rights in one embodiment.

[0056] A context properties module 516 controls and maintains properties associated with the context categories and/or contexts. In one embodiment, the properties include a validity period and a retention period. The validity period of a context category defines the period of time during which content can be associated with it. Once the validity

period of a context category expires, the category can still be accessed and operated upon in the normal manner, except that end-users are prohibited from creating new associations of content with the context category.

[0057] The retention period of a context defines the period of time during which the context category is retained by the messaging system 100. The retention period, in essence, specifies the period of time during which an association between content and a particular context category is maintained by the contexts module 414. In one embodiment, the retention period of a context does not control the retention period for the content itself; retention periods for content are controlled by governance policies (though contexts may be used as input to the governance policies). When given content is deleted according to a governance policy, any contexts associated with the content are also deleted. When all associations to content for a context category have been deleted, either through the retention period for the content or the content's contexts expiring, then the content category itself is eligible for deletion. The retention period for the context category controls if and when the context category is deleted. In one embodiment, a context category of the knowledge taxonomy inherits its validity and/or retention periods from its parent nodes. An administrator can change the child category's validity/retention to a time period that is a subset of the time periods of the parent nodes.

[0058] In one embodiment, the context properties module 516 maintains additional properties for contexts. One such property is a comment. An end-user can associate a comment with a context category and/or context. In one embodiment, the comment is a text string, though in other embodiments a comment can include audio, video, and/or multimedia data. The end-user can use the comment to explain the reason for the

context, discuss attributes of the content being associated with a context category, and/or describe other pertinent information. In one embodiment, the ability to view comments is an allowable action that can be permitted as an access right. In addition, in one embodiment a comment is subject to the same validity and retention periods as its associated context and/or context category. Other properties maintained by the context properties module 516 include the identity of the end-user that created the context, and timestamps of events involved in the context creation.

[0059] In one embodiment, the context properties module 516 assigns validity periods, retention periods, and/or other properties to context categories in the knowledge taxonomy. Thus, the context categories and contexts can inherit their properties from parent categories in the taxonomy. In another embodiment, the properties are not inheritable and rather are assigned to individual context categories in the knowledge taxonomy.

[0060] In one embodiment, an operations module 518 supports and performs operations based on contexts. These operations include, for example, requests to navigate the knowledge taxonomy, to associate content with a context category, to search the content based on context, to filter content based on context and/or other criteria, and to sort the content based on context. An additional operation is exporting content from contexts to other systems, such as to a concurrent versioning system (CVS) supporting software development. In one embodiment, the operations module 518 receives requests from other modules in the messaging server 112 and/or messaging clients 114 to perform operations based on context, performs the requested operations utilizing the information

in the contexts database 420 , message database 416, and/or other databases, and returns any requested results to the requestors.

[0061] The contexts database 420 stores information utilized in the operation of the contexts module 414. The information stored in the database 420 includes, for example, knowledge taxonomies utilized by the enterprise and/or individual end-users and contexts (i.e., associations of content to content categories). In addition, the context database 420 stores data describing the context rights controlled by the context rights module 514 and data describing context properties utilized by the context properties module 516. In certain embodiments, some or all of the information is stored elsewhere in the message store database 120.

[0062] FIG. 6 illustrates a sample knowledge taxonomy 610 according to one embodiment and shows the relationship between context categories and content in a message 200. In this sample, the knowledge taxonomy 610 is a hierarchical tree having seven nodes, or context categories, labeled 612A-612G. Each node 612 has a name (e.g., “Projects”) and a short description of the knowledge represented by the node (e.g., “Different projects”).

[0063] The illustrated knowledge taxonomy 610 includes two nodes 612B, 612C immediately below the root node 612A. One of the nodes 612B is named “Geography” and represents the different geographic areas with which content can be associated. The Geography node 612B has two nodes below it in the hierarchy, one node 612D named “Europe” and another node 612E named “Asia.”

[0064] The other node 612C immediately below the root node 612A is named “Projects” and represents different projects with which content can be associated. The Projects node 612C has two nodes below it in the hierarchy, one node 612F named “Alpha” and another node 612G named “Beta.”

[0065] The message 200 illustrated in FIG. 6 has a current submessage 210 and two history submessages 212, 214. A portion 616 of the first history submessage 212 is associated with the Beta node 612G of the knowledge taxonomy. This association is represented by a line 614 between the portion of the submessage 212 and the node 612G. Similarly, a second line 618 represents an association between a portion 620 of the second history submessage 214 and the Asia node 612E. These associations are the contexts for the content in the portions 614, 620 of the submessages 212, 214.

[0066] FIG. 7 is a high-level block diagram illustrating modules within the messaging client 114 according to one embodiment of the messaging system. Other embodiments have additional and/or different modules than the ones shown in FIG. 7. Moreover, the functionalities can be distributed among the modules in a different manner.

[0067] The messaging client 114 includes a client module 710 adapted to interact with the messaging system. In one embodiment, the client module 710 is an application dedicated to sending and receiving messages via the messaging system. As such, it includes standard functionality for composing messages, viewing messages, replying to and forwarding messages, etc. In another embodiment, the client module 710 operates in tandem with another module, such as a web browser or email application to provide integrated messaging functionality. For example, the client module 710 can comprise a

plug-in or other functionality added to a web browser such as MICROSOFT INTERNET EXPLORER or MOZILLA FIREFOX, or to a messaging application such as MICROSOFT OUTLOOK. In one embodiment, the client module 710 is a web browser and utilizes program code and/or data downloaded from the messaging server 112 and/or another server on the network 110 to provide the functionality described herein.

[0068] In one embodiment, the client module 710 includes a UI module 712 that provides graphical user interfaces (GUI) allowing the end-user to perform tasks such as composing and sending messages, creating contexts, and reviewing existing contexts. In one embodiment, the GUI allows the end-user to communicate with the context operations module 518 in the contexts module 414 to perform and view the results of operations performed by the module.

[0069] FIG. 8 illustrates an embodiment of a GUI 800 generated by the UI module 712 to enable an end-user to create a context. The GUI 800 displays a message 810 having a current submessage 812 and a history submessage 814. The current submessage 812 includes text 816. In this GUI, the end-user interacts with the messaging client 114 to highlight a portion 818 of the text. In addition, the end-user expresses a desire to create a context for the highlighted portion 818 by, for example, right-clicking using a mouse. In response, the GUI 800 shows a popup menu 820 that allows the end-user to select the context category to associate with the highlighted portion 818 of the text. In this example, the end-user selects the context category “Product → Version 3 → Testing.”

[0070] FIG. 9 illustrates an embodiment of a GUI 900 generated by the UI module 712 to enable an end-user to view a context for content in the messaging system. The

GUI 900 displays the same message 810 and submessages 812, 814 shown in FIG. 8. In FIG. 9, the end-user selects text 910 in the history submessage 814 by, for example, hovering a cursor over the text. In response to the selection, the GUI 900 displays a popup window 912 displaying the context for the text. In this example, the popup window 912 includes the name of the context category (“Version 4/Development”), the date that the context was created, the author of the context, and a comment that the author supplied for the context.

[0071] In addition, the popup window includes icons 914 for performing actions involving the context. In one embodiment, the icons 914 allow the end-user to edit the context, display the history of end-users that edited the context and their respective comments, obtain visualizations of the context and its interaction with the knowledge taxonomy, and view the knowledge taxonomy. The end-user might lack rights to perform some of these actions.

[0072] FIG. 10 illustrates an embodiment of a GUI 1000 generated by the UI module 712 to enable an end-user to browse the knowledge taxonomy and view contexts at various nodes in the taxonomy. The GUI 1000 includes three columns 1012, 1014, 1016. In this embodiment, the leftmost column 1012 displays the knowledge taxonomy 1018. The knowledge taxonomy 1018 itself is displayed using a folder view that allows the end-user to expand and collapse views of the hierarchy.

[0073] In FIG. 10, the end-user selects the “Product → Version 3 → Needs Analysis” context category. Accordingly, the center column 1014 of the GUI 1000 displays the contexts 1020 associated with this category. In this example, there are three contexts

1020. For each context, the GUI 1000 displays information including the content having the context, the sender of the message incorporating the context, the date that the message was sent, the name of the end-user that created the context, and the date that the context was created. Thus, the center column 1014 acts as virtual folder that displays all content in the messaging system 100 associated with the selected context category.

[0074] The rightmost column 1016 of the GUI 1000 shows additional details about a context selected by the end-user. In FIG. 10, the end-user selects the first context in the center column 1014. The rightmost column 1016 displays information about this context including the sender of the message incorporating the context, the name of the end-user that created the context, the name of the last editor of the context, the date that the message was sent, the date that the context was created, and the date that the context was last edited. In addition, the rightmost column 1016 displays the content having the context, and any comments on the context added by end-users.

[0075] FIG. 11 is a flow chart illustrating steps performed when using the messaging system 100 to create and operate on a context according to one embodiment. Other embodiments include different and/or additional steps. Moreover, other embodiments perform the steps in different orders.

[0076] Initially, a knowledge taxonomy is defined and/or an existing taxonomy is accessed 1110. In one embodiment, the knowledge taxonomy is defined by an administrator and is applicable for all content and/or end-users associated with the messaging system 100. End-users can also create personal knowledge taxonomies

utilized by only the individual end-users. In one embodiment, the knowledge taxonomy has hierarchical context categories arranged in a tree structure.

[0077] During the operation of the messaging system 100, an end-user and/or automated process associates 1112 content with one or more context categories in the knowledge taxonomy. In one embodiment, an end-user creates the association by designating content and selecting a context category. For example, an end-user using the messaging system 100 recognizes that a piece of content in a message is related to a context category to which the end-user has access. The end-user highlights the text or other content, right-clicks on the content to spawn a popup menu, and uses the menu to navigate the knowledge taxonomy and select the appropriate context category. In addition, the end-user optionally provides a comment to associate with the context. Further, the end-user can supply additional information about the context, such as information specifying potential viewers and editors of the context (if the end-user has rights to do so).

[0078] The messaging system 100 creates 1114 the context associating the content and the context category. Since an embodiment of the messaging system 100 is relational, the context is reflected across the entire messaging system. Thus, any end-user that views the content can access the associated context (assuming that the end-user has the appropriate rights).

[0079] In one embodiment, the messaging system 100 highlights the designated content to indicate that it has an associated context. The color of the highlighting corresponds to a color scheme assigned to different context categories, so that the context

of the content is visually apparent. The end-user can view 1118 the context for content by hovering the cursor over the highlighted content and/or performing a similar action.

[0080] An end-user and/or other entity uses a messaging client 114 to generate requests to perform a context-based operations. For example, the end-user can use the client 114 to browse the context categories and thereby generate search queries to identify all of the contexts associated with the categories. The messaging system 100 receives 1116 the requests and performs 1118 the requested operations.

[0081] In sum, the relational messaging system 100 assists end-users in navigating content they send and receive, as well as external content, by allowing them to structure the content into knowledge taxonomies. End-users can create contexts for personal use and/or for collaboration across an enterprise. Moreover, operations such as searching can be performed based on the contexts.

[0082] The above description is included to illustrate the operation of the preferred embodiments and is not meant to limit the scope of the invention. The scope of the invention is to be limited only by the following claims. From the above discussion, many variations will be apparent to one skilled in the relevant art that would yet be encompassed by the spirit and scope of the invention.

CLAIMS

1. A computerized messaging server in an electronic messaging system, comprising:
 - a message module adapted to control a message database storing messages exchanged in the messaging system, each message comprising one or more message components having content; and
 - a context module adapted to control a context database storing a knowledge taxonomy having context categories and contexts associating content of the message components with the context categories.
2. The messaging server of claim 1, wherein the messaging server is utilized by an enterprise and wherein the context module comprises:
 - a taxonomy definition module for defining the knowledge taxonomy, the taxonomy structured as a hierarchical tree having nodes for context categories representing knowledge possessed and/or activities performed by the enterprise.
3. The messaging server of claim 1, wherein external content resides at a location external to the messaging server and wherein the context module comprises:
 - a content association module for creating contexts associating at least a portion of the external content with a context category of the knowledge taxonomy.
4. The messaging server of claim 1, wherein the context module comprises:
 - a content association module for monitoring messages exchanged by the messaging system and automatically creating contexts associating content of the messages with context categories.

5. The messaging server of claim 1, wherein the messaging system is utilized by end-users and wherein the context module comprises:

a context rights module for specifying actions an end-user is allowed to perform with respect to a context and/or context category.

6. The messaging server of claim 1, wherein the context module comprises:

a context properties module specifying a validity period for a context category, the validity period defining a period of time during which new associations of content to the context category can be made.

7. The messaging server of claim 1, wherein the context module comprises:

a context properties module specifying a retention period for a context category, the retention period specifying a period of time during which an association between content and the context category is maintained by the contexts module.

8. The messaging server of claim 1, wherein the context module comprises:

a context operations module for performing operations in the messaging system utilizing the contexts.

9. A computer program product having a computer-readable medium having computer program instructions tangibly embodied therein for providing an electronic message system, comprising:

a messaging module adapted to control a message database storing messages exchanged in the messaging system, each message comprising one or more message components having content; and

a context module adapted to control a context database storing a knowledge taxonomy having context categories and contexts associating content of the message components with the context categories.

10. The computer program product of claim 9, wherein the messaging server is utilized by an enterprise and wherein the context module comprises:

a taxonomy definition module for defining the knowledge taxonomy, the taxonomy structured as a hierarchical tree having nodes for context categories representing knowledge possessed and/or activities performed by the enterprise.

11. The computer program product of claim 9, wherein external content resides at a location external to the messaging server and wherein the context module comprises:

a content association module for creating contexts associating at least a portion of the external content with a context category of the knowledge taxonomy.

12. The computer program product of claim 9, wherein the context module comprises:

a content association module for monitoring messages exchanged by the messaging system and automatically creating contexts associating content of the messages with context categories.

13. The computer program product of claim 9, wherein the messaging system is utilized by end-users and wherein the context module comprises:

a context rights module for specifying actions an end-user is allowed to perform with respect to a context and/or context category.

14. The computer program product of claim 9, wherein the context module comprises:

a context properties module specifying a validity period for a context category, the validity period defining a period of time during which new associations of content to the context category can be made.

15. The computer program product of claim 9, wherein the context module comprises:
- a context properties module specifying a retention period for a context category, the retention period specifying a period of time during which an association between content and the context category is maintained by the context module.
16. The computer program product of claim 9, wherein the context module comprises:
- a context operations module for performing operations in the messaging system utilizing the contexts.
17. A method of utilizing contexts in an electronic messaging system, the messaging system exchanging messages comprising one or more message components having content, the method comprising:
- defining a knowledge taxonomy having context categories;
 - associating content of the message components with context categories of the knowledge taxonomy to create contexts; and
 - searching and/or sorting the content responsive to the contexts.
18. The method of claim 17, wherein the messaging system is utilized by an enterprise and wherein the knowledge taxonomy is structured as a hierarchical tree having nodes for context categories representing knowledge possessed and/or activities performed by the enterprise.
19. The method of claim 17, wherein associating portions of content comprises:
- monitoring messages exchanged by the messaging system and automatically creating contexts associating content of the messages with context categories.

20. The method of claim 17, wherein the messaging system is utilized by end-users and further comprising:

specifying actions an end-user is allowed to perform with respect to a context and/or context category.

21. The method of claim 17, further comprising:

specifying a validity period for a context category, the validity period defining a period of time during which new associations of content to the context category can be made.

22. The method of claim 17, further comprising:

specifying a retention period for a context category, the retention period specifying a period of time during which an association between content and a context category is maintained by the contexts module.

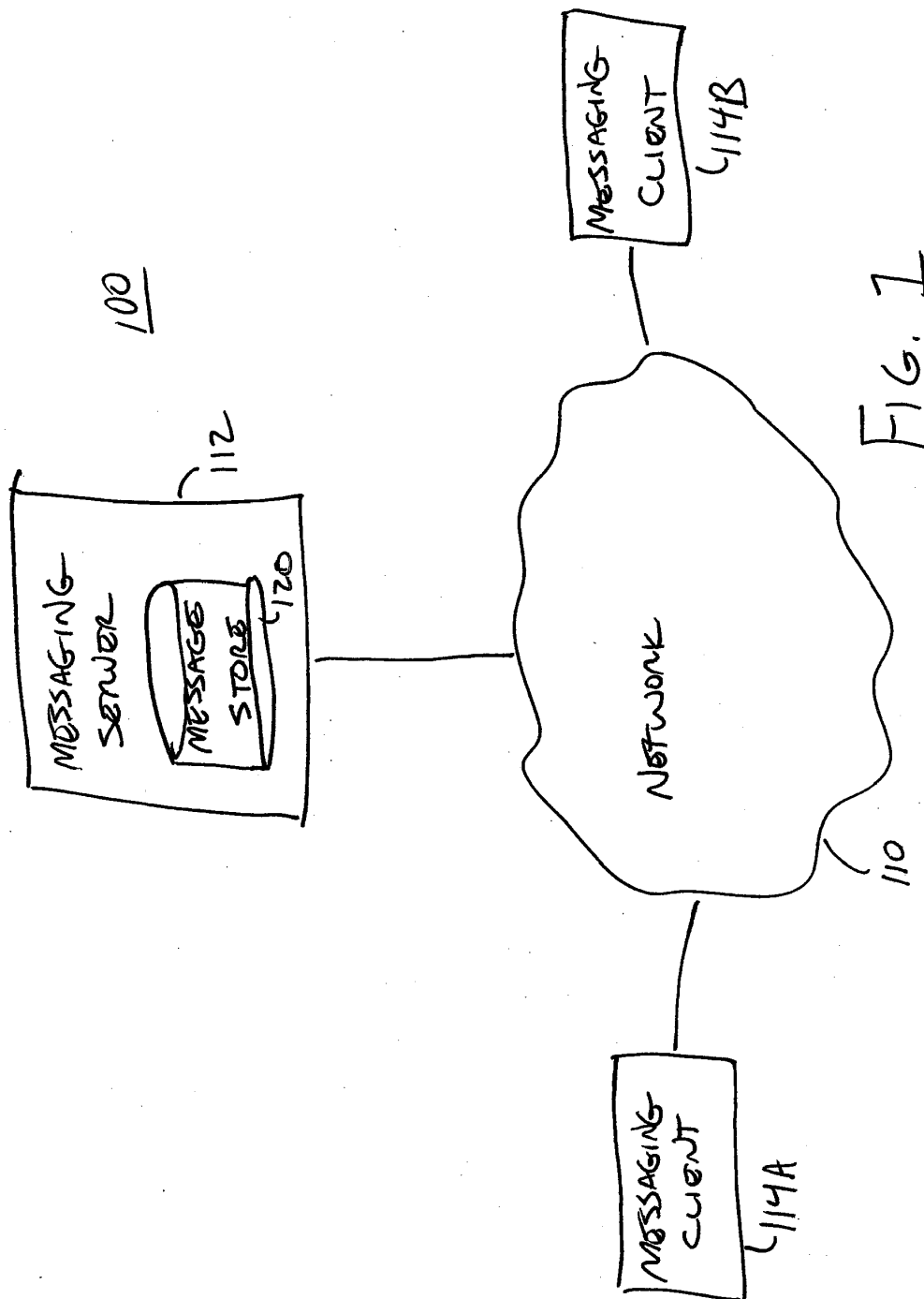
23. The method of claim 17, wherein the messaging system is utilized by an end-user and further comprising:

providing a graphical user interface (GUI) to the end-user, the GUI enabling the end-user to create a context associating content of a message component with a context category, and/or view contexts associated with the context category.

PROVIDING CONTEXT IN AN ELECTRONIC MESSAGING SYSTEM

ABSTRACT OF THE DISCLOSURE

A messaging system treats a set of related messages, such as an e-mail string between two or more people, as a message container having relational references to one or more submessages. A messaging server stores the messages and submessages as discrete message components having content. In addition, the messaging server includes a context module having a context database. The context module defines a knowledge taxonomy having context categories. The context module creates contexts by associating portions of content from the message components with the context categories. The context module also specifies rights and properties of end-users with respect to the context categories and contexts. The context module performs operations utilizing the contexts. The contexts thus allow an enterprise to structure information contained within its electronic messages.



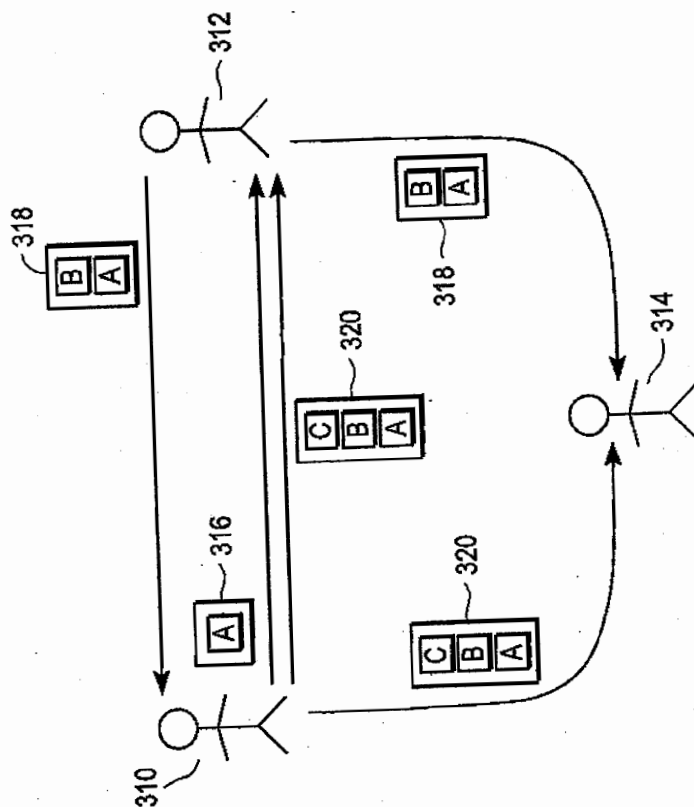


FIG. 3

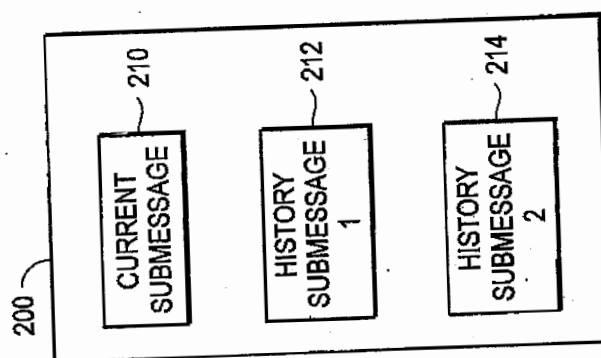


FIG. 2

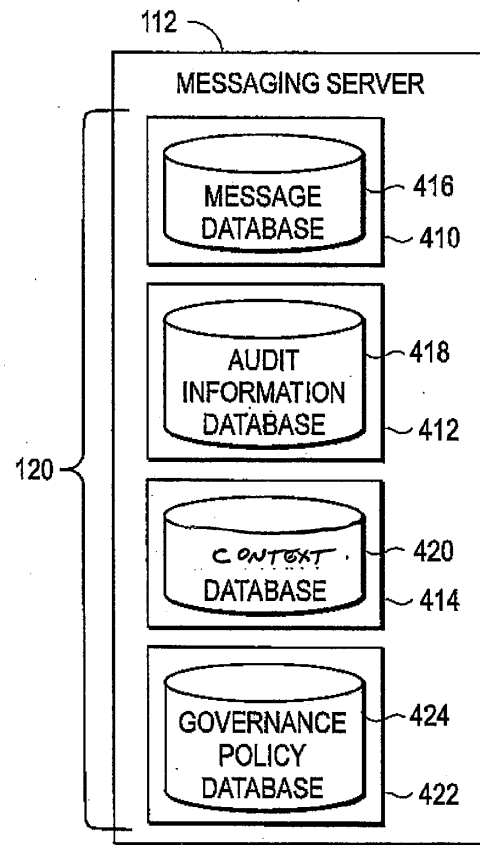


FIG. 4

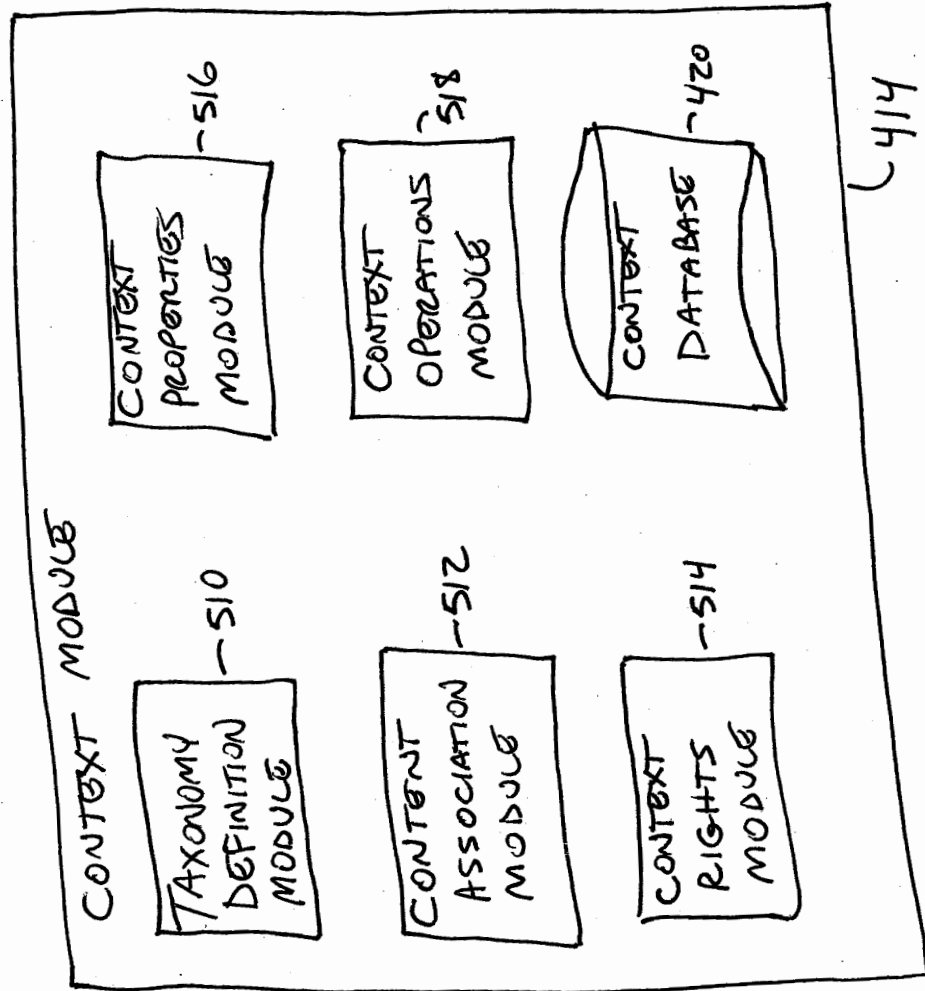


FIG. 5

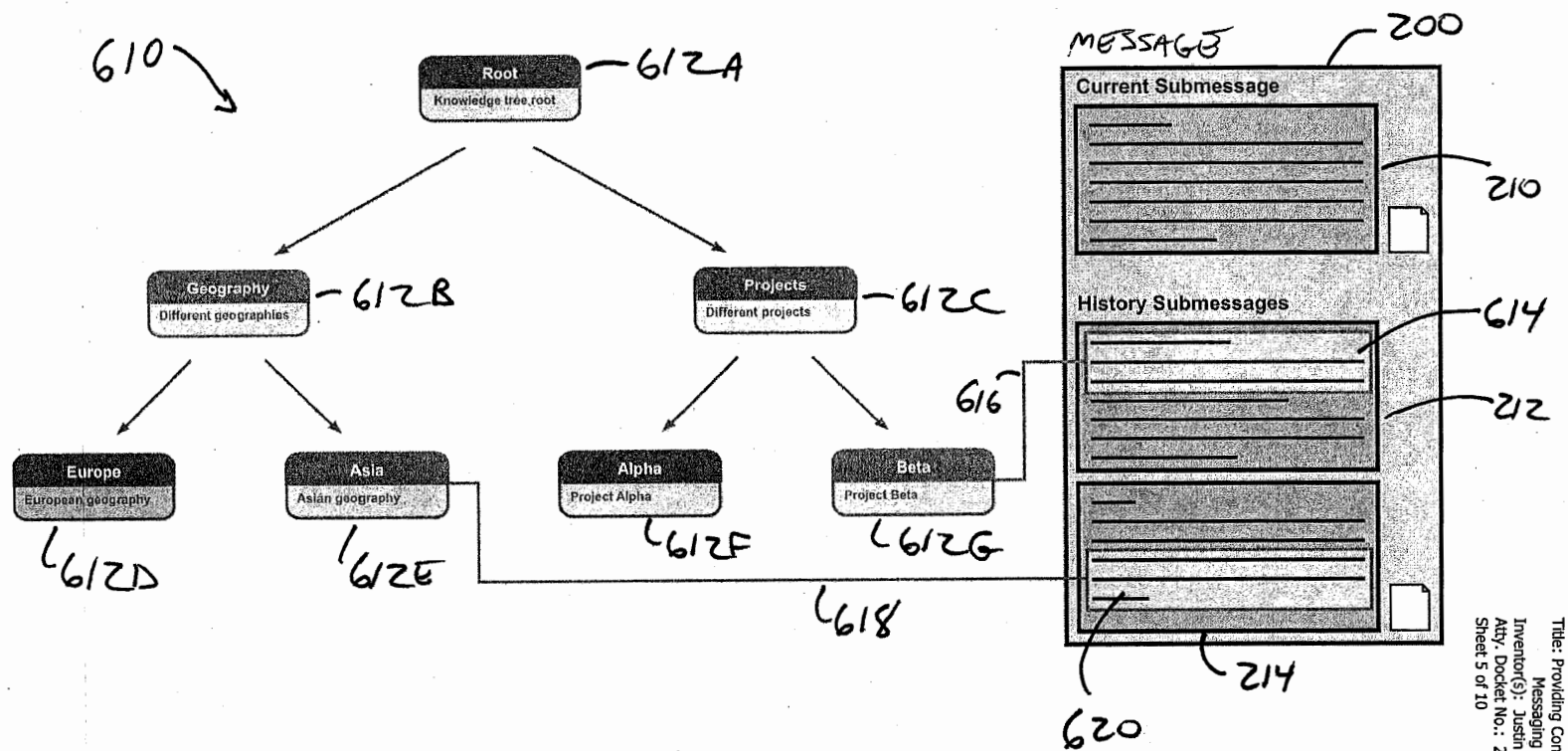


FIG. 6

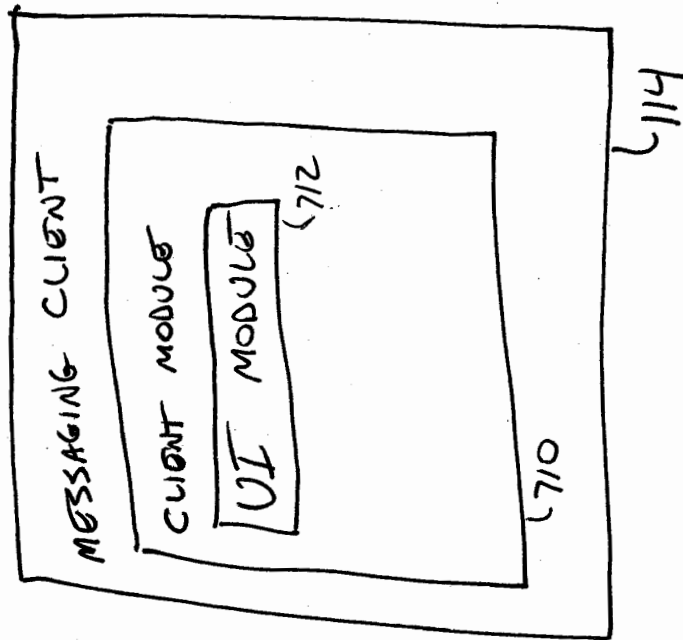


FIG. 7

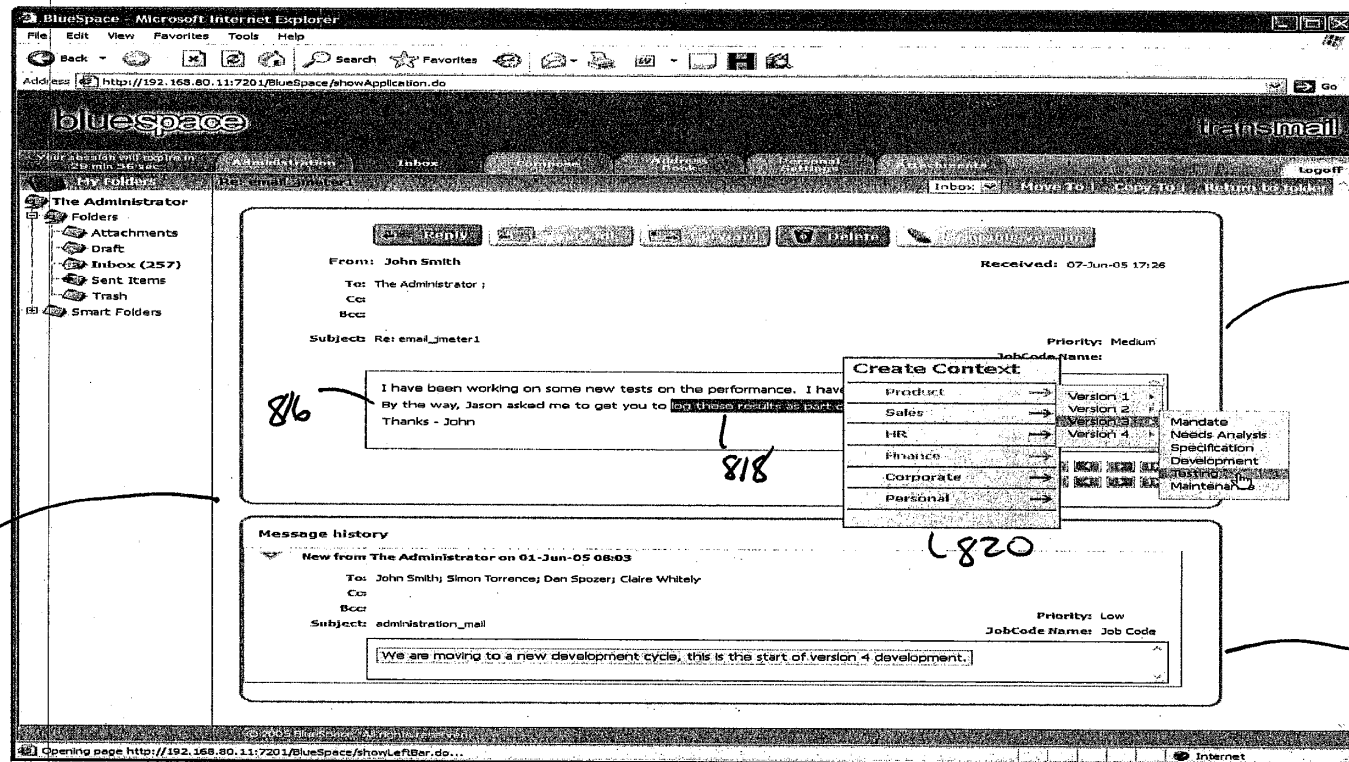


FIG. 8

Title: Providing Context in an Electronic Messaging System
 Inventor(s): Justin Marston et al.
 Atty. Docket No.: 23682-11745
 Sheet 7 of 10

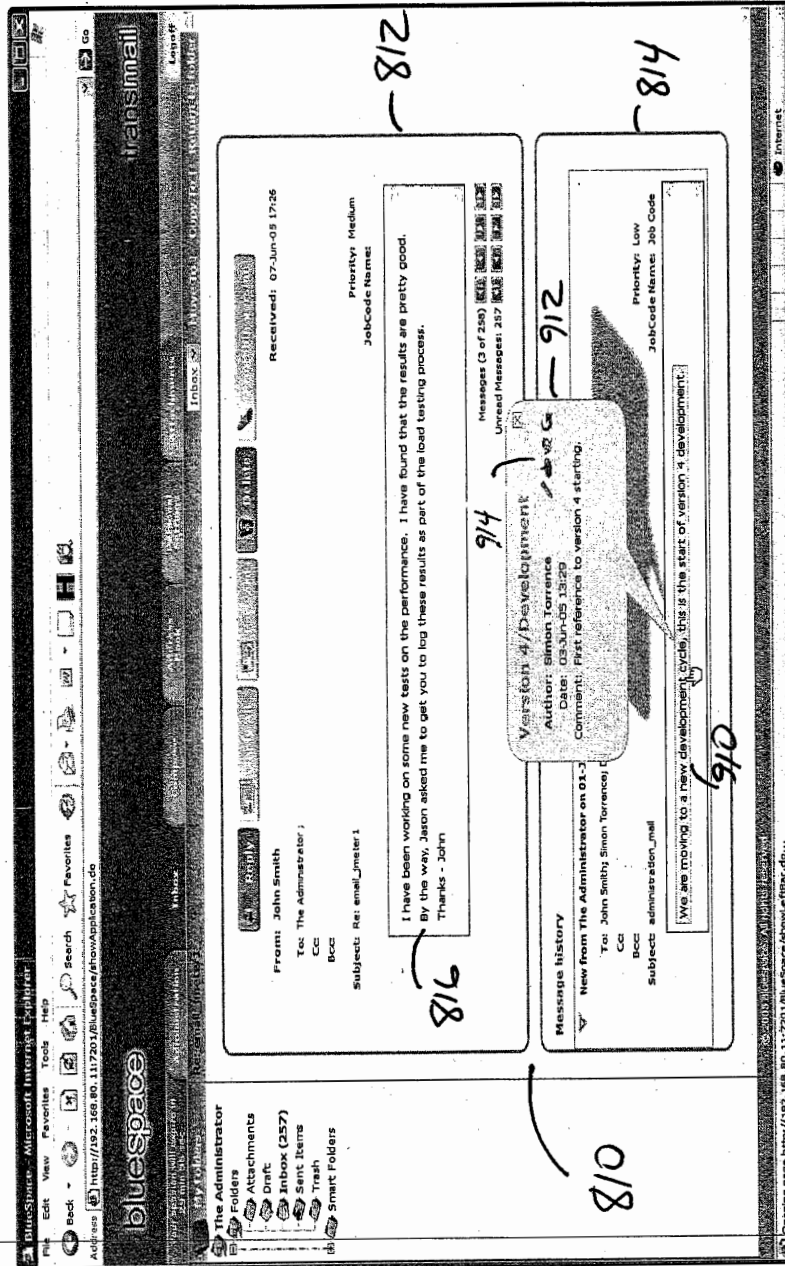


FIG. 9

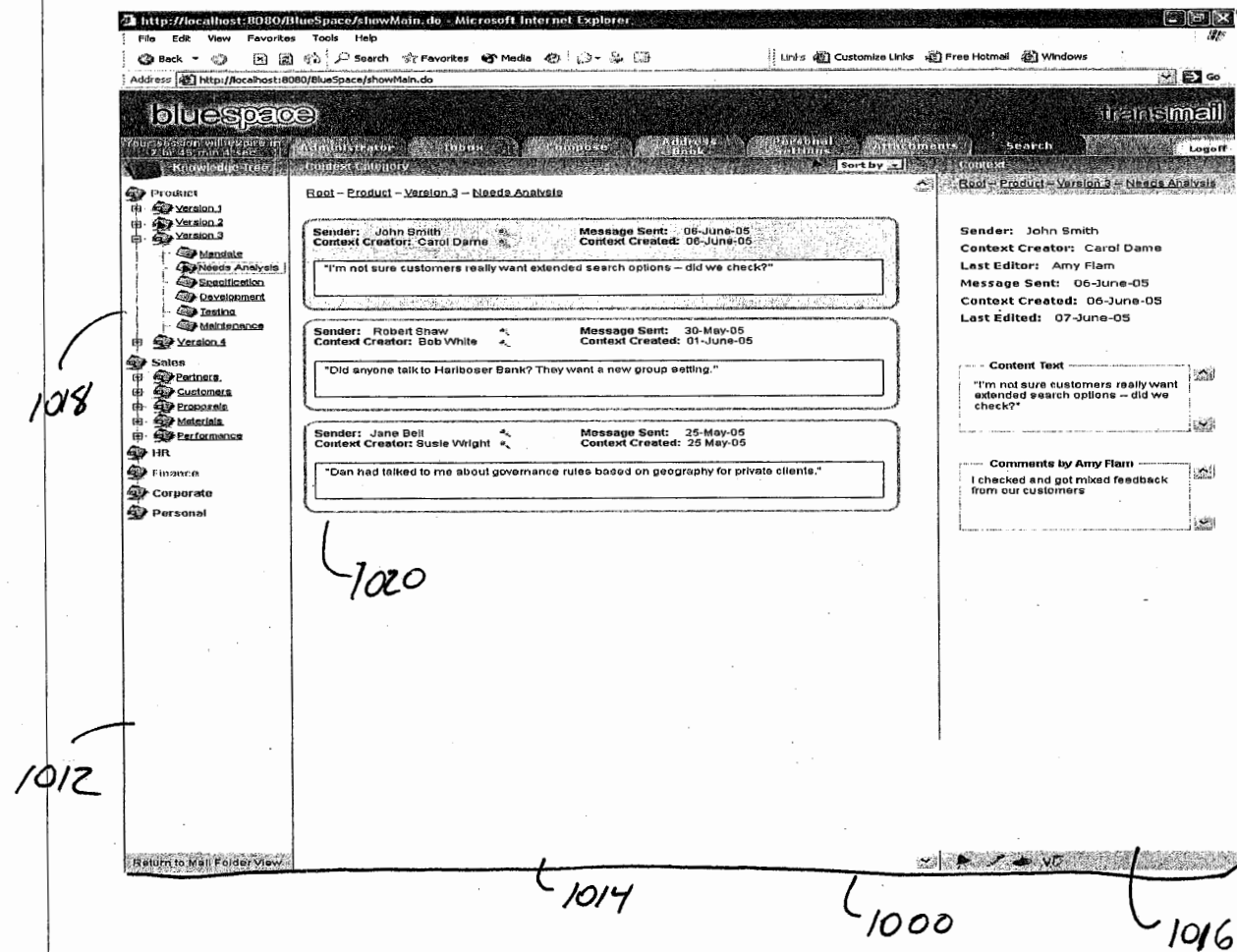
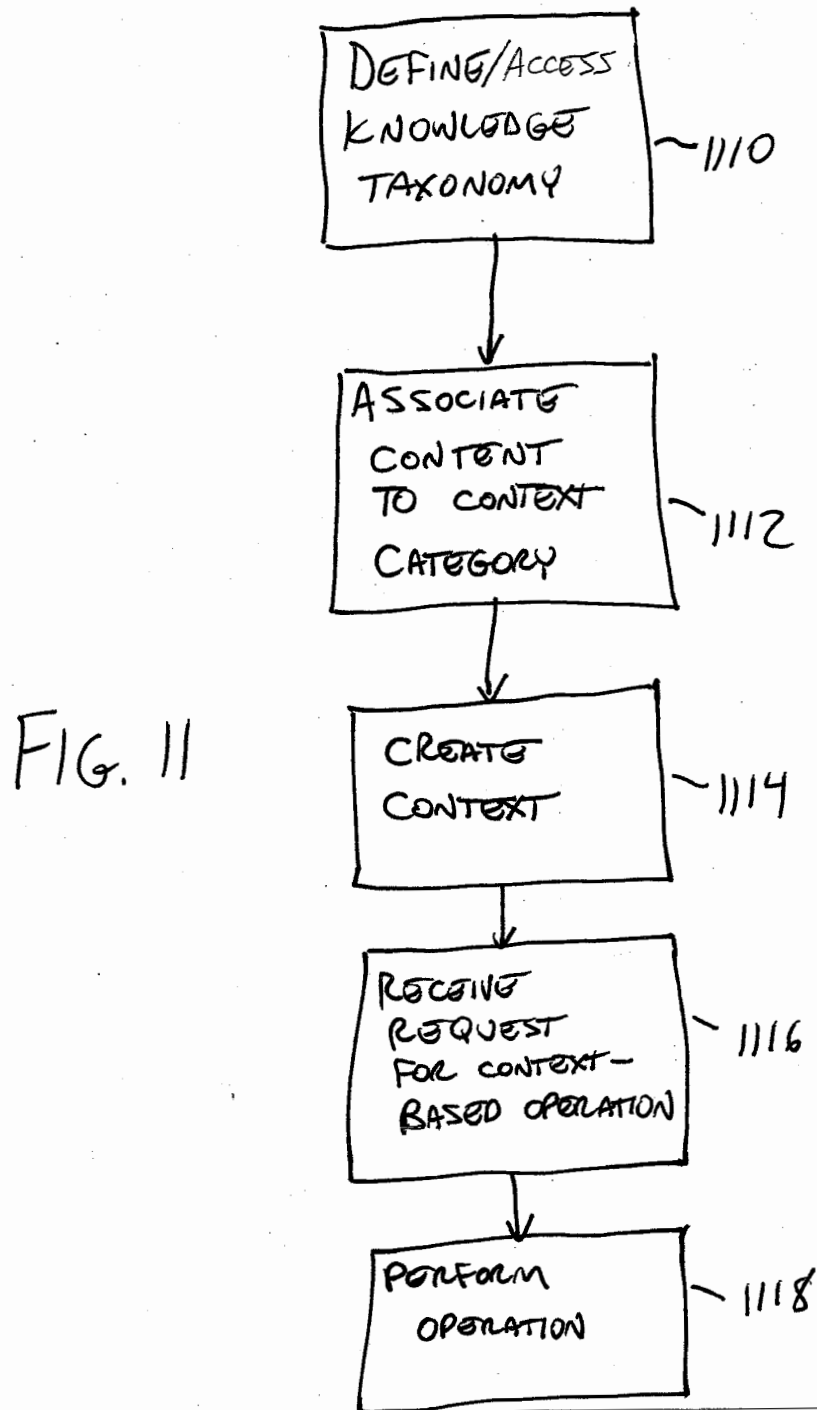


FIG. 10



Electronic Patent Application Fee Transmittal				
Application Number:				
Filing Date:				
Title of Invention:		PROVIDING CONTEXT IN AN ELECTRONIC MESSAGING SYSTEM		
First Named Inventor:		Justin Marston		
Filer:		Brian M. Hoffman		
Attorney Docket Number:		23682-11745		
Filed as Small Entity				
Utility Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Utility filing Fee (Electronic filing)	4011	1	75	75
Utility Search Fee	2111	1	250	250
Utility Examination Fee	2311	1	100	100
Pages:				
Claims:				
Claims in excess of 20	2202	3	25	75
Miscellaneous-Filing:				
Petition:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				500

Electronic Acknowledgement Receipt	
EFS ID:	1090059
Application Number:	11426118
Confirmation Number:	1387
Title of Invention:	PROVIDING CONTEXT IN AN ELECTRONIC MESSAGING SYSTEM
First Named Inventor:	Justin Marston
Customer Number:	00758
Filer:	Brian M. Hoffman
Filer Authorized By:	
Attorney Docket Number:	23682-11745
Receipt Date:	23-JUN-2006
Filing Date:	
Time Stamp:	15:01:25
Application Type:	Utility
International Application Number:	

Payment information:

Submitted with Payment	yes
Payment was successfully received in RAM	\$500
RAM confirmation Number	17
Deposit Account	192555
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 and 1.17	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)	Multi Part	Pages
1		11745_Util_App_-_Message _Contexts.pdf	159752	yes	32
	Multipart Description				
	Doc Desc		Start	End	
	Specification		1	26	
	Claims		27	31	
	Abstract		32	32	
Warnings:					
Information:					
2	Drawings	11745_Drawings.pdf	706004	no	10
Warnings:					
Information:					
3	Fee Worksheet (PTO-875)	fee-info.pdf	8460	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			874216		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.					

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD							Application or Docket Number 11426118					
Substitute for Form PTO-875												
APPLICATION AS FILED – PART I							OTHER THAN					
(Column 1)			(Column 2)		SMALL ENTITY ☒		OR		SMALL ENTITY			
FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)	OR	RATE (\$)	FEE (\$)					
☒ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	150		N/A	0					
☒ SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A	250		N/A	0					
☒ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	100		N/A	0					
TOTAL CLAIMS (37 CFR 1.16(j))	23 minus 20 =	• 3	X \$25 =	75	OR	X \$50 =	0					
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =	• 0	X \$100 =	0		X \$200 =	0					
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0			0					
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))			+ \$180	0		+\$360	0					
			TOTAL	575		TOTAL	0					
* If the difference in column 1 is less than zero, enter "0" in column 2.												
APPLICATION AS AMENDED – PART II												
(Column 1)			(Column 2)		(Column 3)		SMALL ENTITY		OR		OTHER THAN	
(Column 1)			(Column 2)		(Column 3)		SMALL ENTITY		OR		SMALL ENTITY	
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	OR	RATE (\$)	ADDITIONAL FEE (\$)				
	Total (37 CFR 1.16(i))	•	Minus **	= 0	X \$25 =	0	OR	X \$50 =	0			
	Independent (37 CFR 1.16(h))	•	Minus **	= 0	X \$100 =	0	OR	X \$200 =	0			
	☐ Application Size Fee (37 CFR 1.16(s))			0			0					
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))			0			0					
			TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	0					
(Column 1) (Column 2) (Column 3)												
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)	OR	RATE (\$)	ADDITIONAL FEE (\$)				
	Total (37 CFR 1.16(i))	•	Minus **	= 0	X \$25 =	0	OR	X \$50 =	0			
	Independent (37 CFR 1.16(h))	•	Minus **	= 0	X \$100 =	0	OR	X \$200 =	0			
	☐ Application Size Fee (37 CFR 1.16(s))			0			0					
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))			0			0					
			TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	0					
CALCULATE												
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.												

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.



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APPLICATION NUMBER	FILING OR 371 (c) DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NUMBER
11/426,118	06/23/2006	Justin Marston	23682-11745

CONFIRMATION NO. 1387
FORMALITIES
LETTER

00758
 FENWICK & WEST LLP
 SILICON VALLEY CENTER
 801 CALIFORNIA STREET
 MOUNTAIN VIEW, CA 94041

Date Mailed: 07/10/2006

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

Items Required To Avoid Abandonment:

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items and pay any fees required below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The oath or declaration is missing. *A properly signed oath or declaration in compliance with 37 CFR 1.63, identifying the application by the above Application Number and Filing Date, is required.*
Note: If a petition under 37 CFR 1.47 is being filed, an oath or declaration in compliance with 37 CFR 1.63 signed by all available joint inventors, or if no inventor is available by a party with sufficient proprietary interest, is required.

The applicant needs to satisfy supplemental fees problems indicated below.

The required item(s) identified below must be timely submitted to avoid abandonment:

- To avoid abandonment, a surcharge (for late submission of filing fee, search fee, examination fee or oath or declaration) as set forth in 37 CFR 1.16(f) of \$65 for a small entity in compliance with 37 CFR 1.27, must be submitted with the missing items identified in this letter.

SUMMARY OF FEES DUE:

Total additional fee(s) required for this application is **\$65** for a Small Entity

- \$65** Surcharge.

Replies should be mailed to: Mail Stop Missing Parts

Commissioner for Patents
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Alexandria VA 22313-1450

*A copy of this notice **MUST** be returned with the reply.*

A handwritten signature in black ink, appearing to be a stylized 'C' or 'K' with a flourish.

Office of Initial Patent Examination (571) 272-4000, or 1-800-PTO-9199, or 1-800-972-6382
PART 3 - OFFICE COPY

IN THE UNITED STATES

PATENT AND TRADEMARK OFFICE

APPLICANT(S): Justin Marston et al.
APPLICATION NO.: 11/426,118
FILING DATE: June 23, 2006
TITLE: Providing Context in an Electronic Messaging System
EXAMINER: Not Yet Known
GROUP ART UNIT: 2142
ATTY. DKT. NO.: 23682-11745

MAIL STOP MISSING PARTS
COMMISSIONER FOR PATENTS
P.O. BOX 1450
ALEXANDRIA, VA 22313-1450

**RESPONSE TO NOTICE TO FILE MISSING
PARTS OF APPLICATION**

SIR:

Responsive to the Notice to File Missing Parts dated July 10, 2006, received in the above-identified patent application,

☒ Enclosed are:

- ☒ a copy of the Notice to File Missing Parts; and
- ☒ an original, signed Declaration;
- ☒ Power of Attorney to Prosecute Before the USPTO;
- ☒ Statement Under 3.73(b); and
- ☒ a copy of the Assignment.

24207/11650/SF/5179713.1

☒ payment in the amount of \$65.00 for the

☒ missing parts surcharge.

☒ Applicant claims small entity status under 37 C.F.R. § 1.27.

Respectfully submitted,
JUSTIN MARSTON ET AL.

Dated: September 8, 2006

By: /Brian M. Hoffman/

Robert A. Hulse, Reg. No.: 39,713

Fenwick & West LLP

Silicon Valley Center

801 California Street

Mountain View, CA 94041

Tel.: (415) 875-2484

Fax.: (415) 281-1350



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APPLICATION NUMBER	FILING OR 371 (c) DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NUMBER
11/426,118	06/23/2006	Justin Marston	23682-11745

00758
 FENWICK & WEST LLP
 SILICON VALLEY CENTER
 801 CALIFORNIA STREET
 MOUNTAIN VIEW, CA 94041

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JUL 13 2006

FENWICK & WEST

CONFIRMATION NO. 1387
FORMALITIES
LETTER

Date Mailed: 07/10/2006

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION**FILED UNDER 37 CFR 1.53(b)***Filing Date Granted***Items Required To Avoid Abandonment:**

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items and pay any fees required below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The oath or declaration is missing. *A properly signed oath or declaration in compliance with 37 CFR 1.63, identifying the application by the above Application Number and Filing Date, is required.*
Note: If a petition under 37 CFR 1.47 is being filed, an oath or declaration in compliance with 37 CFR 1.63 signed by all available joint inventors, or if no inventor is available by a party with sufficient proprietary interest, is required.

The applicant needs to satisfy supplemental fees problems indicated below.

The required item(s) identified below must be timely submitted to avoid abandonment:

- To avoid abandonment, a surcharge (for late submission of filing fee, search fee, examination fee or oath or declaration) as set forth in 37 CFR 1.16(f) of \$65 for a small entity in compliance with 37 CFR 1.27, must be submitted with the missing items identified in this letter.

SUMMARY OF FEES DUE:

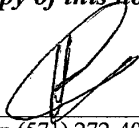
Total additional fee(s) required for this application is **\$65** for a Small Entity

- \$65** Surcharge.

Replies should be mailed to: Mail Stop Missing Parts

Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

*A copy of this notice **MUST** be returned with the reply.*

A handwritten signature in black ink, appearing to be a stylized 'R' or 'B' with a long horizontal stroke.

Office of Initial Patent Examination (571) 272-4000, or 1-800-PTO-9199, or 1-800-972-6382
PART 1 - ATTORNEY/APPLICANT COPY

DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION (37 CFR 1.63)		Attorney Docket Number	23682-11745	
		First Named Inventor	Justin Marston	
		COMPLETE IF KNOWN		
		Application Number	11/426,118	
☐ Declaration Submitted With Initial Filing	OR	☒ Declaration Submitted after Initial Filing (surcharge (37 CFR 1.16 (e)) required)	Filing Date	June 23, 2006
			Art Unit	2142
			Examiner Name	Not yet known

I hereby declare that:

Each inventor's residence, mailing address, and citizenship are as stated below next to their name.

I believe the inventor(s) named below to be the original and first inventor(s) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

PROVIDING CONTEXT IN AN ELECTRONIC MESSAGING SYSTEM

(Title of the Application)

the specification of which

☐ is attached hereto

OR

☒ was filed on (MM/DD/YYYY) 08/23/2006 as United States Application Number or PCT International

Application Number 11/426,118 and was amended on (MM/DD/YYYY) (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

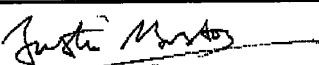
I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or (f), or 365(b) of any foreign application(s) for patent, inventor's or plant breeder's rights certificate(s), or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent, inventor's or plant breeder's rights certificate(s), or any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached?	
			☐	Yes	No
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐

☐ Additional foreign application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.

DECLARATION – Utility or Design Patent Application

Direct all correspondence to: ☒ Customer Number: 758 OR ☐ Correspondence address below			
Name			
Address			
City	State	ZIP	
Country	Telephone	Fax	
I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.			
NAME OF SOLE OR FIRST INVENTOR:		☐ A petition has been filed for this unsigned inventor	
Given Name (first and middle (if any)) Justin		Family Name or Surname Maraton	
Inventor's Signature 		Date 5 Sept 06	
Residence: City Richmond	State Surrey	Country UK	Citizenship UK
Mailing Address Flat 2, 18 Larkfield Road			
City Richmond	State Surrey	ZIP PW9 2PF	Country UK
NAME OF SECOND INVENTOR:		☐ A petition has been filed for this unsigned inventor	
Given Name (first and middle (if any)) Amy		Family Name or Surname Flamenbaum	
Inventor's Signature		Date	
Residence: City Chicago	State IL	Country US	Citizenship US
Mailing Address 832 West Oakdale, #1C			
City Chicago	State IL	ZIP 60657	Country US
☐ Additional inventors or a legal representative are being named on additional sheet(s)			

Page 2 of 2

23882/11745/SF/5176899.1

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FROM-

TO-Fenwick & West CTR#4 PAGE 002

DECLARATION – Utility or Design Patent Application

Direct all correspondence to: ☒ Customer Number: 758 OR ☐ Correspondence address below			
Name			
Address			
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Country	Telephone	Fax	
I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.			
NAME OF SOLE OR FIRST INVENTOR:		☐ A petition has been filed for this unsigned inventor	
Given Name (first and middle [if any]) Justin		Family Name or Surname Marston	
Inventor's Signature			Date
Residence: City Richmond	State Surrey	Country UK	Citizenship UK
Mailing Address Fiat 2, 18 Larkfield Road			
City Richmond	State Surrey	ZIP PW9 2PF	Country UK
NAME OF SECOND INVENTOR:		☐ A petition has been filed for this unsigned inventor	
Given Name (first and middle [if any]) Amy		Family Name or Surname Flamenbaum	
Inventor's Signature <i>Amy Flamenbaum</i>			Date <i>July 28 2006</i>
Residence: City Chicago	State IL	Country US	Citizenship US
Mailing Address 832 West Oakdale, #1C			
City Chicago	State IL	ZIP 60657	Country US
☐ Additional inventors or a legal representative are being named on additional sheet(s)			

POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(b)

I hereby appoint:

☒ Practitioners associated with the Customer Number

758

OR

☐ Practitioner(s) named below (If more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number

as attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(b).

Assignee Name and Address:

BlueSpace Software Corporation
P.O. Box 30570
Austin, TX 78755

A copy of this form, together with a statement under 37 CFR 3.73(b) (Form PTO/SB/98 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(b) may be completed by one of the practitioners appointed in this form if the appointed practitioner is authorized to act on behalf of the assignee, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Name	Justin Marston	Date	9/9/6
Signature		Telephone	(512) 386-3840
Title	President and CEO		

STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: Justin Marston et al.

Application No./Patent No.: 11/426,118

Filed/Issue Date: June 23, 2006

Entitled: Providing Context in an Electronic Messaging System

BlueSpace Software Corporation, a
(Name of Assignee)

Corporation
(Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that it is:

1. ☒ the assignee of the entire right, title, and interest; or
2. ☐ an assignee of less than the entire right, title and interest.
The extent (by percentage) of its ownership interest is _____%
in the patent application/patent identified above by virtue of either:

- A. ☒ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached and is concurrently submitted for recordation.

OR

- B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as shown below:

1. From _____ To: _____
The document was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.
2. From _____ To: _____
The document was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.
3. From _____ To: _____
The document was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet.

- ☒ Copies of assignments or other documents in the chain of title are attached.
[NOTE: A separate copy (i.e., a true copy of the original document) must be submitted to Assignment Division in accordance with 37 CFR Part 3, if the assignment is to be recorded in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

September 8, 2006

Date

Brian M. Hoffman

Typed or printed name

(415) 875-2484

Telephone number

/Brian M. Hoffman/

Signature

Attorney for Assignee

Title

23682/11745/SF/5180390.1

NOT FOR RECORDATION

PATENT

ASSIGNMENT

For good and valuable consideration, the receipt of which is hereby acknowledged, the person(s) named below (referred to as "INVENTOR" whether singular or plural) has sold, assigned, and transferred and does hereby sell, assign, and transfer to BlueSpace Software Corporation a Delaware corporation, having a place of business at PO Box 30570, Austin, Texas, ("ASSIGNEE"), for itself and its successors, transferees, and assignees, the following:

1. The entire worldwide right, title, and interest in all inventions and improvements ("SUBJECT MATTER") that are disclosed in the provisional application filed under 35 U.S.C. §111(b) or non-provisional application filed under 35 U.S.C. §111(a) and entitled **PROVIDING CONTEXT IN AN ELECTRONIC MESSAGING SYSTEM** ("APPLICATION"), which:

☒ was filed on June 23, 2006,
now bearing U.S. application number 11/426,118; and

☒ The APPLICATION claims priority from the following:

a provisional application, filed on June 24, 2005, now bearing U.S. application serial number 60/693,605;

a provisional application, filed on September 22, 2004, now bearing U.S. application serial number 60/758,828; and

2. The entire worldwide right, title, and interest in and to:

(a) the APPLICATION; (b) all applications claiming priority from the APPLICATION; (c) all provisional, utility, divisional, continuation, substitute, renewal, reissue, and other applications related thereto which have been or may be filed in the United States or elsewhere in the world; (d) all patents (including reissues and re-examinations) which may be granted on the applications set forth in (a), (b), and (c) above; and (e) all right of priority in the APPLICATION and in any underlying provisional or foreign application, together with all rights to recover damages for infringement of provisional rights.

INVENTOR agrees that ASSIGNEE may apply for and receive patents for SUBJECT MATTER in ASSIGNEE's own name.

INVENTOR agrees to do the following, when requested, and without further consideration, in order to carry out the intent of this Assignment: (1) execute all oaths, assignments, powers of attorney, applications, and other papers necessary or desirable to fully secure to ASSIGNEE the rights, titles and interests herein conveyed; (2) communicate to ASSIGNEE all known facts relating to the SUBJECT MATTER; and (3) generally do all lawful acts that ASSIGNEE shall consider desirable for securing, maintaining, and enforcing worldwide patent protection relating to the SUBJECT MATTER and for vesting in ASSIGNEE the rights, titles, and interests herein conveyed. INVENTOR further agrees to provide any successor, assign, or legal representative of ASSIGNEE with the benefits and assistance provided to ASSIGNEE hereunder.

INVENTOR represents that INVENTOR has the rights, titles, and interests to convey as set forth herein, and covenants with ASSIGNEE that the INVENTOR has not made and will not hereafter make any assignment, grant, mortgage, license, or other agreement affecting the rights, titles, and interests herein conveyed.

INVENTOR grants the attorney of record the power to insert on this Assignment any further identification that may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office for recordation of this document.

This Assignment may be executed in one or more counterparts, each of which shall be deemed an original and all of which may be taken together as one and the same Assignment.

Case Docket # 23682-11248

1 of 2

23682/11745/SF/5176700.1

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FROM-

TO-Fenwick & West CTR#4 PAGE 003

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PATENT

Title of Document: ASSIGNMENT

Re:

Title:

PROVIDING CONTEXT IN AN ELECTRONIC MESSAGING SYSTEM

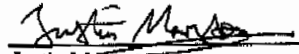
Filed:

June 23, 2006

Application No.:

11/426,118

Name and Signature



Justin Marston

Date of Signature

5 September, 2006

Name and Signature

Any Flamenbaum

Date of Signature

, 2006

Case Docket #23682-11745

2 of 2

23682/11745/SF/5176700.1

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TO-Fenwick & West CTR#4 PAGE 004

NOT FOR RECORDATION

PATENT

Title of Document: ASSIGNMENT

Re:

Title:

PROVIDING CONTEXT IN AN ELECTRONIC MESSAGING SYSTEM

Filed:

June 23, 2006

Application No.:

11/426,118

Name and SignatureDate of SignatureJustin Marston

, 2006

Name and SignatureDate of SignatureAny Flamenbaum
Any FlamenbaumJuly 28, 2006

Case Docket #23682-11745

2 of 2

23682/11745/SF/5176700.1

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FROM-212 571 4634

TO-Fenwick & West CTR#4 PAGE 003

Electronic Patent Application Fee Transmittal				
Application Number:		11426118		
Filing Date:		23-Jun-2006		
Title of Invention:		PROVIDING CONTEXT IN AN ELECTRONIC MESSAGING SYSTEM		
First Named Inventor:		Justin Marston		
Filer:		Brian M. Hoffman		
Attorney Docket Number:		23682-11745		
Filed as Small Entity				
Utility Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Late filing fee or oath or declaration	2051	1	65	65
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Total in USD (\$)				65

Electronic Acknowledgement Receipt	
EFS ID:	1192404
Application Number:	11426118
Confirmation Number:	1387
Title of Invention:	PROVIDING CONTEXT IN AN ELECTRONIC MESSAGING SYSTEM
First Named Inventor:	Justin Marston
Customer Number:	758
Filer:	Brian M. Hoffman
Filer Authorized By:	
Attorney Docket Number:	23682-11745
Receipt Date:	08-SEP-2006
Filing Date:	23-JUN-2006
Time Stamp:	19:41:42
Application Type:	Utility
International Application Number:	

Payment information:

Submitted with Payment	yes
Payment was successfully received in RAM	\$65
RAM confirmation Number	700
Deposit Account	192555
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 and 1.17	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)	Multi Part	Pages
1	Applicant Response to Pre-Exam Formalities Notice	11745_Response_to_Notice_of_Missing_Parts.pdf	93177	no	4
Warnings:					
Information:					
2	Oath or Declaration filed	11745_Declaration.pdf	137835	no	3
Warnings:					
Information:					
3	Power of Attorney	11745_POA.pdf	38594	no	1
Warnings:					
Information:					
4	Assignee showing of ownership per 37 CFR 3.73(b).	11745_Statement.pdf	138689	no	4
Warnings:					
Information:					
5	Fee Worksheet (PTO-875)	fee-info.pdf	8148	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			416443		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.					



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(c) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/426,118	06/23/2006	Justin Marston	23682-11745

CONFIRMATION NO. 1387

758
FENWICK & WEST LLP
SILICON VALLEY CENTER
801 CALIFORNIA STREET
MOUNTAIN VIEW, CA94041

Title: PROVIDING CONTEXT IN AN ELECTRONIC MESSAGING SYSTEM

Publication No. US-2006-0294191-A1

Publication Date: 12/28/2006

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

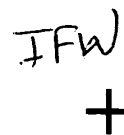
The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently <http://www.uspto.gov/patft/>.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Office of Public Records. The Office of Public Records can be reached by telephone at (703) 308-9726 or (800) 972-6382, by facsimile at (703) 305-8759, by mail addressed to the United States Patent and Trademark Office, Office of Public Records, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently <http://pair.uspto.gov/>. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

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Pre-Grant Publication Division, 703-605-4283





IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS: Justin Marston et al.
APPLICATION NO.: 11/426,118
FILING DATE: June 23, 2006
TITLE: Providing Context in an Electronic Messaging System
EXAMINER: Not yet known
GROUP ART UNIT: 2142
ATTY. DKT. NO.: 23682-11745

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Mail Stop Amendment, Commissioner For Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date shown below:

Dated: 2/14/07 By: [Signature]
Brian M. Hoffman, Reg. No.: 39,713

MAIL STOP AMENDMENT
COMMISSIONER FOR PATENTS
P.O. BOX 1450
ALEXANDRIA, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT

Under 37 CFR §§ 1.56 and 1.97-98

SIR:

Pursuant to the provisions of 37 CFR §§ 1.56 and 1.97-98, enclosed herewith is modified form PTO/SB/08A listing references for consideration by the Examiner.

The filing of this Information Disclosure Statement shall not be construed as a representation regarding the completeness of the list of references, or that inclusion of a reference in this list is an admission that it is prior art or is pertinent to this application, or that a search has been made, or as an admission that the information listed is, or may be considered to be, material to patentability, or that no other material information exists, and shall not be construed as an admission against interest in any manner.

This Information Disclosure Statement is being filed:

- ☒ within three months of the filing date of the application, or date of entry into the national stage of an international application, or before the mailing date of a first office action on the merits, whichever event last occurred;
☐ before the mailing of a first official action after the filing of a request for continued examination (RCE) under 37 CFR § 1.114;

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- ☐ after three months of the filing date of this national application or the date of entry of the national stage in an international application, or after the mailing date of the first official action on the merits, whichever event last occurred, but before the mailing date of the first to occur of either: (1) a final action under 37 CFR §1.113; or (2) an action that otherwise closes prosecution in the application, and:

☐ attached hereto is the fee set forth under 37 CFR §1.17(p) for submission of this Information Disclosure Statement under 37 CFR § 1.97(c); OR

☐ Applicant certifies pursuant to 37 CFR § 1.97(e) that:

☐ each item of information contained in this Information Disclosure Statement was first cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Statement; OR

☐ no item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to the knowledge of the person signing this certification after making reasonable inquiry, no item of information contained in this Statement was known to any individual designated under 37 CFR § 1.56(c) more than three months prior to the filing of this Statement;

- ☐ on or before the payment of the issue fee but after the mailing date of the first to occur of either: (1) a final action under 37 CFR § 1.113; (2) a notice of allowance under 37 CFR § 1.311; or (3) an action that otherwise closes prosecution in the application, and:

☐ Applicant certifies pursuant to 37 CFR. § 1.97(e) that:

☐ each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Statement;

☐ no item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to the knowledge of the person signing this certification after making reasonable inquiry, no item of

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information contained in this Statement was known to any individual designated under 37 CFR § 1.56(c) more than three months prior to the filing of this Statement; AND

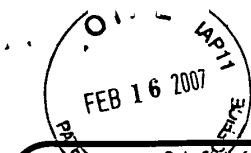
- ☐ attached hereto is the fee set forth under 37 CFR § 1.17(p) for submission of this Information Disclosure Statement under 37 CFR § 1.97(d); OR
- ☐ after the payment of the issue fee. Applicant requests that the information contained in this Information Disclosure Statement be placed in the file according to 37 CFR § 1.97(i), although the information may not be considered by the USPTO.
- ☐ Enclosed is a copy of each listed reference that may be material to the examination of this application, and for which there may be a duty to disclose.
- ☐ This application relies, under 35 U.S.C. § 120, on the earlier filing date of prior application No. _____, filed on _____, and the references cited therein are hereby referenced, but are not required to be provided in this application under 37 CFR § 1.98(d).
- ☒ Copies of any foreign patent documents and non-patent literature cited herein are enclosed.
- ☐ Each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart application, and the communication was not received by any individual designated in 37 CFR § 1.56(c) more than thirty days prior to the filing of this Information Disclosure Statement. 37 CFR § 1.704(d).
- ☒ Applicant submits that no fee is required for the consideration of this Information Disclosure Statement.

Consideration of the listed references and favorable action are solicited.

Respectfully submitted,
Justin Marston et al.

Dated: 2/14/07

By: 
Brian M. Hoffman, Reg. No.: 39,713
Fenwick & West LLP
Silicon Valley Center
801 California Street
Mountain View, CA 94041
Tel.: (415) 875-2484
Fax: (650) 938-5200



Substitute for form 1449A/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Application No.	11/426,118
				Filing Date	June 23, 2006
				First Named Inventor	Justin Marston
				Art Unit	2142
				Examiner Name	Not yet known
Sheet	1	of	1	Attorney Docket Number	23682-11745

U.S. PATENT DOCUMENTS				
Examiner Initials*	Cite No. ¹	Document No. Number – Kind Code ² (if known)	Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document

FOREIGN PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Foreign Patent Document Country Code ³ – Number ⁴ Kind Code ⁵ (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	T ⁶
		EP 1 085 444 A2	03-21-2001	Microsoft Corporation	
		EP 1 085 444 A3	04-09-2003	Microsoft Corporation	

OTHER REFERENCES – NON-PATENT LITERATURE DOCUMENTS				
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T ⁶	
		EDWARDS, K., "The Design and Implementation of the MONTAGE Multimedia Mail System," Communications for Distributed Applications and Systems, Chapel Hill, April 18, 1991, pp. 47-57, Proceedings of the Conference on Communications Software, New York, U.S.		

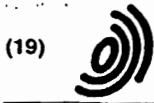
Examiner Signature		Date Considered	
--------------------	--	-----------------	--

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609.

Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Applicant's unique citation designation number (optional). ²See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.

23682/11745/DOCS/1691851.1



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) EP 1 085 444 A2

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
21.03.2001 Bulletin 2001/12

(51) Int. Cl.⁷: G06F 17/60

(21) Application number: 00308239.3

(22) Date of filing: 20.09.2000

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE
Designated Extension States:
AL LT LV MK RO SI

(72) Inventors:
• Ahmed, Muhammad A
NO 202 Seattle, WA 98105 (US)
• Alam, Muhammad Shabbir
NO 2801 Bellevue, Washington 98007 (US)

(30) Priority: 20.09.1999 US 399417

(71) Applicant: MICROSOFT CORPORATION
Redmond, Washington 98052-6399 (US)

(74) Representative:
Orr, William McLean
URQUHART-DYKES & LORD
5th Floor, Tower House
Merion Way
Leeds West Yorkshire, LS2 8PA (GB)

(54) Thread based e-mail

(57) Systems and methods for providing electronic messaging services to multiple users by storing a single copy of an electronic message at a central location and notifying recipients of the stored single copy. An electronic message includes a distribution list and a message content. A distribution list identifying multiple recipients causes prior art systems to duplicate the entire message for each recipient, placing potentially large demands on both processing power and storage space. In contrast, the systems and methods disclosed herein store a single copy or a limited number of copies of an electronic message addressed to multiple recipients

and provide each recipient with a relatively small notification. In addition to providing information regarding content and origin, the notification also provides access to the stored message. Furthermore, the methods and systems also aid in organizing replies to electronic messages. Replies are associated with an initial message through a message identifier. The association helps to organize electronic messages by subject and provides context without requiring an author to duplicate the content of the initial message with the reply.

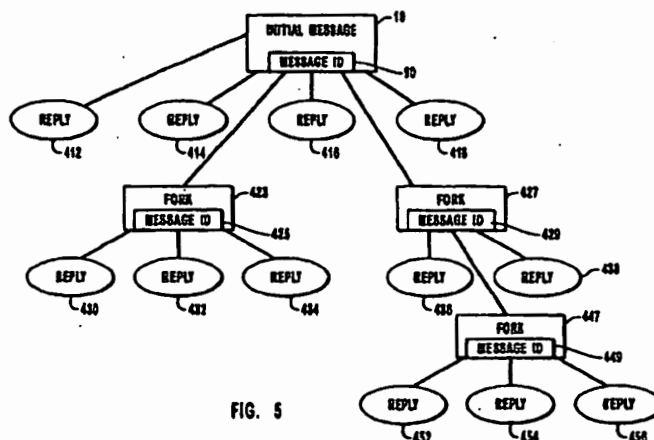


FIG. 5

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Description

BACKGROUND OF THE INVENTION**1. The Field of the Invention**

[0001] The present invention relates to methods and systems for delivering and organizing electronic messages. More specifically, the present invention relates to methods and systems that may be used to reduce the computing resources necessary for delivering a single message to multiple recipients and to improve the organization of responses to the message.

2. The Prior State of the Art

[0002] Traditional electronic messaging systems are a huge improvement over the paper analogues they augment or replace. By reducing the human and material resources necessary to transcribe, photocopy, and distribute paper communications, electronic messaging allows for resources to be focused on core business objectives rather than wasted on overhead. However, the contribution of prior art electronic messaging systems can be characterized as replacing physical inefficiencies with electronic ones.

[0003] Specifically, prior art electronic messaging systems distribute a single message to multiple recipients by duplicating the message and delivering a copy to each recipient. The two major inefficiencies that result include both processing time to duplicate the message and storage space to hold the copies. For example, consider what occurs when prior art systems deliver a three kilobyte message to all three thousand employees of a particular business. The prior art electronic messaging systems must dedicate processing resources to duplicate the three kilobyte message three thousand times, producing some nine megabytes of data that must be stored in the computer systems of the business.

[0004] Admittedly, with today's computer systems, duplicating a file three thousand times and storing nine megabytes of data are minor concerns, when viewed in isolation. However, several other factors render this drain on computer resources more serious. For example, electronic messaging systems operate on many individual messages. Duplicating a single message three thousand times is the equivalent of receiving three thousand messages at once. When combined with the normal operating conditions of the electronic messaging system, a sudden requirement to process three thousand messages can dramatically reduce system performance.

[0005] This problem is further complicated when recipients begin replying to widely distributed electronic messages. Because replies may be difficult to understand in isolation, the original message is often copied with the reply to avoid misunderstandings. Furthermore,

the replies are often distributed to all original recipients, multiplying the initial nine megabytes of data by a factor of two and adding another three thousand messages the size of the reply.

[0006] However, copying the original message with a reply provides only minimal context. By its very nature, recipients will read and respond to a widely distributed electronic message over a substantial period of time. Some recipients may be out of the office, for hours at a meeting or days on vacation, when certain electronic messages are delivered. Some recipients will be involved in other work when the message is delivered and postpone reading and/or response to a more convenient time. Others, however, will read and respond immediately. This response time delay leads prior art electronic messaging system to intersperse responses with unrelated messages received in the interim. Moreover, if a specific electronic message generates a large amount of discussion, it may be advantageous to divide an initial topic into several subtopics. However, prior art electronic messaging systems provide only limited support for organizing electronic messages by topic, such as rules for sorting messages by sender.

[0007] Furthermore, electronic messaging typically provides only limited formatting capabilities. Many messages, however, require fairly sophisticated presentation. Enhanced formatting may be important as a means of efficiently communicating information. Perhaps a table of data quickly conveys the message that would otherwise require significant amounts of text. Alternatively, higher degrees of formatting generally connote an increased level of importance or authority. The effect of requiring a high degree of formatting often leads to electronic messages containing attachments of word processing documents that provide the increased formatting capabilities. Unfortunately, the formatting information of a document may contribute as much to a document's size as the text of the document itself and introduces a certain amount of overhead. Thus, three kilobytes is an extremely conservative size for an email message with an attached word processing document. It is not uncommon for even simple word processing documents to be in the range of ten to twenty kilobytes. A twenty kilobyte attachment sent to three thousand recipients with a single reply that includes the original message represents 120 megabytes of data - for a single communication. The problem may be at its worst when a fifty kilobyte image or 100 kilobyte program is involved.

[0008] Because the copies are electronic, little consideration is given to the resources that are required for delivering electronic messages. It is a simple matter for the average person to recognize the effort in physically duplicating something three thousand times. Few if any would even consider making a short (or even humorous) comment in a paper system that requires three thousand copies of the comment, three thousand duplicates of the original message, time to attach the com-

ment to the duplicates, and manual distribution to three thousand people. However, in an electronic messaging context, senders give little consideration to the computing resources necessary for processing widely distributed messages and the possible impact of replies.

[0009] Nevertheless, some prior art electronic messaging systems provide ill-suited solutions to the processing and storage problems introduced by multiple recipient messages. For example, public folders and newsgroups both provide a mechanism for placing information in a common area where it can be accessed by multiple requestors without being duplicated for each. While newsgroups and public folders provide a topical arrangement of information, they lack the ability to direct messages to an easily modifiable group of recipients. Specifically, newsgroups and public folders require a user to post information and then depend on those who are interested in the topic to periodically check for new messages. This operation renders newsgroups and public folders virtually useless for ad hoc electronic discussions.

[0010] Moreover, newsgroups and public folders provide limited capabilities for controlling access to posted information. For example, access to newsgroups and public folders can be controlled by users, but access cannot be tailored on a message by message basis. This limitation imposes a need for newsgroups and public folders to be created based on both topic and anticipated distribution, leading to a proliferation of newsgroups and public folders that must be checked periodically for new messages.

[0011] Finally, growing enthusiasm for the Internet further contributes to the problems in the prior art because an increasing number of people have access to electronic messaging services. This increased access enhances the ability to interact with one another and increases the likelihood that a single message will be meaningful to multiple recipients, further aggravating processing and storage problems. The prior art demands either sacrificing performance, limiting distribution, or designing systems to support the inefficiencies at their peak demand.

SUMMARY AND OBJECTS OF THE INVENTION

[0012] The problems in the prior state of the art have been successfully overcome by the present invention which is directed to methods and systems for improved distribution of electronic messages directed to multiple recipients and improved organization of replies to an electronic message. The improvement eliminates inefficiencies in processing power and storage space caused by duplicating electronic messages and provides enhanced organization by grouping replies with the original message.

[0013] More specifically, in one embodiment of the present invention, a host system providing electronic messaging services efficiently distributes electronic

messages to multiple recipients. In contrast to the prior art's need to duplicate a message for each recipient, the host system stores as few as one copy of the electronic message, notifies each recipient of the stored message, and includes with the notification a link for accessing the stored message. Therefore, the host system saves both the processing time that would otherwise be used for duplicating and the corresponding storage space required to hold each of the duplicated messages.

[0014] Alternatively, the invention can be practiced using multiple host systems, each providing electronic messaging services to a particular set of clients. With multiple host systems, the host system originating a message creates a list identifying host systems providing electronic messaging services for each recipient and a list of recipients for each of the identified host systems. Then, for each host system, the originating system sends a host-specific list of recipients and a copy of the electronic message. However, in a multiple host system environment, an originating host system may determine that another host system providing electronic messaging service to certain recipients is unsupported in that it does not provide the full functionality of the invention disclosed herein. Upon identifying an unsupported host system, the originating host system sends the electronic message using another protocol that is compatible with the unsupported host system.

[0015] Yet another embodiment of the present invention provides for organizing related electronic messages. Replies may be associated with an earlier message by assigning an identifier to the initial electronic message. This association enhances a client's ability to establish the context of a reply. For example, assigning an identifier allows for the automated creation of a message-specific storage mechanism to hold the original message as well as all subsequent replies to that initial message. As electronic messages with identifiers are distributed, at least one storage mechanism for each initial message is created. Electronic messages that are replies are associated with their corresponding initial message by being placed in the storage mechanism previously created for each particular initial message.

[0016] The storage mechanism for initial messages may also comprise means for indicating the presence of electronic messages that have not been opened by the client. When a client selects a particular storage mechanism, only electronic messages associated with the message identifier will be presented. Within each storage mechanism, replies may be organized in a tree, hierarchical (parent-child), or other suitable arrangement; replies may be further ordered by time of receipt. Associating replies in this manner also allows for the elimination of common text among messages. There is no motivation for a reply to duplicate an earlier message within the reply itself because it is a relatively simple matter to access the earlier message.

[0017] Although presented separately, the aspects of the present invention summarized above should not

be considered as mutually exclusive. Rather, when combined, these aspects cooperate to greatly enhance the art of electronic messaging. Furthermore, some attributes are common among diverse embodiments of the present invention. For example, the ability to alter a distribution list for granting or denying access to one or more recipients, message specific rules that determine the lifetime of a particular message or control access to the message, and host-specific rules that provide a similar function all may enhance the embodiments described above.

[0018] It is, therefore, an object of the present invention to provide methods and systems for reducing both the processing and storage space resources associated with electronically sending a message to multiple recipients.

[0019] It is a further object of the present invention to provide methods and systems for tracking and dynamically controlling access to an electronic message.

[0020] It is yet another object of the present invention to provide methods and systems for organizing related electronic messages.

[0021] It is also an object of the present invention to provide methods and systems capable of interacting with host systems that do not operate according to the present invention.

[0022] Additional objects and advantages of the invention will be set forth in the description which follows, and in part will be obvious from the description, or may be learned by practicing the invention. The objects and advantages of the invention may be realized and obtained by means of the instruments and combinations particularly pointed out in the appended claims. These and other objects and features of the present invention will become more fully apparent from the following description and appended claims, or may be learned by the practice of the invention as set forth hereinafter.

BRIEF DESCRIPTION OF THE DRAWINGS

[0023] In order that the manner in which the above-recited and other advantages and objects of the invention are obtained, a more particular description of the invention briefly described above will be rendered by reference to specific embodiments thereof which are illustrated in the appended drawings. Understanding that these drawings depict only typical embodiments of the invention and are not therefore to be considered limiting of its scope, the invention will be described and explained with additional specificity and detail through the use of the accompanying drawings in which:

Figure 1 is an example system that provides a suitable operating environment for the present invention;

Figure 2 illustrates the basic elements of one embodiment of an electronic message;

Figure 3 illustrates the basic components of a host system that provides electronic messaging services;

Figure 4 illustrates how a preferred embodiment of the present invention processes electronic messages within a single host system environment;

Figure 5 illustrates how replies are associated with original messages; and

Figure 6 illustrates how a preferred embodiment of the present invention processes electronic messages within a multiple host system environment where one host system providing electronic messaging services does not operate according to the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0024] The present invention addresses the problems that prior art electronic messaging services face when distributing a single message to multiple recipients. Rather than expending processing power to duplicate the electronic message for each recipient and rather than dedicating storage resources to retain each of the newly made copies, the present invention stores a single copy of the electronic message and sends a relatively small notification to each recipient. The notification provides access to the stored copy of the electronic message and may also include certain information regarding its content and origin.

[0025] The present invention also aids in organizing replies to an electronic message. By assigning a message identifier, each reply can be associated with the message that prompted the response. The association is helpful to a recipient because it provides context for the reply without requiring its author to duplicate the initial message with the response. Furthermore, the context established through association is applicable to each of possibly many replies, whereas, without association, a recipient would need to separately establish context for each reply received.

[0026] The invention is described below by using diagrams to illustrate either the structure or processing of embodiments used to implement the methods and systems of the present invention. Using the diagrams in this manner to present the invention should not be construed as limiting its scope. The present invention contemplates both methods and systems for processing electronic messages. The embodiments of the present invention may comprise a special purpose or general purpose computer comprising various computer hardware.

[0027] Embodiments within the scope of the present invention also include computer-readable media having computer-executable instructions or data structures stored thereon. Such computer-readable media can be any available media which can be accessed by a general purpose or special purpose

computer. By way of example, and not limitation, such computer-readable media can comprise RAM, ROM, EEPROM, CD-ROM or other optical disk storage, magnetic disk storage or other magnetic storage devices, or any other medium which can be used to store the desired executable instructions or data structures and which can be accessed by a general purpose or special purpose computer. When information is transferred or provided over a network or other communications connection to a computer, the computer properly views the connection as a computer-readable medium. Thus, such a connection is also properly termed a computer-readable medium. Combinations of the above should also be included within the scope of computer-readable media. Computer-executable instructions comprise, for example, instructions and data which cause a general purpose computer, special purpose computer, or special purpose processing device to perform a certain function or group of functions. The computer-executable instructions and associated data structures represent an example of program code means for executing the steps of the invention disclosed herein.

[0028] Figure 1 and the following discussion are intended to provide a brief, general description of a suitable computing environment in which the invention may be implemented. Although not required, the invention will be described in the general context of computer-executable instructions, such as program modules, being executed by a personal computer. Generally, program modules include routines, programs, objects, components, data structures, etc. that perform particular tasks or implement particular abstract data types. Moreover, those skilled in the art will appreciate that the invention may be practiced with other computer system configurations, including hand-held devices, multi-processor systems, microprocessor-based or programmable consumer electronics, network PCs, minicomputers, mainframe computers, and the like. The invention may also be practiced in distributed computing environments where tasks are performed by remote processing devices that are linked through a communications network. In a distributed computing environment, program modules may be located in both local and remote memory storage devices.

[0029] With reference to Figure 1, an exemplary system for implementing the invention includes a general purpose computing device in the form of a conventional computer 20, including a processing unit 21, a system memory 22, and a system bus 23 that couples various system components including the system memory to the processing unit. The system bus 23 may be any of several types of bus structures including a memory bus or memory controller, a peripheral bus, and a local bus using any of a variety of bus architectures. The system memory includes read only memory (ROM) 24 and random access memory (RAM) 25. A basic input/output system (BIOS) 26, containing the basic routines that help to transfer information between ele-

ments within the computer 20, such as during start-up, may be stored in ROM 24. The computer 20 may also include a magnetic hard disk drive 27 for reading from and writing to a magnetic hard disk, not shown, a magnetic disk drive 28 for reading from or writing to a removable magnetic disk 29, and an optical disk drive 30 for reading from or writing to removable optical disk 31 such as a CD-ROM or other optical media. The magnetic hard disk drive 27, magnetic disk drive 28, and optical disk drive 30 are connected to the system bus 23 by a hard disk drive interface 32, a magnetic disk drive interface 33, and an optical drive interface 34, respectively. The drives and their associated computer-readable media provide nonvolatile storage of computer readable instructions, data structures, program modules and other data for the computer 20. Although the exemplary environment described herein employs a magnetic hard disk 27, a removable magnetic disk 29 and a removable optical disk 31, it should be appreciated by those skilled in the art that other types of computer readable media which can store data that is accessible by a computer, such as magnetic cassettes, flash memory cards, digital video disks, Bernoulli cartridges, random access memories (RAMs), read only memories (ROM), and the like, may also be used in the exemplary operating environment.

[0030] A number of program modules may be stored on the hard disk, magnetic disk 29, optical disk 31, ROM 24 or RAM 25, including an operating system 35, one or more application programs 36, other program modules 37, and program data 38. A user may enter commands and information into the computer 20 through input devices such as a keyboard 40 and pointing device 42. Other input devices (not shown) may include a microphone, joy stick, game pad, satellite dish, scanner, or the like. These and other input devices are often connected to the processing unit 21 through a serial port interface 46 that is coupled to system bus 23, but may be connected by other interfaces, such as a parallel port, game port or a universal serial bus (USB). A monitor 47 or other type of display device is also connected to system bus 23 via an interface, such as video adapter 48. In addition to the monitor, personal computers typically include other peripheral output devices (not shown), such as speakers and printers.

[0031] The computer 20 may operate in a networked environment using logical connections to one or more remote computers, such as a remote computer 49. Remote computer 49 may be another personal computer, a server, a router, a network PC, a peer device or other common network node, and typically includes many or all of the elements described above relative to the computer 20, although only a memory storage device 50 has been illustrated in Figure 1. The logical connections depicted in Figure 1 include a local area network (LAN) 51 and a wide area network (WAN) 52 that are presented here by way of example and not limitation. Such networking environments are common-

place in offices, enterprise-wide computer networks, intranets and the Internet.

[0032] When used in a LAN networking environment, the computer 20 is connected to the local network 51 through a network interface or adapter 53. When used in a WAN networking environment, the computer 20 typically includes a modem 54 or other means for establishing communications over the wide area network 52, such as the Internet. The modem 54, which may be internal or external, is connected to the system bus 23 via the serial port interface 46. In a networked environment, program modules depicted relative to the computer 20, or portions thereof, may be stored in the remote memory storage device. It will be appreciated that the network connections shown are exemplary and other means of establishing a communications link between the computers may be used.

[0033] Figure 2 illustrates the basic elements of electronic message 10. Although the invention will be described below in reference to electronic message 10 of Figure 2, the invention can alternatively be practiced with other electronic messages having more or fewer elements. Specifically, distribution list 60 describes all intended recipients of electronic message 10. Although not shown separately, distribution list 60 includes direct recipients as well as those receiving normal or blind copies. Including blind copy recipients in distribution list 60 does not necessarily alter the rules of who will receive copies of a subsequent reply. That is, appearing on distribution list 60 does not mean that a client receiving a blind copy of an electronic message will be identifiable to other recipients and therefore potentially receive any later replies to the electronic message. Timestamp 70 is a general indication of a message's temporal context. It may represent the actual creation time, the time a message is received by an electronic messaging service for delivery, the actual delivery time, etc., or any combination thereof. Subject 72 is a field where the sender can summarize a message's content. Subject 72 aids recipients in evaluating the relative importance of any particular message without having to review the entire message. Finally, message content 80 represents a message's substantive content and may include minimally formatted text, binary data such as sound, images, executable files, and/or word processing documents, etc., that may be included with a message as an attachment or as the message itself.

[0034] Figure 3 illustrates one example of the host systems that can be used to practice the present invention. In general, the host systems of the invention can be any system that provides electronic messaging services to users. Host system 100, which should not be seen as imposing any structural or architectural limitations on the invention, includes a message server 112 and clients 114. Message server 112 can be any network server or other computing device capable of managing electronic messaging services for clients 114. In this example, message server 112 is associated with a mes-

sage store 113, which can be any suitable data storage system capable of storing message content 80 of an electronic message 10, as shown in Figure 2. The process of storing message content 80 is further described below in reference to Figures 4-6. Clients 114, which are individually numbered client 1, client 2, client 3, client 4, . . . client n, can be as few as one client or as many clients as host system 100 and message server 112 are capable of serving.

[0035] In the example of Figure 3, message server 112 and clients 114 are connected by means of network 116, which may be a local area network, or a wide area network. In many cases, network 116 can be an organization-wide LAN configured to provide messaging services to users in the organization. Accordingly, clients 114 can be conventional client systems used in LANs or WANs, or any other suitable computing systems. For instance, clients 114 can be the computer 20 of Figure 1. As shown in Figure 3, host system 100 can be linked to other host systems. Host system 100 and, optionally, the other host systems designated by Figure 3 represent one example of a messaging system.

[0036] Figure 4 combines the basic elements of an electronic message 10, as illustrated in Figure 2, and the basic elements of a host system 100 providing electronic messaging services, as illustrated in Figure 3, to demonstrate the operation of a preferred embodiment of the present invention. The electronic messaging services of host system 100 function as follows. Limited copies of the message content 80 of Figure 2 are stored as message 180 in, for example, message store 113 of Figure 3. Generally, message 180 refers to a single electronic message. However, at times message 180 may also be viewed appropriately as an initial electronic message with associated replies and/or a forked electronic message as described below in connection with Figure 5.

[0037] The limited copies are in contrast to traditional electronic messaging services that store a separate copy for each client who is a recipient of an electronic message. At a minimum, the preferred embodiment of Figure 4 stores one copy of message 180. However, clients of host system 100 may be organized into diverse groups, with each group defining, for example, resources accessible by its members (among other things). Where clients are organized by group, host system 100 may store one copy of message 180 for each group having a member as an intended recipient of message 180.

[0038] Host system 100 also stores distribution list 60 of Figure 2 as distribution list 160. Next, the host system 100 identifies which of clients 114 are recipients as listed in distribution list 160 and notifies each recipient of message 180 through notification 110. In this example of Figure 4, clients 1, 3, and n are identified as recipients. Clients 1, 3, and n may be or may not be members of a common group.

[0039] Distribution list 160 may serve several pur-

poses. In addition to containing the intended recipients, distribution list 160 may also provide means for tracking various actions that recipients perform with regard to message 180, such as recording recipients who access the message. However, this tracking also may be performed by message 180 itself, it may be part of the rules included with either the electronic message or host system providing electronic messaging services, or tracking may be implemented separately or as a subpart of some collection of functionality.

[0040] Notification 110 may include various data such as timestamp 170 and subject 172 that correspond to the timestamp 70 and subject 72 of Figure 2. More importantly, notification 110 may include message link 182 for enabling the client to access the stored message 180. Timestamp 170, subject 172, and message link 182 are one example of a preferred embodiment's notification means for making message 180 available to recipients. A notification means may include other information such as a few lines of text, the message sender, etc. The present invention contemplates a variety of information as part of notification 110, including the above mentioned options being present either singly or in combination. It is only required that notification 110 provide some means for indicating the existence of message 180. This notification is in contrast to prior art systems that would duplicate electronic message 10, of Figure 2, and store a copy for each recipient.

[0041] Another aspect of the embodiment of Figure 4 is the ability to track access to message 180. Tracking may be useful as an auditing feature that allows the electronic messaging services of host system 100 to determine and report who has accessed message 180. Moreover, tracking access may be useful when considering rules for governing access and rules for determining lifetime as discussed below. Furthermore, one embodiment of the present invention notifies recipients when the distribution list changes and provides tools for examining the historical content of the distribution list, including comments to describe why specific changes were made.

[0042] The electronic messaging services also comprise rules for governing access to message 180. These rules may be defined as default rules to be used by the electronic messaging services or they may be defined on a message by message basis. Regardless, the rules may control access by determining, for example, if message 180 can be forwarded to new recipients, if message 180 can be downloaded from the message server to a local storage device, if distribution list 160 can be altered, and who is authorized to perform such actions. Altering distribution list 160 to add a new recipient grants access to message 180 through notification 110 as if the new recipient had been an original recipient. Altering distribution list 160 to remove a recipient revokes access to message 180 as if access had never been granted; future updates will not be available to the removed recipient. However, a recipient on distribution

list 160 may have a local copy of message 180. By maintaining a local copy, a recipient removed from distribution list 160 will retain access to message 180 as it existed at the time of removal from the distribution list 160. Revocation may be accompanied by a message indicating that message 180 is no longer available to the client.

[0043] The electronic messaging services may also include rules for determining the lifetime of message 180. By way of example and not limitation, message 180 may only be useful through a given date, until everyone has read it, or until recipients no longer access it for a particular time. The rules may choose one of the above mentioned criteria or a combination thereof, or some other suitable parameter or combination for determining the lifetime of message 180. Rules may also indicate if the lifetime of message 180 can be extended and who is authorized to make an extension.

[0044] Figure 5 illustrates the organizational component of one embodiment of the present invention. In order to associate replies with the message that prompted them, each initial message 10 is assigned a message identifier 90. Message identifier 90 allows electronic messaging services of the host system to group replies by subject matter. As practiced in the prior art, conventional electronic messaging services interperse replies with other electronic messages making it difficult for a recipient to follow a particular topic. Furthermore, as practiced in conventional systems, in an effort to aid other users in following the discussion, responses may duplicate the content of initial message 10 in the response, forcing the user to wade through the content of message 10 to reach the reply's substance.

[0045] In contrast, the embodiment of the present invention illustrated in Figure 5 associates replies to an initial message 10 using message identifier 90. Figure 5 shows a hierarchical tree model by way of example rather than limitation; any hierarchical organization is within the scope of the present invention. Reply 412, reply 414, reply 416, and reply 418 all represent reply messages associated with initial message 10 through message identifier 90. This organization allows, for example, a recipient to view a display with initial message 10 for context along with the text of replies 412, 414, 416, and 418 without having the content of message 10 duplicated in each reply.

[0046] Figure 5 also shows fork 423 and fork 427. In prior art systems, unintentional forks occur when individual topics begin to be discussed separately. Forking is a natural process that occurs based on the individual interests of each particular recipient. Participating in a forked discussion is like trying to listen to more than one person at the same time and makes establishing context a difficult task. Moreover, forking is further complicated when the original set of recipients splinters into subgroups discussing individual topics in detail. Forking is beneficial because it allows those with specific interests to focus their expertise without being subjected to

larger discussions that may be irrelevant to them. Unintentional forking becomes especially problematic in prior art systems when recipients are added to a distribution list, because the added recipients must depend on others to provide them with the discussion's history. In conventional systems, it becomes difficult to separate the history from the current discussion due to the volume of information duplicated in the name of context. Moreover, context must be established on a message by message basis by examining timestamps and sorting through text copied from earlier messages.

[0047] In contrast to forking experienced in the prior art, fork 423 and fork 427 represent intentional forks according to an embodiment of the present invention. These intentional forks are based on recipients determining that a particular topic is more suited to a small group. Fork 423 generates a new message identifier 425 and includes associated replies 430, 432, and 434. Fork 427, with new message identifier 429, includes associated replies 436 and 438 as well as fork 447 having message identifier 449 and associated replies 452, 454, and 456. The advantage of the embodiment exemplified in Figure 5 is that organization is a function of the electronic messaging services rather than the whim of an individual recipient saving messages on a given topic. Furthermore, adding a recipient to the appropriate distribution list provides the new recipient with the topic history as well, because the new recipients access is identical to that of an original recipient. Moreover, the hierarchy provides context that carries from message for message. For example, replies 430, 432, and 434 all relate to the topic division made in fork 423.

[0048] Although the discussion associated with Figures 2 and 4 spoke in terms of message 180, whether a message is an initial message, a reply, or a response to a reply is immaterial to how the message is delivered to clients who are recipients. Therefore, Figures 2 and 4 could have been described accurately in terms of message/reply rather than simply message. With the preceding discussion introducing replies and their corresponding organization, Figure 6 will describe messages and replies identically with regard to how they are distributed as any distinction is arbitrary. Nevertheless, the terms "message" and "reply" may be employed to indicate the relationship between several messages. Any descriptions of relationship with regard to distribution are by way of example and not intended as a limitation.

[0049] Figure 6 illustrates the operation of an embodiment of the present invention within a multiple host system environment where at least one of the host systems providing electronic messaging services does not operate according to the present invention. Originating host system 100 notifies its clients who are recipients of an electronic message as described in relation to Figure 4. However, message 180, shown in Figure 4, may be either an initial message or reply and is therefore designated message/reply 180 in Figure 6.

[0050] As the originating host system of message/reply 180, host system 100 is responsible for notifying other host systems serving clients who are recipients of message/reply 180. To this end, host system 100 creates host list 164 identifying each host system (e.g., host systems 100, 200, and 300) providing electronic messaging services to the recipients of message/reply 180. Host system 100 also creates a recipient by host list 162. List 162 organizes the recipients according to the host system that provides electronic messaging services to the recipients.

[0051] Host system 200 is identified by host system 100 as a host system that operates according to the current invention. Host system 100 transmits message/reply 180 and the portion of list 162 necessary for host system 200 to notify clients of host system 200 that are recipients of message/reply. Host system 200 stores the transmitted copy of message/reply 180 as message/reply 280 and the transmitted portion of list 162 as distribution list 260. In this example, host system 100 must also indicate how host system 200 should send replies to message/reply 180. This may be accomplished by identifying host system 100 as the originator of message/reply 180, meaning that all replies should be directed to host system 100 for distribution. Alternatively, host system 100 may transmit host list 164 and recipient by host list 162 to host system 200 so that host system 200 may distribute replies independent of host system 100. After receiving message/reply 180, stored as message/reply 280, and distribution list 160, stored as distribution list 260, host system 200 distributes message/reply 280 according to the description of host system 100 in Figure 4 and organizes message/reply 280 according to the description of Figure 5.

[0052] Host system 300 is identified as a host system that does not operate according to the present invention. For example, host system 300 may be incapable of storing a single copy of message/reply 180 and notifying recipients of the stored single copy. In response, host system 100 sends message/reply 180 using a protocol, which is not the one described in reference to host system 200, but is instead compatible with host system 100 and host system 300. One skilled in the art will recognize that several suitable protocols for use with host system 300 are available. In one example of using a protocol compatible with host system 300, host system 100 duplicates electronic message 10 of Figure 2 for each recipient who is a client of host system 300. As shown in Figure 6, electronic message 310 illustrates each of the duplicated electronic messages, containing a full distribution list 360, timestamp 370, subject 372, and message/reply 380, corresponding to the similarly numbered elements of electronic message 10 of Figure 2.

[0053] The present invention may be embodied in other specific forms without departing from its spirit or essential characteristics. The described embodiments are to be considered in all respects only as illustrative

and not restrictive. The scope of the invention is, therefore, indicated by the appended claims rather than by the foregoing description. All changes which come within the meaning and range of equivalency of the claims are to be embraced within their scope.

Claims

1. In a messaging system that provides clients with electronic messaging services, a method for distributing an electronic message to each client who is a recipient of the electronic message, comprising the steps of:
 - creating one or more distribution lists including each client of a host system who is a recipient of the electronic message;
 - storing at least one copy of the electronic message at the host system; and
 - using the one or more distribution lists to notify each client of the host system who is a recipient of the electronic message, such that the at least one copy of the electronic message is made available to each notified client.
2. A method as recited in claim 1, further comprising the step of tracking each client who accesses the at least one stored copy of the electronic message.
3. A method as recited in claim 1, further comprising the step of altering the one or more distribution lists.
4. A method as recited in claim 3 wherein the step of altering the one or more distribution lists comprises the step of removing a recipient, thereby denying the recipient subsequent access to the at least one copy of the electronic message.
5. A method as recited in claim 3 wherein a recipient maintains a local copy of the electronic message and the step of altering the one or more distribution lists comprises the step of removing a recipient, thereby denying the recipient subsequent access to future updates of the electronic message but leaving the local copy intact.
6. A method as recited in claim 3 wherein the step of altering the one or more distribution lists comprises the step of adding a recipient, thereby granting the recipient access to the at least one copy of the electronic message.
7. A method as recited in claim 1 wherein the electronic message comprises rules that govern access to the at least one copy of the electronic message.
8. A method as recited in claim 7, further comprising the step of using the rules to prevent a client who is a recipient from distributing the electronic message to another client who is not a recipient.
9. A method as recited in claim 7, further comprising the step of using the rules to delete the at least one copy of the electronic message at a time designated by the rules.
10. A method as recited in claim 1 wherein a single copy of the electronic message is stored at the host.
11. A method as recited in claim 1 wherein clients are organized into groups and one copy of the electronic message is stored for each group having a client who is a recipient of the electronic message.
12. A method as recited in claim 1 wherein the notification to each recipient comprises the electronic message's subject and a link to access the electronic message.
13. In a messaging system that includes an originating host system and at least one other host system, each host system providing electronic messaging services to a particular set of clients, a method for distributing an electronic message comprising the steps of:
 - the originating host system performing the steps of:
 - creating one or more distribution lists including each recipient of the electronic message;
 - identifying each host system providing electronic messaging services for each recipient of the electronic message;
 - determining whether or not each identified host system is capable of using the one or more distribution lists to notify recipients of at least one copy of an electronic message stored at each identified host system;
 - grouping each recipient of the electronic message according to the host system providing electronic messaging services in order to form one or more host-specific distribution lists for each identified host system; and
 - transmitting at least one copy of the electronic message to each identified host system.
14. A method as recited in claim 13 wherein at least one host system performs the steps of:
 - storing the at least one copy of the electronic message and the corresponding one or more

host-specific distribution lists; and
 using the one or more host-specific distribution
 lists to notify each client of the at least one host
 system who is a recipient of the electronic mes-
 sage, such that the at least one copy of the
 electronic message is made available to each
 notified client.

15. A method as recited in claim 13 wherein at least
 one host system performs the steps of:

storing at least one copy of the electronic mes-
 sage; and
 tracking each client who accesses the at least
 one copy of the electronic message stored at
 the at least one host system.

16. A method as recited in claim 13, further comprising
 the step of altering one or more distribution lists.

17. A method as recited in claim 13 wherein the elec-
 tronic message comprises rules that govern access
 to the at least one copy of the electronic message.

18. A method as recited in claim 13 wherein at least
 one host system stores a single copy of the elec-
 tronic message.

19. A method as recited in claim 13 wherein at least
 one host's clients are organized into groups and the
 at least one host stores one copy of the electronic
 message for each group having a client who is a
 recipient of the electronic message.

20. A method as recited in claim 13 wherein the origina-
 ting host system further performs the steps of:

determining that at least one host system is
 unsupported in that it is not capable of using
 one or more distribution lists to notify recipients
 of at least one copy of an electronic message
 stored at the at least one host system; and
 sending the electronic message to the unsup-
 ported host system using another electronic
 messaging protocol compatible with the unsup-
 ported host system.

21. In a messaging system that provides clients with
 electronic messaging services, a method for organ-
 izing one or more replies to an electronic message,
 comprising the steps of:

assigning a unique identifier to the electronic
 message; and
 using the unique identifier to associate the one
 or more replies with the electronic message.

22. A method as recited in claim 21, further comprising

the steps of:

assigning a reply identifier to a first reply cre-
 ated by a recipient of the electronic message;
 and
 using the reply identifier to associate, with the
 first reply, each of one or more subsequent
 replies created in response to the first reply.

23. A method as recited in claim 21, further comprising
 the step of separately presenting the electronic
 message and the one or more replies to a recipient.

24. A method as recited in claim 22, further comprising
 the step of separately presenting the electronic
 message, the first reply and the one or more subse-
 quent replies to a recipient.

25. A method as recited in claim 24 wherein the step of
 separately presenting the electronic message, the
 first reply, and the one or more subsequent replies
 comprises the step of presenting to the recipient a
 tree arrangement wherein the electronic message
 is a trunk, the first reply is a first-level branch
 depending from the trunk, and the one or more sub-
 sequent replies are second-level branches depend-
 ing from the first-level branch.

26. A method as recited in claim 21 wherein the method
 includes steps for distributing the electronic mes-
 sage to clients of a host system, comprising the
 steps of:

creating one or more distribution lists including
 each client of the host system who is a recipi-
 ent of the electronic message;
 storing at least one copy of the electronic mes-
 sage at the host system; and
 using the one or more distribution lists to notify
 each client of the host system who is a recipi-
 ent of the electronic message, such that the at
 least one copy of the electronic message is
 made available to each notified client.

27. A method as recited in claim 26 wherein the method
 includes steps for distributing replies to the elec-
 tronic message, comprising the steps of:

assigning a unique list identifier to the distribu-
 tion list;
 storing at least one copy of a reply created in
 response to the electronic message; and
 notifying each client who is a recipient of the
 reply using the unique list identifier, such that
 the at least one copy of the reply is made avail-
 able to each client who is a recipient of the
 reply.

28. A method as recited in claim 21, further comprising the steps of:

assigning a reply identifier to a first reply; and
using the reply identifier to associate, with the
first reply, each of one or more subsequent
replies created in response to the first reply.

29. A system for distributing electronic messages in a messaging environment that provides clients with electronic messaging services, the system comprising:

processor means for creating one or more distribution lists that include each client of a host system who is a recipient of the electronic message;
storage means for storing at least one copy of the electronic message at the host system; and
notification means for using the one or more distribution lists to notify each client of the host system who is a recipient of the electronic message, such that the at least one copy of the electronic message is made available to each notified client.

30. A system as recited in claim 29, further comprising means for tracking each client who accesses the at least one stored copy of the electronic message.

31. A system as recited in claim 29, further comprising means for altering the one or more distribution lists.

32. A system as recited in claim 29 wherein the electronic message comprises means for governing access to the at least one copy of the electronic message.

33. A system as recited in claim 29 wherein the storage means stores a single copy of the electronic message.

34. A system as recited in claim 29 wherein the host's clients are organized into groups and the storage means stores one copy of the electronic message for each group having a client who is a recipient of the electronic message.

35. A system for organizing replies to an electronic message, the system comprising:

processor means for uniquely identifying the electronic message; and
processor means for associating one or more replies with the uniquely identified electronic message.

36. A system recited in claim 35 wherein a recipient of

the electronic message can optionally fork a first reply, the system further comprising:

processor means for uniquely identifying the first reply; and
processor means for associating, with the first reply, each of one or more subsequent replies created in response to the first reply.

37. A system as recited in claim 35, the system further comprising means for separately presenting the electronic message and the one or more replies to a recipient.

38. A system as recited in claim 36, the system further comprising means for separately presenting to a recipient the electronic message, the first reply and the one or more subsequent replies.

39. A system as recited in claim 35 wherein the system includes a host system and means for distributing the electronic message, the system further comprising:

processor means for creating one or more distribution lists including each client of the host system who is a recipient of the electronic message;
storage means for storing at least one copy of the electronic message at the host system; and
notification means for using the one or more distribution lists to notify each client of the host system who is a recipient of the electronic message, such that the at least one copy of the electronic message is made available to each notified client.

40. A system as recited in claim 39 wherein the system includes means for distributing replies to an electronic message, comprising:

processor means for assigning a unique list identifier to the distribution list;
storage means for storing a single copy of a reply created in response to the electronic message; and
notification means for notifying each client who is a recipient of the reply using the unique list identifier, such that the single copy of the reply is made available to each notified client.

41. A system as recited in claim 40 wherein the system includes means for a recipient of the electronic message to optionally fork a first reply, comprising:

processor means for assigning a reply identifier to the first reply; and
processor means for using the unique identifier

to associate, with the first reply, each of one or more subsequent replies created in response to the first reply.

42. A computer program product for implementing a method for distributing an electronic message wherein the method is capable of being implemented in a messaging system that includes a host system and provides clients with electronic messaging services, the computer program product comprising:

a computer-readable medium carrying computer-executable instructions for implementing the method wherein the computer-executable instructions comprise:

program code means for creating one or more distribution lists including each client of the host system who is a recipient of the electronic message;

program code means for storing at least one copy of the electronic message at the host system; and

program code means for using the one or more distribution lists to notify each client of the host system who is a recipient of the electronic message, such that the at least one copy of the electronic message is made available to each notified client.

43. A computer program product as recited in claim 42 wherein the computer-executable instructions further comprise program code means for altering the one or more distribution lists.

44. A computer program product as recited in claim 42 wherein the computer-executable instructions further comprise program code means for processing rules governing access to the at least one stored copy of the electronic message.

45. A computer program product for implementing a method for organizing replies to an electronic message wherein the method is capable of being implemented in a messaging system that includes a host system and provides clients with electronic messaging services, the computer program product comprising:

a computer-readable medium carrying computer-executable instructions for implementing the method wherein the computer-executable instructions comprise:

program code means for assigning a

unique identifier to the electronic message; and

program code means for using the unique identifier to associate one or more replies with the electronic message.

46. A computer program product as recited in claim 45 wherein the computer-executable instructions further comprise program code means for distributing the electronic message, comprising:

program code means for creating one or more distribution lists including each client of the host system who is a recipient of the electronic message;

program code means for storing at least one copy of the electronic message at the host system; and

program code means for using the one or more distribution lists to notify each client of the host system who is a recipient of the electronic message, such that the at least one copy of the electronic message is made available to each notified client.

47. A computer program product as recited in claim 45 wherein the computer-executable instructions further comprise program code means for distributing one or more replies the electronic message, comprising:

program code means for assigning a unique list identifier to the distribution list;

program code means for storing at least one copy of a reply created in response to the electronic message; and

program code means for notifying each client who is a recipient of the reply using the unique list identifier, such that the at least one copy of the reply is made available to each client who is a recipient of the reply.

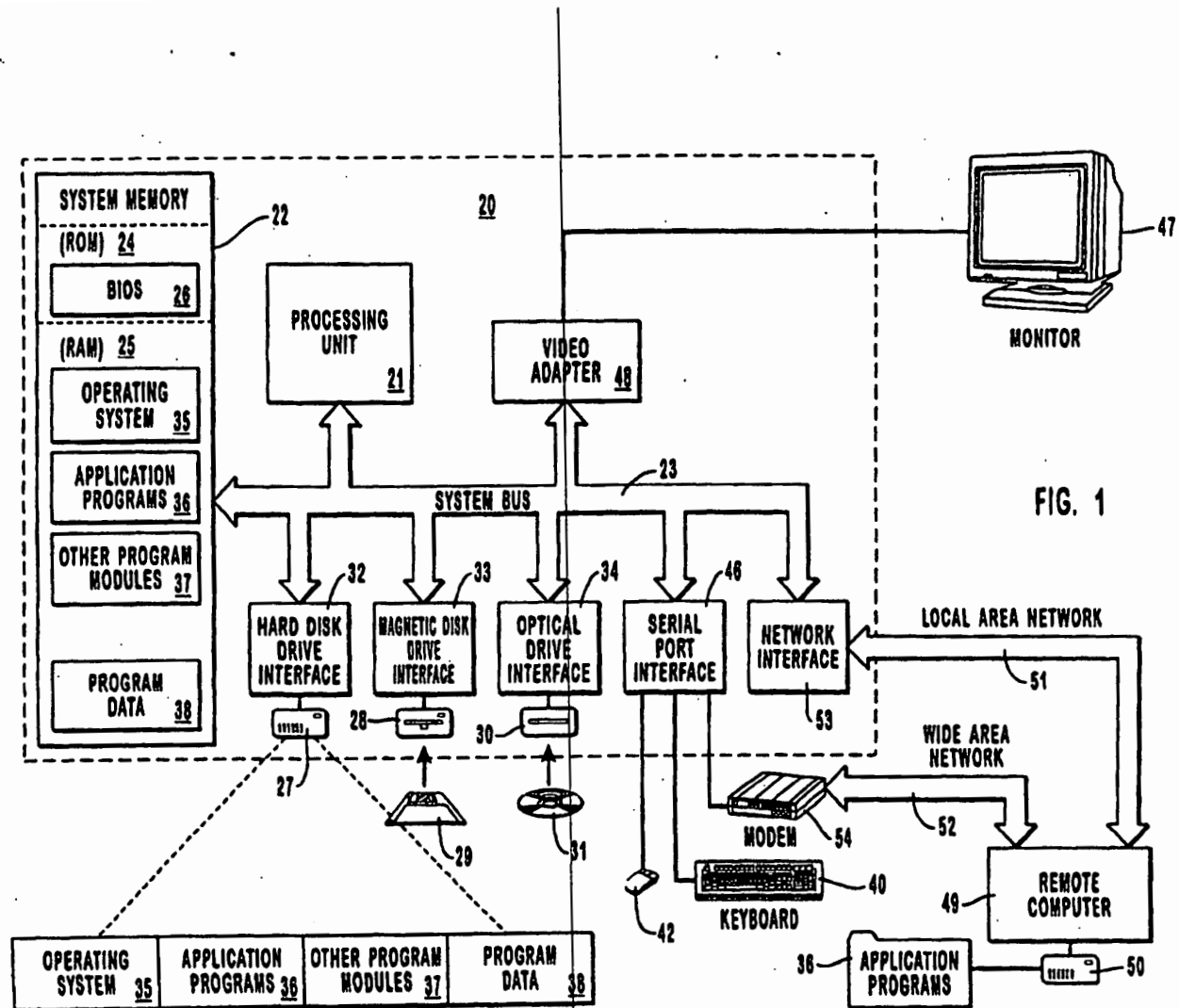


FIG. 1

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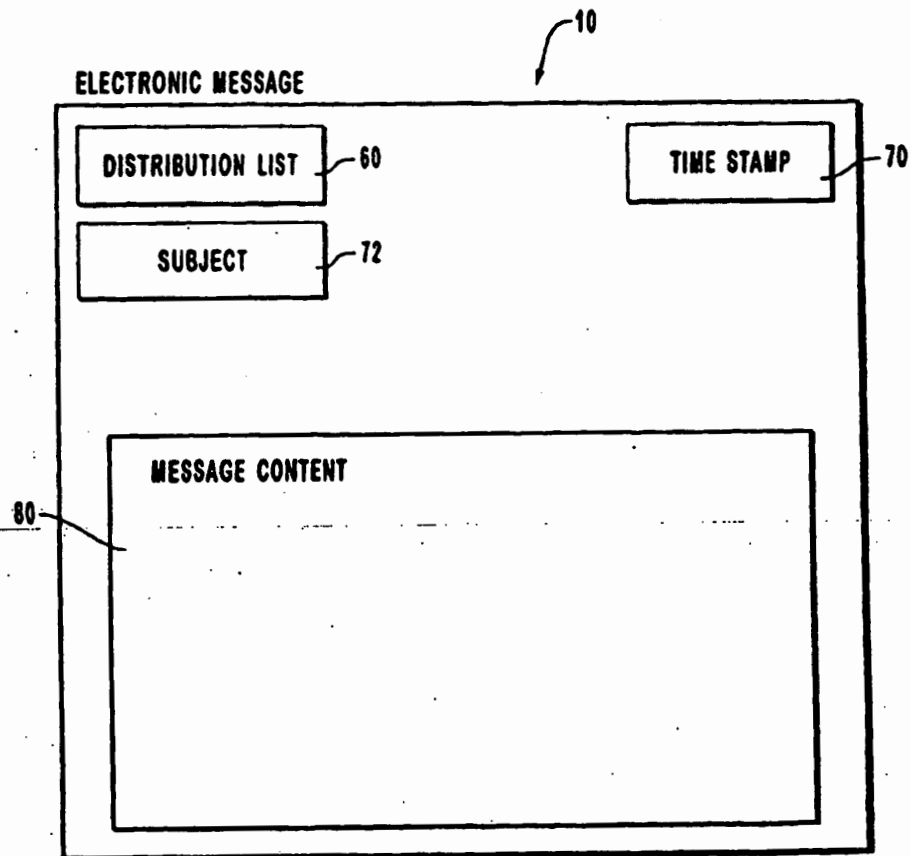


FIG. 2

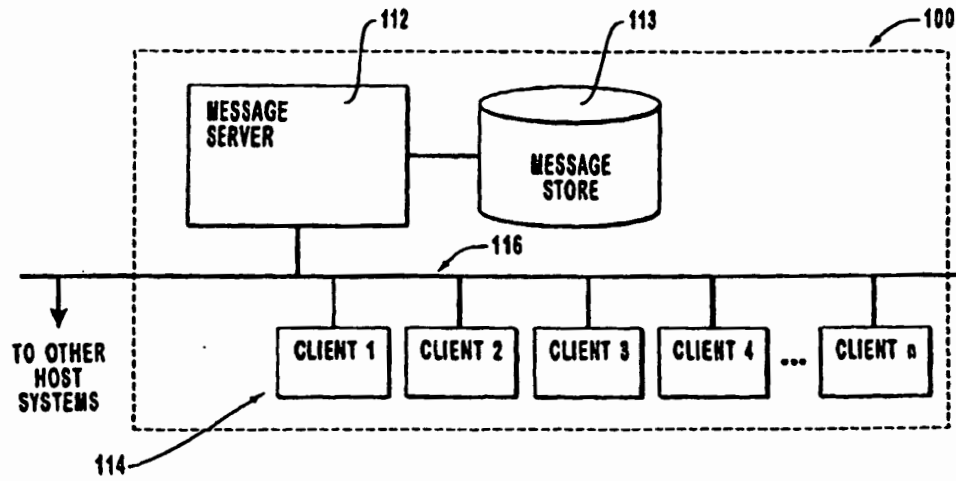


FIG. 3

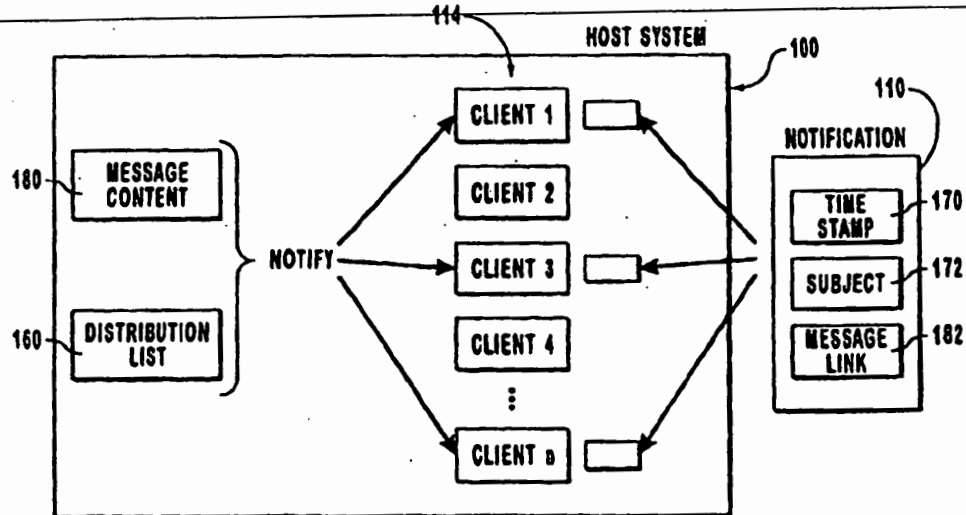


FIG. 4

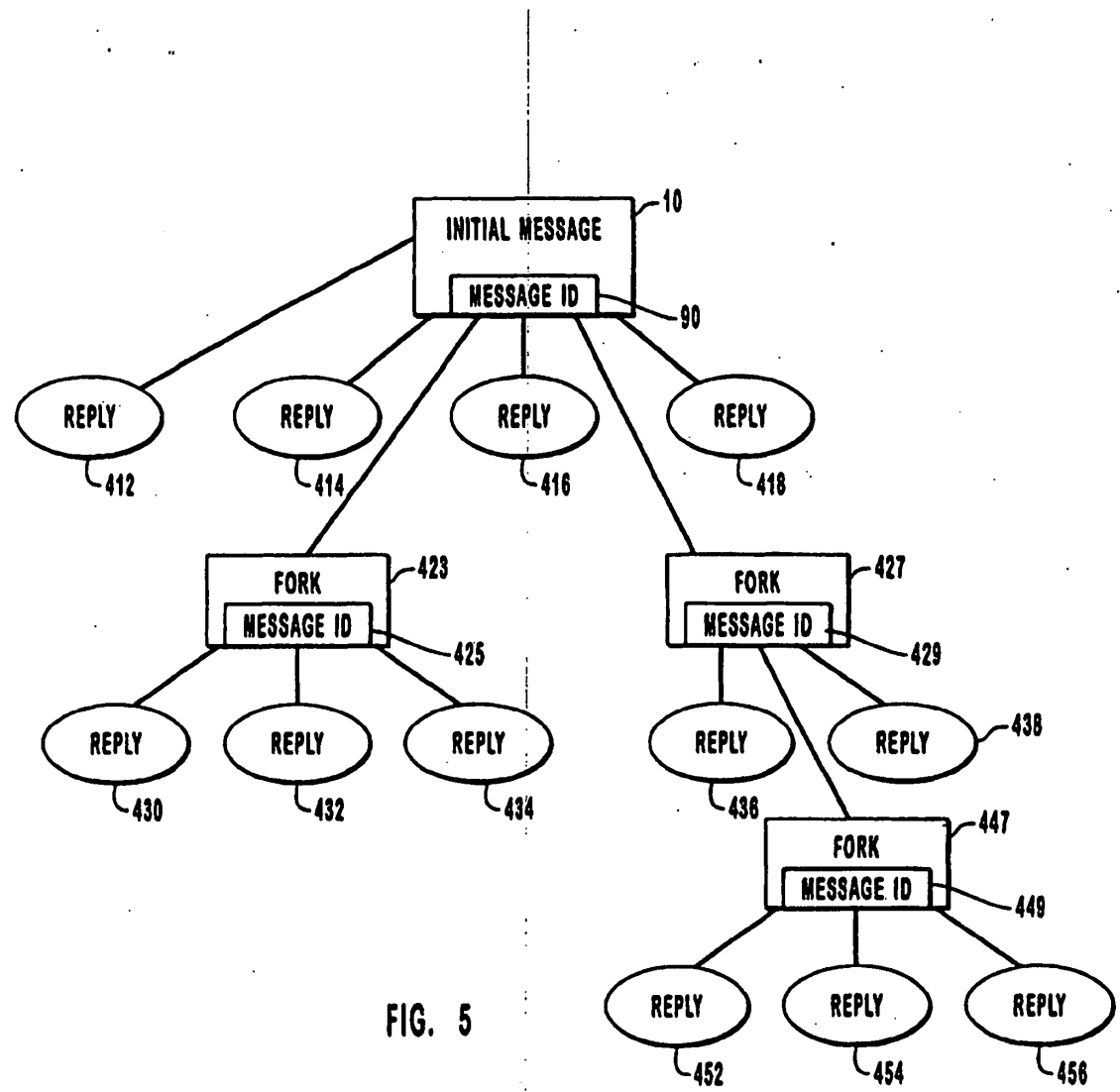
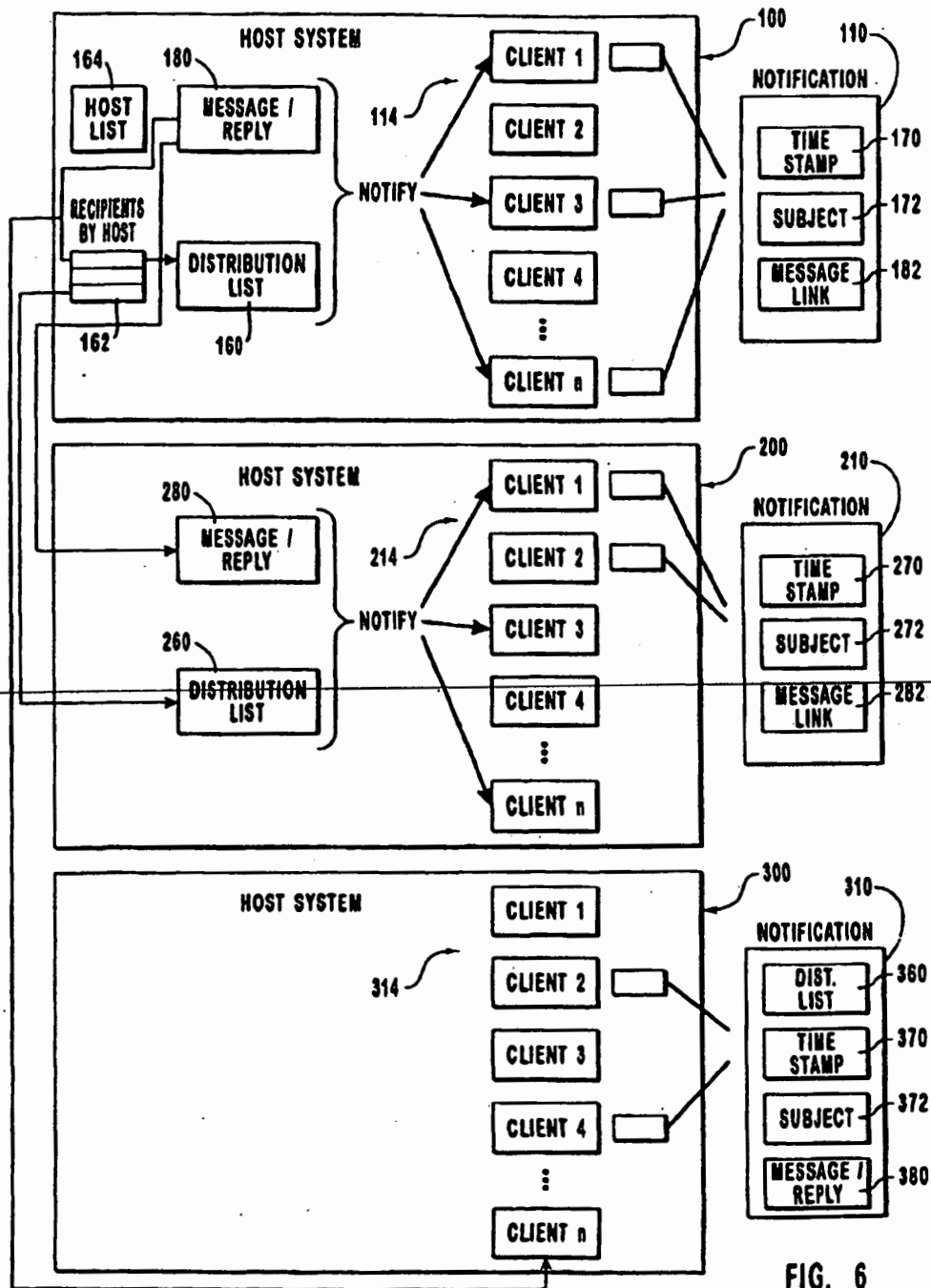


FIG. 5



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(54) **Thread based e-mail**

(57) Systems and methods for providing electronic messaging services to multiple users by storing a single copy of an electronic message at a central location and notifying recipients of the stored single copy. An electronic message includes a distribution list and a message content. A distribution list identifying multiple recipients causes prior art systems to duplicate the entire message for each recipient, placing potentially large demands on both processing power and storage space. In contrast, the systems and methods disclosed herein store a single copy or a limited number of copies of an

electronic message addressed to multiple recipients and provide each recipient with a relatively small notification. In addition to providing information regarding content and origin, the notification also provides access to the stored message. Furthermore, the methods and systems also aid in organizing replies to electronic messages. Replies are associated with an initial message through a message identifier. The association helps to organize electronic messages by subject and provides context without requiring an author to duplicate the content of the initial message with the reply.

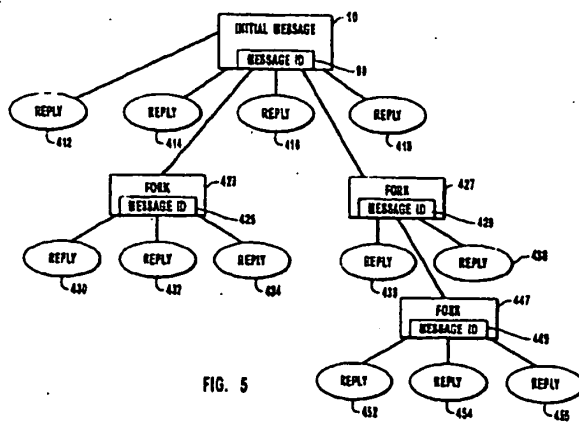


FIG. 5

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EUROPEAN SEARCH REPORT

Application Number
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DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. CL.7)
X	US 5 930 471 A (SMITH THOMAS M ET AL) 27 July 1999 (1999-07-27) * abstract; figures 2,3 * * column 3, line 40 - column 7, line 21 * Appendix 1 * the whole document *	1-3,7, 10,12, 29-31, 42-44	G06F17/60
A	---	4-6,8,9, 11, 13-20, 32-34	
X	EP 0 471 639 A (IBM) 19 February 1992 (1992-02-19) * the whole document *	1,3,6-8, 10,12, 29,31, 42-44	
X	EP 0 739 115 A (AT & T CORP) 23 October 1996 (1996-10-23) * the whole document *	1,2,7, 10-12, 20,29, 30,42-44	TECHNICAL FIELDS SEARCHED (Int. CL.7)
X	"DISTRIBUTING A DOCUMENT USING A REGIONAL REFERENCE" IBM TECHNICAL DISCLOSURE BULLETIN, IBM CORP. NEW YORK, US, vol. 33, no. 3A, 1 August 1990 (1990-08-01), page 251 XP000123925 ISSN: 0018-8689 * page 1 - page 1 *	1,7,10	H04L G06F
A	EP 0 785 661 A (AT & T CORP) 23 July 1997 (1997-07-23) * abstract *	9	
---The present search report has been drawn up for all claims			
Place of search MUNICH		Date of completion of the search 3 December 2002	Examiner Huber, A
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate documents T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons S : member of the same patent family, corresponding document			

EPO FORM 1503 (03/02) (P4/02/01)



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Application Number

EP 00 38 8239

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:
- 1-20, 29-34, 42-44



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**LACK OF UNITY OF INVENTION
SHEET B**

Application Number
EP 00 30 8239

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. Claims: 1-20, 29-34, 42-44

Delivering a single electronic message to multiple recipients by storing a copy of said electronic message at a message host, and by sending notification messages including a reference to said copy of said electronic message from said message host to said recipients.

2. Claims: 21-28, 35-41, 45-47

Organising replies to electronic messages by assigning a unique identifier to an electronic message, and by using this unique identifier to associate the one or more replies with the electronic message.

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 00 30 8239

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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03-12-2002

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

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The Design and Implementation of the MONTAGE Multimedia Mail System

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ABSTRACT

Electronic mail systems capable of transmitting compositions consisting of various unconventional media (such as voice, video, and images) have attracted a substantial amount of interest in recent years. It is important that mailers capable of delivering such documents present them in an organized fashion. We present the Montage multimedia electronic mail system, along with its model for multimedia documents. Montage makes use of a simpler format than more generalized hypermedia systems. It is our belief that the Montage model is more effective than general hypertext for the task of creating user-to-user messages. Furthermore, Montage is designed to be runtime extensible to new media types by its users. Thus the system does not have to know ahead of time all the possible media users may want to send. The system is built on top of existing mail transport protocols for flexibility and portability. We discuss the design of the mailer along with experiences gained from its implementation. The user interface to the system is also presented.

KEYWORDS

Multimedia mail, electronic mail, compound documents.

CH2955-3/91/0000-0047\$01.00 ©1991 IEEE

INTRODUCTION

mon•lage măn-'lāzh, n.

1 *the production of a rapid succession of images in a motion picture to illustrate an association of ideas*

2a *a literary, musical, or artistic composite of juxtaposed more or less heterogeneous — elements*

2b *a composite picture made by combining several separate pictures*

3 *a heterogeneous mixture*

Webster's Ninth New Collegiate Dictionary
Copyright © 1989

In the past decade, the proliferation of fast, inexpensive, networked computer workstations has produced an explosion in the use of electronic mail. Electronic mail systems have traditionally been limited to the transmission of pure textual information only.

As computer workstations increase in power, and as the use of windowing interfaces becomes more widespread and standardized, it becomes apparent that capabilities now exist for the transmission and reception of complex multimedia documents consisting of voice, images, video, and other media types in addition to plain text.

The chief advantage of such a system is the increased communication bandwidth between the users of the system. A multimedia mail system should allow people to communicate as freely and without restriction as conventional "paper" mail systems do. In current paper mail systems, users can seal most

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anything within an envelope and expect prompt delivery. Electronic multimedia mail systems should allow similar flexibility.

Furthermore, to be useful for the widest range of people, attention should be paid to current standards for electronic mail transport. It should be possible to build multimedia mail systems on top of existing lower-level mail transport protocols and thereby use existing mail routing software for transport. Furthermore, the system should allow users to send plain "flat text" mail messages to users who do not have multimedia capabilities.

We present an experimental multimedia electronic mail system, called *Montage*, which has been developed at the Georgia Institute of Technology's Software Engineering Research Center. We believe that this system provides a flexible and convenient means to send and receive complex multimedia documents. This system is built strictly on top of existing lower-level mail routing protocols and thus should work on most systems which support the Unix operating system, X Windows, and Simple Mail Transport Protocol (SMTP) mail transfer systems.

WHY MULTIMEDIA MAIL?

Traditional electronic mail systems have been limited to sending only textual data. While text-based store and forward communication systems are useful, the old adage that "a picture is worth a thousand words" is often true. For example, it is nearly impossible to concisely describe a complex architectural drawing by writing a textual description of it. Many applications involve the use of graphical information and it is extremely inconvenient to transport this information using existing electronic mail systems.

Furthermore, the mode of information delivery most familiar to humans is direct voice communication. The work of Rohr [Rohr 86] indicates that some concepts are inherently graphical while others are inherently verbal. Other research indicates that in many applications, concepts are understood better when presented in a "mixed media" mode [Guastello 89].

While computer-based electronic mail systems enjoy many benefits over paper mail, they continue to lag behind in many respects. With paper mail systems, users can post basically any type of document which can be printed on paper. This includes images and formatted text, all possibly with annotations marked on the document.

With a more flexible electronic mail system it should be possible to combine the benefits of both systems:

the convenience and speed of existing computer systems with the flexibility of paper mail systems. Furthermore, it should be possible to use the dynamic aspects of computing technology to open up mail systems to media which have previously gone unused in a store and forward environment, such as audio and video.

DESIGN

Our design for the *Montage* system was influenced by several desired goals. Foremost, we wanted to create a mail system which implements our model of multimedia messages. Secondly, to be widely used, the system had to be built on top of existing protocols and standards where ever possible. Finally, to meet unforeseen needs, the system had to be extensible by end users.

Requirements

Our design was constrained by several factors. First, we wanted to distinguish between multimedia messages and more complex general multimedia "documents." *Montage* is not a hypermedia system. Section 4, *A Model for Multimedia Messages*, elaborates on this.

With this design decision, we were able to greatly simplify implementation. *Montage* messages proceed along one basic stream of control, unlike hypermedia messages which have a potentially large number of paths through the information.

Another design constraint was that the system should function cleanly over existing low-level transport mechanisms. We do not require that *Montage* must deliver its messages over TCP/IP connections. Since mail messages may be transferred between several intervening machines which may or may not run *Montage*, the messages should look for all intents like ordinary Simple Mail Transport Protocol (SMTP) [Crocker 82][Stallings 87] messages. *Montage* does not rely on any protocols higher than SMTP for transport.

Finally, we deemed that the system must be as extensible as possible. Since we cannot anticipate the needs of all users, we must provide a mechanism to dynamically add support for new media types, without the need to alter and recompile *Montage*.

Platform

We chose our platform based on availability and portability. While the *Montage* mail format may be implemented on a variety of platforms, including PCs and Macintoshes, our prototype implementation is for Unix workstations running the X Window

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System. This platform ensures a reasonably high degree of portability for the system.

The interprocess communication abilities of Unix and the high level of flexibility in X also greatly simplify the implementation of some parts of Montage, as we shall see.

Specifically, our implementation of Montage was done on a Sun SPARCstation-1/GX machine running SunOS 4.0.3 and X11R4. The interface was built using Hewlett-Packard's widget set for X Windows. Audio support is native on the SPARCstation, video support is provided by a RasterOps video frame buffer board.

The hardware dependent parts of the Montage implementation (audio and video) are localized to simplify the porting process. It should be possible to run Montage on any Unix-based platform with X support. The audio and video functionality can be ported if necessary, but Montage will function perfectly well without audio and video support. In other words, Montage will function as a formatted text and image mailer if these facilities are not present.

Extensibility

It is impossible to know *a priori* all the things users may want to mail with a multimedia mail system. Almost by definition, multimedia mail systems should be able to send and receive a wide array of media.

Therefore, it was a primary goal that Montage be highly extensible by its end users. Montage allows users to modify the behavior of the program at runtime, without the need to recompile the system. Support may be added for new media types and new message transport techniques.

The facilities available for user extensibility will be addressed in following sections.

A MODEL FOR MULTIMEDIA MESSAGES

It is our belief that unlike more general purpose multi- or hypermedia documents, mail messages typically tend to be short and attempt to convey one central idea from the author. This belief has driven our design for the Montage message format.

Hypermedia documents tend to present the user with a large body of information in various media. The user then "navigates" through the document along a path that he or she chooses. Hypermedia systems generally tend to be quite interactive--the user is presented with almost all relevant information about

a topic and then browses the document to find interesting information [Nielsen 90].

Contrast this model to a typical mail message in which the author is generally trying to convey some small number of central tenets. Unlike more general hypermedia documents, mail tends to be less interactive. The author has an idea to present and in some sense defines the reader's path through the message at composition time.

We believe that by limiting the generality of our message format we can achieve greater levels of usability, simplicity (for both the users and the implementors), and understandability of messages.

Still, however, since various media will be combined within a single message there must be some way to navigate through the packaged information. We have taken a simple approach to this task without having to resort to the less-constrained approach of a full-blown hypermedia system.

In Montage, all media are one of two classes: static or dynamic. The defining characteristic of a dynamic medium is that the information presented changes with time. Static media do not have this temporal component. Examples of dynamic media include video and audio clips. Examples of static media include simple text, formatted (rich) text, and still images.

Obviously it is of great interest to be able to combine various media freely within a single message. The differing characteristics of our two media classes make this packaging difficult. It is natural to think of a message window containing text and image data freely interspersed. Similarly it is natural to think of video and sound data being played at the same time. This mixing of media is common and is something users are used to experiencing on a day-by-day basis.

But does it make sense to combine static and dynamic media? Consider a message containing only text. When the message is opened a window appears that contains the text of the message. Now consider a message containing only voice. When the message is opened the voice clip is replayed. But what about a message containing both voice and text? Does one begin playing the voice as soon as the text window is opened? What about video and text? Does one open two windows, one for the text and one for the video? How does the user know which window to focus attention on? What if the moving video is placed within the text window? The video would become unviewable if the text were scrolled.

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In both of these circumstances the mode of interaction would become one where the user's attention is focused on one media while the other is ignored. Some means must be provided to let users control the playback of the dynamic media so that they can decide when to focus attention on the various media. In addition, in our example above where video is presented in one window and text is presented in another, the user has no idea which contains the "central" part of the message. In other words, the user does not know which component of the message to focus on first.

Research supports the idea that users' interactions with multimedia systems tend to be largely "media-modal." That is, they segregate the information presented to them based on the medium of interaction [Laurel 90].

Primary Media Classes

To overcome these difficulties, Montage introduces the concept of a *primary media class*. Each message in Montage has a primary media class. This class is either static or dynamic. The primary media class is the type of the media presenting the "main thrust" of the communication from author to reader. Various media with the same media class (either static or dynamic) as the primary media class may be combined freely. For example, if a message's primary media class is dynamic, the author may freely intersperse audio and video in a message.

All of the components of the primary media class which compose the principal part of the message are collectively called the *primary component*.

The primary component is presented to the user in a single window. The window contains mechanisms for controlling the presentation of the primary component contained therein (in the case of dynamic media, the controls may be buttons for play, pause, fast forward, and reverse; in the case of static media the controls may be scrollbars to view various parts of the message).

We use the concept of the primary component to project a single "path" through the message, much as in existing mail systems. The primary media and primary component concepts also serves to give the author a means for expressing the central ideas in a message.

If Montage were restricted to using only media with types the same as the primary class, the system would not be very flexible. There is an obvious need for the incorporation of any type of media within a message, regardless of the primary media class.

As we shall see, the Montage model allows the use of any arbitrary media in the form of attachments.

Attachments

To augment the power of the system, Montage also makes use of *attachments*. Attachments may be placed on any message of a given primary media class. Attachments themselves are basically submessages and may be of any media type, regardless of primary media class.

Attachments may be considered to be "margin notes" that are not central to the message but still convey useful information. Since they are not presented to the user immediately when the window is opened they are, in some sense, secondary in importance to the information contained in the primary component.

Attachments give us a way to convey additional information while retaining our easy-to-play back, easy-to-understand main message thread. Without attachments, messages would degenerate to a conglomeration of mixed media within a single window which would in many cases be unmanageable.

In Montage, attachments are presented along side the primary component window in the form of icons. The image of the icon represents the type of media in the attachment. Furthermore, attachment icons are "connected" to a particular location in the primary component of the message. A use of attachments may be to provide annotation or supplementary information to the information contained in the primary component.

In the case of static primary media, attachments are connected to a certain physical point in the message. Thus, a voice attachment may be connected to a particular line number in a text message. In the case of dynamic media, attachments are connected to a certain time range in the primary message. Thus, as the dynamic message "plays back," the various attachments are presented to the user during the time they are relevant. These attachments may be selected as they appear to give additional information provided by the author.

Consider two examples of the use of primary media and annotations to construct a message. A geographically distributed group may be collaborating on a document. The primary component may be the document in question. Attached to this at various points may be audio annotations requesting changes, image data to be considered for review (image data may also appear within the document

itself), and video message clips to the various members of the group.

As another example, consider a researcher mailing a video of a presentation to a colleague. The primary media class here is dynamic, and the primary component of the message contains the video and associated audio of the talk. Attached to this at appropriate points are textual and audio annotations (the playback of the presentation may be stopped at any point to review the annotations), image data of the slides used in the presentation, text of papers, program source, and so forth.

Summary of Model

To summarize, the Montage model projects a single path of message traversal. This primary path is reflected in the primary component of the message. The primary component may contain mixed media, but the media it contains must be either all static or all dynamic to focus reader attention.

Additional information may be placed in a message in the form of attachments. An attachment is a piece of annotational information which is secondary to the primary flow through the message. Attachments are not restricted to being of the same class as the primary component.

IMPLEMENTATION NOTES

We have nearly finished a prototype implementation of Montage. This section covers the details of our implementation, including our assumptions and design decisions, the format Montage uses for message interchange, and the user interface to the system.

Overview

It was our desire that Montage be as flexible as possible in the types of media it can use. Therefore, we were determined to provide support even for media with very high bandwidth requirements, although the actual use of such media may be awkward on today's hardware because of pragmatic constraints.

Montage provides full support for interchange of text, still images, audio, and video. Local area networks commonly found today, such as Ethernet, have bandwidth in the 10 Mbps range. Even with Ethernet, applications will almost never see the full theoretical bandwidth available in the system.

The bandwidth provided by such a network is sufficient for text and small image interchange, workable for audio and large image interchange, and unwieldy for video interchange. Nevertheless,

network speed and capacity will improve, so it is important to lay a software groundwork for applications which can make use of these faster networks.

Fortunately, the batch-processing style of mail makes full utilization of network resources less important. Whereas a real-time video conferencing system would require a guaranteed portion of the communication bandwidth to function, mail systems can be much less picky. As long as the message arrives in what the user perceives to be a "reasonable" amount of time the system is meeting its goals.

Montage relies on the underlying mail transport agents for actual mail delivery across the network. So as newer mail delivery agents that can efficiently transport large message across a network become available, Montage will be able to make use of these systems.

Interchange Format

While Montage mail headers conform to the SMTP standard, Montage makes use of a custom format for the bodies of electronic mail messages. This format was created because we felt that existing standards were either inflexible in the types of media they allow, or were too unconstrained to present media in an understandable format appropriate for mail messages.

The limitations of existing mail transport agents require that the contents of Montage mail message consist entirely of printable ASCII characters. Although there are some experimental binary mail transport agents, far and away the largest number of mailers available on Unix platforms only support ASCII transfer.

Because of this restriction, we are forced to encode the bodies of Montage messages into ASCII. Our reference implementation uses the standard Unix `uuencode` program to accomplish this. The ASCII-encoded file's size is expanded by 35% after this encoding process. To compensate for this, the message body is first compressed before it is mapped into ASCII.

But what is actually contained in this message body? In Montage, the message body actually consists of several discrete units, called *chapters*. When mail is received by Montage, the body is separated from the header, it is converted to binary from its ASCII format, uncompressed, and then broken down into its components. In our implementation, each of these chapters is stored as a separate file. There is one special chapter, called the *table of contents*, which contains information on the layout of the entire mes-

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sage. The table of contents references and connects all other chapters in the message.

Our first implementation uses existing Unix tools in an effort to rapidly produce an operational version of Montage. We use the *tar* Unix archive program to combine the various chapter files upon message creation, and to break out the chapters upon message receipt.

Montage adds one line to the SMTP mail message header which specifies the version number for the encoding scheme. Since the above method is only one of many possible encodings, future Montage mailers will be able to determine the encoding method by the version number in the header. Note that this is the only addition we need to make to the header to be able to send multimedia messages.

X.400

In 1984, CCITT released a set of standards for electronic mail systems. These standards do not deal with the user interfaces of mail systems, but rather they specify the services available for sending messages across the network.

The X.400 model defines two agents that make up an electronic mail system: the User Agent (UA) and the Message Transfer Agent (MTA). The UA provides the user interface for the system and may interact with other UAs. UAs hand messages off to MTAs for transport. X.400 specifies the interactions between UAs and MTAs, but does not specify the interactions between UAs and the users [Cunningham 84][Cunningham 85].

Montage implements a subset of X.400. Montage provides most of the header fields which are used in communication between UAs and MTAs, but does not provide the inter-UA communication facilities.

It should again be noted that Montage is largely independent of any underlying mail transport agent. The system can be configured to use an administrator-defined mail agent. On our prototype system this is the Unix *sendmail* program. While we have not tried using a full X.400 mail transport agent with Montage we believe that it should function properly.

Chapters

As stated before, a message body consists of one or more message chapters along with a table of contents. The table of contents specifies the relations between the various chapters (relative placement within a message, chapter format, etc.)

Each chapter contains a "section" of the message.

Each chapter is represented in one medium. The type of this medium must be specified in the table of contents so that the recipient mailer will know how to "play back" the chapter.

A chapter is basically a single file containing a single message component. Chapters may contain either part of the primary component, an attachment, or the table of contents.

Note that the principle component of the message may be composed of many chapters, as long as the media in those chapters is of the same class as the primary media class (either static or dynamic). Thus, it is possible to have text interspersed with images in the primary component of the message.

Montage treats each chapter as raw data. That is, it associates no real semantic information with each chapter. Instead, the chapter data is handed to a playback module, or handler, which may be internal or external to Montage. The handler which is invoked on a particular chapter depends on the media type of the chapter. These handlers are specified by the users of the system, and Montage provides a mechanism for users to specify external programs which they can use to play back and record message chapters.

Media types are identified to Montage by *tags* which are associated with each chapter via the table of contents. Montage does not predefine any tags and indeed does not even associate any meaning with tags. Tags are defined by the users of the system. When a chapter is encountered the catalog of tags is searched and the user-specified handler (which may be an external program) is invoked on the chapter. The mappings from tags to handlers may be completely specified by users in a per-user database (with "sensible" defaults provided in a system-wide database).

Thus Montage is completely runtime extensible by the user in the media domain.

This ability provides Montage with a great deal of its flexibility. Users can choose their favorite tool for "recording" text (i.e., they can use their choice of editors (or word processors or spreadsheets) to enter text into the mail system). Similarly, they can use their choice of tools for viewing received audio and video chapters. Montage provides some simple means for playing and recording certain simple media. But because the system is not limited to those media which have built-in handlers, users can automatically add support for new media by specifying external programs to be used for media playback and recording. Additionally, this mechanism allows

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a great deal of user customizability and support for individual user preferences, by allowing users to use their choice of mechanisms for playback and recording of media.

Table of Contents

The table of contents (or *TOC*) is a special chapter that specifies the relations of the other chapters to one another. The format of the TOC is relatively simple, reflecting our simple model of mail usage.

We have chosen a line-oriented ASCII format for the table of contents. Since most TOCs will be relatively small, we felt that the space savings accomplished by encoding the information in a machine readable format would not be as important as the simplicity and ease of debugging provided by a human-readable format.

Each TOC must have at least 3 records. Each record gives some piece of information and each appears on a separate line. The required records are:

1. **TOCVersion** The version identifier for the TOC format.
2. **Class** The class of the primary message component, either static or dynamic.
3. **Primary** The name and type of the message chapter containing a part of the primary component of the message.

In addition to these required records, there are several optional records:

1. **Attachment** The name, tag, and position of an attachment. Position is given as a line number in the primary component if the message is static, or as a time offset in the primary component if the message is dynamic.
2. **Author** The mail address and (optional) name of the sender.
3. **CreationDate** The date the TOC was created.
4. **Subject** The subject of the message.
5. **ID** A unique identifier for the message on the machine it was created.
6. **Comment** Signifies that the rest of the line is to be treated as a comment (ignored). This is primarily used as a debugging tool.

Since it is possible to combine several chapters within the primary section of the message (as long as these media are either all static or all dynamic), there may be several **Primary** fields in the TOC. These chapters will be presented sequentially to the user.

Additionally, some media (for example, a proprietary format for a general purpose multimedia document) may mix static and dynamic media within a single window, even though this mixing is something that "native" Montage does not allow. In such a case, the media in question may reference files which it expects to contain the various media components it needs. These external files may be bundled together with the rest of a Montage message, and are referred to as "subchapters" since they are not used directly by Montage itself, but rather by one of the media that Montage is dealing with. The media which uses these external files must be responsible for managing them. Subchapters are not specified in the TOC since individual applications, rather than Montage itself, deal with them.

Here is a sample table of contents for a Montage message. This message consists of a simple text primary component, with three attachments, a μ -law sound clip (with tag "CODEC88"), another simple text segment (with tag "SimpText"), and an X Bitmap image (tag "XBM").

```
Author: Keith Edwards <keith@cc>
CreationDate: 18 Oct 90 10:18:52 PDT
Subject: Notes from the meeting
ID: 2848.AA08665
TOCVersion: 1.0
Class: static
Primary: txt.2848.txt SimpText
Attachment: snd.2848.snd CODEC88 27
Attachment: txt.2848.txt SimpText 30
Attachment: xbm.2848.xbm XBM 49
```

Interface

We built the interface for our implementation on top of the X Window System. We perceived two primary reasons for using X. Most importantly, X is accepted as a standard throughout the workstation environment we were targeting as our audience. A primary reason for this acceptance is the portability of X and applications developed for X. As a result of this portability, the interface portions of Montage should recompile cleanly on any workstation which supports X Windows.

Secondly, X provides certain general mechanisms for user customization at runtime. We were able to make use of these mechanisms to create a highly configurable mail system--not only is the interface of Montage configurable, but the actual types of media the system can handle can be changed at runtime. It would have been possible to get this degree of configurability without using X, but we were able to prototype the system much more rapidly by using the facilities already available to X applications.

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Our front end is built using a set of user interface objects (*widgets* in the X parlance) provided by the Hewlett-Packard company. We choose the HP widget set based on its perceived completeness and orthogonality. A secondary consideration was that the HP widget set is freely available, unlike some widget libraries (such as Motif and OpenLook) which are available only to sites which pay a licensing fee.

Montage makes use of a multiple-window interface. The first thing a Montage user sees is the *Control Palette*. The Control Palette presents the user with a group of on-screen "buttons" representing the major options available in the system. The primary options available from the Control Palette are

- **New Mail** check in any newly received mail into the Montage system. New mail must be "checked in" before it can be read.
- **Info** presents the user with a "pop-up" window, giving information about the program's origin.
- **Messages** presents the user with a scrollable list of messages. Users may then view, forward, save, or delete these messages.
- **Compose** is an interface to message creation. Facilities are provided for composition in several media types. Support for new media types may be added dynamically.
- **Iconify** reduces all the Montage windows to a single small window. This is convenient for when the user is not working with the system at the moment.
- **Preferences** brings up a panel which allows the user to customize his or her default preferences.
- **Quit** quits the system.

We will now go into some detail on the mechanics of the Montage interface.

Checking In New Mail Clicking the New Mail button causes any mail in the user's mail to be "checked in" to Montage. Whenever new mail is checked in, the system reads in all new messages from the user's mail spool file. As the messages are read in, the headers are parsed and a mail cache file is built in the user's home directory. The cache file contains important header information such as the message sender and subject, and the number and format of any attachments. The system also calculates the byte offset of the start of the actual message body so that the message data can be separated from the header. After the cache file is updated, the

individual messages are stored in a subdirectory of the user's directory, on a one-message-per-file basis. The system spool file is then removed to free up system disk resources.

Users are notified when new mail arrives by the playback of a sound file. Users may also enable an automatic mail check-in function via the preferences panel (see Preferences, below).

Basic Message Control The most commonly used Control Panel items are Messages and Compose. These two items give the interface to message creation, viewing, deletion, and most other common functions.

When the user clicks the Messages button to view the list of current messages, the system scans the mail cache file to retrieve the header information. This keeps Montage from having to open, scan, and parse all the message files individually. A new window is opened and the user is presented with a scrollable list of the current messages.

From the Messages window (see Figure 1) users have the option to view messages, save messages to a file, delete messages, or reply to or forward messages. All actions on messages are accomplished by highlighting the desired message or messages, and then clicking the button to perform some action on those messages. Since viewing is perhaps the most common operation, users may view messages by double clicking on the message.

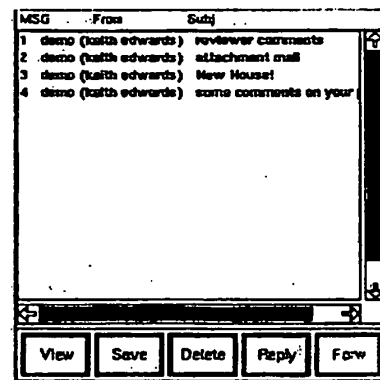


Figure 1: The Message Window

Saving a message brings up a window which prompts

for the filename in which to save the message. Currently, messages are saved in their native, bundled format. We will be adding support for saving individual message components.

Replying to a message puts the user into the *Compose* window (to be discussed shortly). When replying, the user is not restricted to using the same primary media class as the original message.

Forwarding simply allows the message to be resent to a new destination.

Message Viewing When a message is viewed, the *View* window (Figure 2) appears on the user's display. The message is automatically unpacked and the primary component of the message is presented in the main portion of the window. Any attachments are displayed along the side of the window and are represented by icons which depict the types of the attachments. There is a single scrollbar attached to the primary window and attachment list.

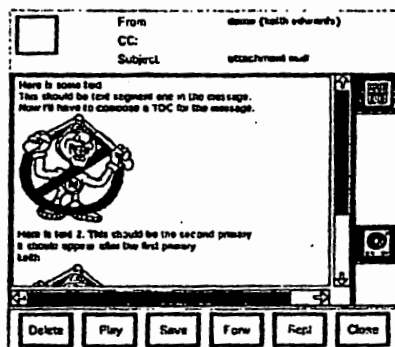


Figure 2: The View Window

What is actually displayed in the primary component window depends on the media themselves. Typically, static media will be presented in a scrolling window. The handling of dynamic media is more complex, however. Users have control over sound via a control panel much resembling a tape deck. Video messages are controlled by via a window with a set of controls much like a video cassette recorder. As the dynamic media are played, any attachments scroll by the user to the side of the control panel. If desired, users may stop playback and view attachments relevant to the portion of the primary

component they are viewing.

The *View* window also gives users options to delete, save, forward, and reply to messages. These functions work the same as those presented in the *Messages* window.

Composing New Messages Clicking the *Compose* button brings up the *Compose* window, which is an interface to message creation (see Figure 3). Users fill in the necessary components of the message header (recipient, subject line, and any carbon copies) by typing in the appropriate fields.

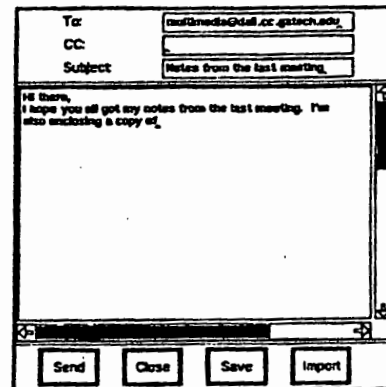


Figure 3: The Compose Window

The main portion of the *Compose* window is taken up by a region where the primary component is created. Users may type into this window directly, or they may import files of various types via the *Import* button.

The *Import* button brings up a window which allows users to insert external files as either attachments or as parts of the primary component. The user must specify the type of the inclusion so that Montage may build the table of contents for the message correctly.

Because of the ability to type directly into the *Compose* window's primary component area, the input of text is simple. However, it is desirable to be able to record other media as easily as text. It is often cumbersome to have to use tools external to Montage to record some message component into a file and then import the file into a message. Thus the *View*

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window provides a menu for Compose Tools. These tools allow users to incorporate media into messages almost as easily as text.

For example, Montage supports a sound recording tool from the Compose Tools menu. This tool (resembling a tapedeck, see Figure 4) allows users to record and edit sound clips. A similar video tool allows the recording and editing of video messages. Users may configure Montage to add new items and actions to the tools menu.

Users click the Send button to pass the message on to the mail transport agent. The View window contains buttons to close the window, and save the message to a file.

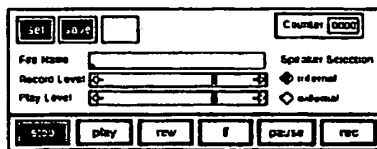


Figure 4: A Sound Tool

Hiding Montage Montage uses a multiple-window interface. Each window in the system may be shrunk or "iconified" individually.

It may be desirable at times to iconify all the windows of the application at once to effectively hide the application. This may be accomplished by the Iconify button on the Control Palette. This button reduces all the Montage windows to a single small window. Any windows which have been iconified individually are "joined" into the Montage icon. All windows will be returned to their original states when the icon is clicked.

User Preferences Montage supports user-configurable preferences via the Preferences button. This button brings up a control panel which allows users to select and modify a variety of system parameters, including changing the speakers to which audio output will be routed, setting audio play and record levels, setting whether or not message headers will be displayed, and so on.

PERFORMANCE

Overall mail system performance depends on many variables: the underlying network used for mail transport, the size of the messages, and even the habits of the users (some users may want to send

only sound clips while others may be content to send simple text most of the time).

Designers of mail systems must be concerned with two aspects of performance: mail delivery latency and message size. Mail delivery latency is the actual time required for transmission of a typical message across the network. Message size is the amount of physical storage required to actually store the mail message.

The delivery latency is dependent on the speed of the underlying network which is in turn dependent on the mail delivery agent chosen for message transport. Since Montage is usable with any RFC-822-compliant mail transport agent, we are not directly concerned with network latency and performance may be characterized by one metric: message size. In most cases message size will be proportional to delivery latency for a given network and transport agent, so message size is an effective measure of performance.

Sending a message via Montage will add somewhat to the "native" size of the information being transmitted. Essentially the native size of a Montage message is the sum of the sizes of the attachments, along with the primary message component and the message header. When the message is sent, a table of contents is added. Furthermore, all of the message body undergoes a packaging process which adds some to the size of the message.

Our goal is to minimize the increase in size by (1) optimizing the packaging process for size, and (2) making the table of contents as small as possible. We will address each of these issues in turn.

The packaging process basically consists of "bundling" the various message components into one file. To minimize the size of the resulting file, it is compressed using adaptive Lempel-Ziv coding [Welch 84] as implemented by the Unix *compress* program). The amount of compression obtained by using this algorithm depends on the size of the input and the distribution of common substrings. Typically, for English text, the compression will be in the range of 50% to 60%. Some files, such as μ -law sound files, are already encoded and cannot be compressed further.

Since the result of this compression is a binary file, it must be mapped into ASCII characters for transmission via RFC-822 mailers. This mapping process expands the file's size by 35% (3 bytes become 4, plus some control information is added). Thus, for fairly long text messages, Montage can achieve message sizes smaller than those for messages containing

the same, but unencoded text (original message size $\times .55 \times 1.35 = .74$ of the original message size).

Of course added to any encoded message is a table of contents. This table of contents specifies the "layout" of the message. Our format for the table of contents is ASCII-based. We deliberately chose this format for simplicity in implementation and to ease debugging. Usually the table of contents for a given message will be very small.

The minimum size for a table of contents is variable. Since the table of contents contains entries for things such as sender name and subject there is no fixed minimum size. But in general, a simple table of contents will be on the order of 300 bytes. Each attachment will add something on the order of 60 bytes for information regarding attachment type and placement. So we see that the contribution of the table of contents to the size of the total message is negligible.

STATUS

The design and a first-pass implementation of Montage have been completed. Currently the system allows static primary media, and attachments of either text, audio, or several image formats. Facilities have been completed to allow easy composition of messages by typing or importing text, importing images, and recording sound via a simple sound editor mechanism.

Work is progressing on the addition of full dynamic primary media capabilities. We hope to soon have store-and-forward video transmission along with synchronized sound output.

Montage is currently running as a complete functional mail system which can serve as a replacement for existing Unix mail systems. That is, Montage may already be used to replace users' text mail composition and reading programs; the remaining work lies in the area of support for additional media.

CONCLUSIONS, CAVEATS, FUTURE DIRECTIONS

Our work on Montage was based on a set of assumptions which we believe greatly enhanced the usability of the system, as well as simplified the implementation. The initial response within the local research community at the Software Engineering Research Center and outside sponsors has been favorable.

In the near future, we plan to polish the implementation of the system to the point where we have a robust, workable mail system which may then be

integrated into an actual work environment. Further work will be done on enhancing the video capabilities of the system and integrating the mailer with existing tools and media.

Much work still needs to be done on increasing the usability of the user interface. An online, context-sensitive help system is also needed.

We feel that Montage represents a flexible, workable system for the exchange of multimedia documents while presenting a friendly, intuitive interface to users.

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- ☐ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- ☐ **OTHER:** _____

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS: Justin P. Marston et al.
APPLICATION NO.: 11/426,118
FILING DATE: June 23, 2006
TITLE: Providing Context in an Electronic Messaging System
EXAMINER: Not yet known
GROUP ART UNIT: 2142
ATTY. DKT. NO.: 23682-11745

MAIL STOP AMENDMENT
COMMISSIONER FOR PATENTS
P.O. BOX 1450
ALEXANDRIA, VA 22313-1450

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT
Under 37 CFR §§ 1.56 and 1.97-98

SIR:

Pursuant to the provisions of 37 CFR §§ 1.56 and 1.97-98, enclosed herewith is modified form PTO/SB/08A listing references for consideration by the Examiner.

The filing of this Information Disclosure Statement shall not be construed as a representation regarding the completeness of the list of references, or that inclusion of a reference in this list is an admission that it is prior art or is pertinent to this application, or that a search has been made, or as an admission that the information listed is, or may be considered to be, material to patentability, or that no other material information exists, and shall not be construed as an admission against interest in any manner.

This Information Disclosure Statement is being filed:

- ☒ within three months of the filing date of the application, or date of entry into the national stage of an international application, or before the mailing date of a first office action on the merits, whichever event last occurred;
- ☐ before the mailing of a first official action after the filing of a request for continued examination (RCE) under 37 CFR § 1.114;
- ☐ after three months of the filing date of this national application or the date of entry of the national stage in an international application, or after the mailing date of the first official action on the merits, whichever event last

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occurred, but before the mailing date of the first to occur of either: (1) a final action under 37 CFR §1.113; or (2) an action that otherwise closes prosecution in the application, and:

- ☐ attached hereto is the fee set forth under 37 CFR §1.17(p) for submission of this Information Disclosure Statement under 37 CFR. § 1.97(c); OR
- ☐ Applicant certifies pursuant to 37 CFR § 1.97(e) that:
 - ☐ each item of information contained in this Information Disclosure Statement was first cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Statement; OR
 - ☐ no item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to the knowledge of the person signing this certification after making reasonable inquiry, no item of information contained in this Statement was known to any individual designated under 37 CFR § 1.56(c) more than three months prior to the filing of this Statement;
- ☐ on or before the payment of the issue fee but after the mailing date of the first to occur of either: (1) a final action under 37 CFR § 1.113; (2) a notice of allowance under 37 CFR § 1.311; or (3) an action that otherwise closes prosecution in the application, and:
 - ☐ Applicant certifies pursuant to 37 CFR. § 1.97(e) that:
 - ☐ each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Statement;
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individual designated under 37 CFR § 1.56(c) more than three months prior to the filing of this Statement; AND

☐ attached hereto is the fee set forth under 37 CFR §1.17(p) for submission of this Information Disclosure Statement under 37 CFR. § 1.97(d); OR

☐ after the payment of the issue fee. Applicant requests that the information contained in this Information Disclosure Statement be placed in the file according to 37 CFR § 1.97(i), although the information may not be considered by the USPTO.

☐ Enclosed is a copy of each listed reference that may be material to the examination of this application, and for which there may be a duty to disclose.

☐ This application relies, under 35 U.S.C. § 120, on the earlier filing date of prior application No. _____, filed on _____, and the references cited therein are hereby referenced, but are not required to be provided in this application under 37 CFR § 1.98(d).

☒ Copies of any foreign patent documents and non-patent literature cited herein are enclosed.

☐ Each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart application, and the communication was not received by any individual designated in 37 CFR § 1.56(c) more than thirty days prior to the filing of this Information Disclosure Statement. 37 CFR § 1.704(d).

☒ Applicant submits that no fee is required for the consideration of this Information Disclosure Statement.

Consideration of the listed references and favorable action are solicited.

Respectfully submitted,
Justin P. Marston et al.

Dated: August 20, 2007

By: /Brian Hoffman/
Brian M. Hoffman, Reg. No.: 39,713
Fenwick & West LLP
Silicon Valley Center
801 California Street
Mountain View, CA 94041
Tel.: (415) 875-2484
Fax: (650) 938-5200

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Complete if Known	
				Application No.	11/426,118
				Filing Date	June 23, 2006
				First Named Inventor	Justin P. Marston
				Art Unit	2142
				Examiner Name	Not yet known
Sheet	1	of	1	Attorney Docket Number	23682-11745

U.S. PATENT DOCUMENTS				
Examiner Initials*	Cite No. ¹	Document No. Number – Kind Code ² (if known)	Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
	A1	US-2004/0133645 A1	07-08-2004	Massanelli et al.
	A2	US-2003/0191806 A1	10-09-2003	Osterberg, Jr., et al.
	A3	US-2002/0136279 A1	09-26-2002	Al-Kazily et al.
	A4	US-2002/0122543 A1	09-05-2002	Rowen

FOREIGN PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Foreign Patent Document Country Code ³ – Number ⁴ Kind Code ⁵ (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	T ⁶

OTHER REFERENCES – NON-PATENT LITERATURE DOCUMENTS					
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published			T ⁶
	C1	International Search Report and Written Opinion, PCT/US06/24859, April 26, 2007, 7 pages.			

Examiner Signature		Date Considered	
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609.
 Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Applicant's unique citation designation number (optional). ²See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.

23682/11745/DOCS/1792388.1

Electronic Acknowledgement Receipt	
EFS ID:	2103261
Application Number:	11426118
International Application Number:	
Confirmation Number:	1387
Title of Invention:	PROVIDING CONTEXT IN AN ELECTRONIC MESSAGING SYSTEM
First Named Inventor/Applicant Name:	Justin Marston
Customer Number:	758
Filer:	Brian M. Hoffman/Cathy Martin
Filer Authorized By:	Brian M. Hoffman
Attorney Docket Number:	23682-11745
Receipt Date:	20-AUG-2007
Filing Date:	23-JUN-2006
Time Stamp:	20:04:08
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Filed	11745__Suppl__IDS.pdf	78176	no	3
			b47362894dc60d8cf807a9cf5c2b59a752843633		

Warnings:

Information:					
This is not an USPTO supplied IDS fillable form					
2	Information Disclosure Statement (IDS) Filed	11745__PTO-8A_for_Suppl__IDS.pdf	111169 7a4692cc3cc420b164a8e3d79da7a8b1a27b051e	no	1
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
3	NPL Documents	11745_Ref_PCTUS0624859.pdf	371075 57bd3e9b6750a645c560e9def4d5d2e06055d7cb	no	7
Warnings:					
Information:					
Total Files Size (in bytes):			560420		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS: Justin P. Marston et al.
APPLICATION NO.: 11/426,118
FILING DATE: June 23, 2006
TITLE: Providing Context in an Electronic Messaging System
EXAMINER: Andrew T. Caldwell
GROUP ART UNIT: 2142
ATTY. DKT. NO.: 23682-11745

MAIL STOP AMENDMENT
COMMISSIONER FOR PATENTS
P.O. BOX 1450
ALEXANDRIA, VA 22313-1450

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT
Under 37 CFR §§ 1.56 and 1.97-98

SIR:

Pursuant to the provisions of 37 CFR §§ 1.56 and 1.97-98, enclosed herewith is modified form PTO/SB/08A listing references for consideration by the Examiner.

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- ☐ after three months of the filing date of this national application or the date of entry of the national stage in an international application, or after the mailing date of the first official action on the merits, whichever event last occurred, but before the mailing date of the first to occur of either: (1) a

23682/11745/DOCS/1899215.1

PATENT

final action under 37 CFR §1.113; or (2) an action that otherwise closes prosecution in the application, and:

- ☐ attached hereto is the fee set forth under 37 CFR §1.17(p) for submission of this Information Disclosure Statement under 37 CFR. § 1.97(c); OR
- ☐ Applicant certifies pursuant to 37 CFR § 1.97(e) that:
 - ☐ each item of information contained in this Information Disclosure Statement was first cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Statement; OR
 - ☐ no item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to the knowledge of the person signing this certification after making reasonable inquiry, no item of information contained in this Statement was known to any individual designated under 37 CFR § 1.56(c) more than three months prior to the filing of this Statement;
- ☐ on or before the payment of the issue fee but after the mailing date of the first to occur of either: (1) a final action under 37 CFR § 1.113; (2) a notice of allowance under 37 CFR § 1.311; or (3) an action that otherwise closes prosecution in the application, and:
 - ☐ Applicant certifies pursuant to 37 CFR. § 1.97(e) that:
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 - ☐ no item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application and, to the knowledge of the person signing this certification after making reasonable inquiry, no item of information contained in this Statement was known to any

PATENT

individual designated under 37 CFR § 1.56(c) more than three months prior to the filing of this Statement; AND

☐ attached hereto is the fee set forth under 37 CFR §1.17(p) for submission of this Information Disclosure Statement under 37 CFR. § 1.97(d); OR

☐ after the payment of the issue fee. Applicant requests that the information contained in this Information Disclosure Statement be placed in the file according to 37 CFR § 1.97(i), although the information may not be considered by the USPTO.

☐ Enclosed is a copy of each listed reference that may be material to the examination of this application, and for which there may be a duty to disclose.

☐ This application relies, under 35 U.S.C. § 120, on the earlier filing date of prior application No. _____, filed on _____, and the references cited therein are hereby referenced, but are not required to be provided in this application under 37 CFR § 1.98(d).

☒ Copies of any foreign patent documents and non-patent literature cited herein are enclosed.

☐ Each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart application, and the communication was not received by any individual designated in 37 CFR § 1.56(c) more than thirty days prior to the filing of this Information Disclosure Statement. 37 CFR § 1.704(d).

☒ Applicant submits that no fee is required for the consideration of this Information Disclosure Statement.

Consideration of the listed references and favorable action are solicited.

Respectfully submitted,
JUSTIN P. MARSTON ET AL.

Dated: April 22, 2008

By: /Brian Hoffman/
Brian M. Hoffman, Reg. No.: 39,713
Fenwick & West LLP
Silicon Valley Center
801 California Street
Mountain View, CA 94041
Tel.: (415) 875-2484
Fax.: (650) 938-5200

Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Complete if Known	
				Application No.	
				11/426,118	
				Filing Date	
				June 23, 2006	
				First Named Inventor	
				Justin P. Marston	
Art Unit				2142	
Examiner Name				Andrew T. Caldwell	
Sheet	1	of	1	Attorney Docket Number	
				23682-11745	

U.S. PATENT DOCUMENTS				
Examiner Initials*	Cite No. ¹	Document No. Number – Kind Code ² (if known)	Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
	A1	US-6,578,076	06-10-2003	Putzolu
	A2	US-6,154,744	11-28-2000	Kenner et al.
	A3	US-6,134,582	10-17-2000	Kennedy
	A4	US-6,003,030	12-14-1999	Kenner
	A5	US-2004/0078447 A1	04-22-2004	Malik et al.

FOREIGN PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Foreign Patent Document Country Code ³ – Number ⁴ Kind Code ⁵ (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	T ⁶

OTHER REFERENCES – NON-PATENT LITERATURE DOCUMENTS				
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T ⁶	
	C1	PCT International Search Report and Written Opinion, PCT/US07/60587, February 14, 2008, 8 pages.		

Examiner Signature		Date Considered	
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹Applicant's unique citation designation number (optional). ²See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.

Electronic Acknowledgement Receipt	
EFS ID:	3192913
Application Number:	11426118
International Application Number:	
Confirmation Number:	1387
Title of Invention:	PROVIDING CONTEXT IN AN ELECTRONIC MESSAGING SYSTEM
First Named Inventor/Applicant Name:	Justin Marston
Customer Number:	758
Filer:	Brian M. Hoffman/Sarah Glenn
Filer Authorized By:	Brian M. Hoffman
Attorney Docket Number:	23682-11745
Receipt Date:	22-APR-2008
Filing Date:	23-JUN-2006
Time Stamp:	18:54:00
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement Letter	11745IDS.pdf	78142 7e1ad528351b9ca683b8fd695930e6f4b6e6b7ce	no	3

Warnings:

Information:

2	Information Disclosure Statement (IDS) Filed	11745Form8A.pdf	111171	no	1
			c4a47a213ae06e33a8aff95436128b73934a8dbe		
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
3	NPL Documents	PCT-US07-60587-ISR-WO-12381PCT.pdf	513104	no	8
			8ef4bd2991d89eab3a36a7ddb2c0b12ecc39b624		
Warnings:					
Information:					
Total Files Size (in bytes):				702417	
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/426,118	06/23/2006	Justin Marston	23682-11745	1387

758 7590 11/26/2008
FENWICK & WEST LLP
SILICON VALLEY CENTER
801 CALIFORNIA STREET
MOUNTAIN VIEW, CA 94041

EXAMINER

PEREZ, CARLOS R

ART UNIT	PAPER NUMBER
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2444

MAIL DATE	DELIVERY MODE
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11/26/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 11/426,118	Applicant(s) MARSTON ET AL.	
	Examiner CARLOS R. PEREZ TORO	Art Unit 2444	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 23 June 2006.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-23 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1-23 is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on 23 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some * c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892) 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>2/16/07; 8/20/07; 4/22/08</u>	4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date: _____ 5) ☐ Notice of Informal Patent Application 6) ☐ Other: _____
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DETAILED ACTION

1. This communication is in response to Application No. 11/426,118 filed on 11/23/2006, claims 1-23 have been examined.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 1-8 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claims 1-8 are not limited to tangible embodiments. The language in claim 1 describes a "computerized messaging server". The "computerized messaging server" is not defined in the specification as limited to tangible embodiments, and can reasonably be interpreted as including both tangible embodiments (e.g., software, logic, etc.) and intangible embodiments (e.g., hardware, processors and memory, etc.). As such, claim 1 and claims 2-8, which depend on it, are not limited to statutory subject matter and are therefore non-statutory.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claim 1, 5-9 and 13-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Shaw et al. (US 6,249,807) (hereinafter Shaw).

6. Regarding claim 1, Shaw teaches a computerized messaging server in an electronic messaging system, comprising:

a message module (mail receiver 120) adapted to control a message database (130) storing messages exchanged in the (enterprise) messaging system (100), each message comprising one or more message components having content (other information) (col 4 / ln 8-15); and

a context module (mail receiver 120) adapted to control a context (category) database (135) storing a knowledge taxonomy (definiton) having context categories and contexts (rules) associating content of the message components with the context categories (col 6 / ln 50-67).

7. Regarding claim 5, Shaw teaches wherein the messaging system is utilized by end-users (171) and wherein the context module comprises:

a context rights module for specifying actions an end-user is allowed (assigned) to perform with respect to a context and/or context category (queue) (col 10 / ln 54-65).

8. Regarding claim 6, Shaw teaches wherein the context module comprises:

a context properties module specifying a validity period for a context category, the validity period defining a period of time during which new associations of content to the context category can be made (col 11 / ln 62-67).

9. Regarding claim 7, Shaw teaches wherein the context module comprises:

a context properties (parameter) module specifying a retention period for a context category, the retention period specifying a period of time during which an

association between content and the context category (queue) is maintained by the contexts module (col 11 / ln 32-37).

10. Regarding claim 8, Shaw teaches wherein the context module comprises:
a context operations module for performing operations in the messaging system utilizing the contexts (col 7 / ln 40-42).

11. Claim 9 is substantially the same as claim 1 and is thus rejected for reasons similar to those in rejecting claim 1.

12. Claims 13-16 are substantially the same as claims 5-8 and are thus rejected for reasons similar to those in rejecting claims 5-8.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if 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 said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 2-4, 10-12 and 17-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shaw in view of Karamchedu et al. (US 2004/0054744) (hereinafter Karamchedu).

15. Shaw substantially teaches the invention as recited in claim 1.

Regarding claim 2, Shaw teaches wherein the messaging server is utilized by an enterprise (col 2 / ln 63-66).

However, Shaw does not explicitly teach the context module comprising a taxonomy of context categories representing knowledge or activities of the enterprise.

However, in the same field of invention, Karamchedu teaches wherein the context module comprises:

a taxonomy definition module (semantic qualification module) for defining the knowledge taxonomy, the taxonomy structured as a hierarchical tree having nodes for context categories (schema) representing knowledge possessed and/or activities performed by the enterprise (e.g., lab processing, claims processing) [Karamchedu 0037, Fig 5].

At the time the invention was made, given the teachings for associating a message database with a context database, the teachings of Karamchedu for including a knowledge taxonomy with the context database would have been obvious. One of ordinary skill in the art would be motivated to combine these teachings in order to facilitate searching and processing of electronic message [Karamchedu 0020].

16. Regarding claim 3, Shaw-Karamchedu teaches wherein external content resides at a location external to the messaging server and wherein the context module comprises:

a content association module for creating contexts associating (contextualization) at least a (highlighted) portion of the external content with a context category (semantic qualifier) of the knowledge taxonomy [Karamchedu 0022, 0024].

17. Regarding claim 4, Shaw-Karamchedu teaches wherein the context module comprises:

a content association module for monitoring messages exchanged by the messaging system and automatically creating (by a semantic qualification logic) contexts associating (assigning) content of the messages with context categories [Karamchedu 0037].

18. Regarding claim 17, Shaw-Karamchedu teaches a method of utilizing contexts in an electronic messaging system, the messaging system exchanging messages comprising one or more message components having content, the method comprising:
defining a knowledge taxonomy having context categories (Shaw col 6 / ln 50-67);
associating content of the message components with context categories of the knowledge taxonomy to create contexts [Karamchedu 0022]; and
searching and/or sorting (post-processing) the content responsive to the contexts [Karamchedu 0020].

19. Claims 18-22 are substantially the same as claims 2 and 4-7, respectively, and are thus rejected for reasons similar to those in rejecting claims 2 and 4-7.

20. Regarding claim 23, Shaw-Karamchedu teaches wherein the messaging system is utilized by an end-user and further comprising:
providing a graphical user interface (GUI) to the end-user, the GUI enabling the end-user to create a context associating content of a message component with a context category, and/or view contexts associated with the context category (Karamchedu Fig 4b and 4c).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CARLOS R. PEREZ TORO whose telephone number is (571) 270-5649. The examiner can normally be reached on Monday-Friday 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Vaughn can be reached on 571-272-3922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/C. R. P./
Examiner, Art Unit 2444
/William C. Vaughn, Jr./
Supervisory Patent Examiner, Art Unit 2444

Notice of References Cited	Application/Control No. 11/426,118		Applicant(s)/Patent Under Reexamination MARSTON ET AL.	
	Examiner CARLOS R. PEREZ TORO		Art Unit 2444	Page 1 of 1

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*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-6,249,807 B1	06-2001	Shaw et al.	709/206
*	B	US-2004/0054744 A1	03-2004	Karamchedu et al.	709/206
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes 	Application/Control No. 11426118	Applicant(s)/Patent Under Reexamination MARSTON ET AL.
	Examiner CARLOS R PEREZ TORO	Art Unit 2444

SEARCHED			
Class	Subclass	Date	Examiner
709	206	11/17/2008	CRP

SEARCH NOTES		
Search Notes	Date	Examiner
EAST Inventor and Assignee Search	11/17/2008	CRP
EAST Class-limited Search	11/17/2008	CRP
EAST Text-based Search	11/17/2008	CRP

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

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Index of Claims 	Application/Control No. 11426118	Applicant(s)/Patent Under Reexamination MARSTON ET AL.
	Examiner CARLOS R PEREZ TORO	Art Unit 2444

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant				☐ CPA				☐ T.D.				☐ R.1.47			
CLAIM			DATE												
Final	Original	11/17/2008													
	1	✓													
	2	✓													
	3	✓													
	4	✓													
	5	✓													
	6	✓													
	7	✓													
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	23	✓													



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BIB DATA SHEET

CONFIRMATION NO. 1387

SERIAL NUMBER 11/426,118	FILING or 371(c) DATE 06/23/2006 RULE	CLASS 709	GROUP ART UNIT 2444	ATTORNEY DOCKET NO. 23682-11745		
APPLICANTS Justin Marston, Richmond, UNITED KINGDOM; Amy Flamenbaum, Chicago, IL; ** CONTINUING DATA ***** This appln claims benefit of 60/693,605 06/24/2005 and claims benefit of 60/758,828 01/13/2006 ** FOREIGN APPLICATIONS ***** ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED *** SMALL ENTITY ** 07/10/2006						
Foreign Priority claimed ☐ Yes ☒ No 35 USC 119(a-d) conditions met ☐ Yes ☒ No Verified and Acknowledged <u>/CARLOS R PEREZ/</u> Examiner's Signature		☐ Met after Allowance Initials	STATE OR COUNTRY UNITED KINGDOM	SHEETS DRAWINGS 10	TOTAL CLAIMS 23	INDEPENDENT CLAIMS 3
ADDRESS FENWICK & WEST LLP SILICON VALLEY CENTER 801 CALIFORNIA STREET MOUNTAIN VIEW, CA 94041 UNITED STATES						
TITLE PROVIDING CONTEXT IN AN ELECTRONIC MESSAGING SYSTEM						
FILING FEE RECEIVED 565	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:			☐ All Fees		
				☐ 1.16 Fees (Filing)		
				☐ 1.17 Fees (Processing Ext. of time)		
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				☐ Other _____		
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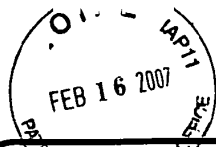
EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S2	14	((justin near2 marston) (amy near2 flamenbaum)). in.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/13 14:05
S3	6108	709/206.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/13 14:11
S5	5071	709/206.ccls. and ((@ad or @rlad) < "20050624")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/13 14:16
S6	389	S5 and (e\$1mail with (categoriz\$5 tag\$3 taxonomy))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/13 14:16
S7	6	S5 and ((e\$1mail with (categoriz\$5 tag\$3 taxonomy)) same (content near10 (match\$3 associat \$3)))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/13 14:17
S8	14	bluespace.as.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/17 10:07
S10	5071	709/206.ccls. and ((@ad or @rlad) < "20050624")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/17 10:44

S11	84	S10 and ((e\$1mail with (categoriz\$5 tag\$3 taxonomy)) same (action response))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/17 10:44
S19	32	S10 and ((e\$1mail with (categoriz\$5 tag\$3 taxonomy)) same (priorit\$7 context contextualization qualification))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/17 11:10
S20	286	S10 and ((e\$1mail with (categoriz\$5 tag\$3 taxonomy)) and (priorit\$7 context contextualization))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/17 11:10
S21	333	S10 and ((e\$1mail with (category categories tag\$3 taxonomy)) and (priorit\$7 context contextualization))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/17 11:11
S22	61	S10 and ((e\$1mail with (category categories tag\$3 taxonomy)) same (priorit\$7 context contextualization))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/17 11:12

11/18/2008 10:42:55 AM

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Receipt date: 02/16/2007

11426118 - GAU: 2444

Substitute for form 1449A/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Application No.	11/426,118
				Filing Date	June 23, 2006
				First Named Inventor	Justin Marston
				Art Unit	2142
				Examiner Name	Not yet known
Sheet	1	of	1	Attorney Docket Number	23682-11745

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Examiner Initials*	Cite No. ¹	Document No. Number – Kind Code ² (if known)	Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document

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Examiner Initials*	Cite No. ¹	Foreign Patent Document Country Code ³ – Number ⁴ Kind Code ⁵ (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	T ⁶
/C.R.P./		EP 1 085 444 A2	03-21-2001	Microsoft Corporation	
/C.R.P./		EP 1 085 444 A3	04-09-2003	Microsoft Corporation	

OTHER REFERENCES – NON-PATENT LITERATURE DOCUMENTS					
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published			T ⁶
		EDWARDS, K., "The Design and Implementation of the MONTAGE Multimedia Mail System," Communications for Distributed Applications and Systems, Chapel Hill, April 18, 1991, pp. 47-57, Proceedings of the Conference on Communications Software, New York, U.S.			

Examiner Signature	/Carlos R. Perez Toro/	Date Considered	11/18/2008
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609.

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23682/11745/DOCS/1691851.1

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /C.R.P./

Substitute for form 1449A/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Application No.	11/426,118
				Filing Date	June 23, 2006
				First Named Inventor	Justin P. Marston
				Art Unit	2142
				Examiner Name	Andrew T. Caldwell
Sheet	1	of	1	Attorney Docket Number	23682-11745

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OTHER REFERENCES – NON-PATENT LITERATURE DOCUMENTS					
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	C1	PCT International Search Report and Written Opinion, PCT/US07/60587, February 14, 2008, 8 pages.			

Examiner Signature	/Carlos R. Perez Toro/	Date Considered	11/18/2008
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT				Application No.	11/426,118
				Filing Date	June 23, 2006
				First Named Inventor	Justin P. Marston
				Art Unit	2142
				Examiner Name	Not yet known
Sheet	1	of	1	Attorney Docket Number	23682-11745

U.S. PATENT DOCUMENTS				
Examiner Initials*	Cite No. ¹	Document No. Number – Kind Code ² (if known)	Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
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/C.R.P./	A4	US-2002/0122543 A1	09-05-2002	Rowen

FOREIGN PATENT DOCUMENTS					
Examiner Initials*	Cite No. ¹	Foreign Patent Document Country Code ³ – Number ⁴ Kind Code ⁵ (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	T ⁶

OTHER REFERENCES – NON-PATENT LITERATURE DOCUMENTS					
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published			T ⁶
	C1	International Search Report and Written Opinion, PCT/US06/24859, April 26, 2007, 7 pages.			

Examiner Signature	/Carlos R. Perez Toro/	Date Considered	11/18/2008
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23682/11745/DOCS/1792388.1

IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE

APPLICANTS: Justin P. Marston et al.
APPLICATION NO.: 11/426,118
FILING DATE: June 23, 2006
TITLE: Providing Context in an Electronic Messaging System
EXAMINER: Carlos R. Perez
GROUP ART UNIT: 2444
ATTY. DKT. NO.: 23682-11745

CERTIFICATE OF ELECTRONIC (EFS-WEB) TRANSMISSION

I hereby certify that this correspondence is being transmitted via the Office electronic filing system in accordance with 37 C.F.R. § 1.8(a)(i)(C) from the **Pacific Time Zone** of the United States on the local date shown below.

Dated: March 26, 2009

By: /Christopher King/

Christopher P. King, Reg. No. 60,985

AMENDMENT A UNDER 37 CFR § 1.111

Sir:

This amendment for the patent application identified above is in response to the Non-Final Office Action dated November 26, 2008, which set a shortened statutory period for response that expired on February 26, 2009. Applicants request, and submit fee for, a 1 month extension of time.

Kindly amend this application as indicated herein.

IN THE CLAIMS

Claims 1, 7, 9, 15, 17, and 22 are amended herein. Claims 6, 14, and 21 are cancelled. Claim 24 is added. All pending claims are produced below. In addition, the status of each is also indicated below and appropriately noted as “Original”, “Currently Amended”, “Canceled”, “New”, “Withdrawn”, “Previously Presented”, and “Not Entered” as requested by the Office.

1. (Currently Amended) A computerized messaging server in an electronic messaging system, comprising:

a processor configured to execute computer program modules, the computer program

modules comprising:

a message module adapted to control a message database storing messages exchanged in the messaging system, each message comprising one or more message components having content; and

a context module adapted to control a context database storing a knowledge taxonomy having context categories and contexts associating content of the message components with the context categories, the context module comprising a context properties module specifying a validity period for a context category, the validity period defining a period of time during which new associations of content to the context category can be made, and preventing new associations of content to the context category after the period.

2. (Original) The messaging server of claim 1, wherein the messaging server is utilized by an enterprise and wherein the context module comprises:

a taxonomy definition module for defining the knowledge taxonomy, the taxonomy structured as a hierarchical tree having nodes for context categories representing knowledge possessed and/or activities performed by the enterprise.

3. (Original) The messaging server of claim 1, wherein external content resides at a location external to the messaging server and wherein the context module comprises:
a content association module for creating contexts associating at least a portion of the external content with a context category of the knowledge taxonomy.
4. (Original) The messaging server of claim 1, wherein the context module comprises:
a content association module for monitoring messages exchanged by the messaging system and automatically creating contexts associating content of the messages with context categories.
5. (Original) The messaging server of claim 1, wherein the messaging system is utilized by end-users and wherein the context module comprises:
a context rights module for specifying actions an end-user is allowed to perform with respect to a context and/or context category.
6. (Canceled)
7. (Currently Amended) The messaging server of claim 1, wherein the context module comprises:
a context properties module specifying a retention period for a context category, the retention period specifying a period of time during which an association between content and the context category is maintained by the contexts module, and specifying conditions for when to delete the context category.
- 8 (Original) The messaging server of claim 1, wherein the context module comprises:
a context operations module for performing operations in the messaging system utilizing the contexts.

9. (Currently Amended) A computer program product having a computer-readable medium having computer program instructions tangibly embodied therein for providing an electronic message system, comprising:

a messaging module adapted to control a message database storing messages exchanged in the messaging system, each message comprising one or more message components having content; and

a context module adapted to control a context database storing a knowledge taxonomy having context categories and contexts associating content of the message components with the context categories, the context module comprising a context properties module specifying a validity period for a context category, the validity period defining a period of time during which new associations of content to the context category can be made.

10. (Original) The computer program product of claim 9, wherein the messaging server is utilized by an enterprise and wherein the context module comprises:

a taxonomy definition module for defining the knowledge taxonomy, the taxonomy structured as a hierarchical tree having nodes for context categories representing knowledge possessed and/or activities performed by the enterprise.

11. (Original) The computer program product of claim 9, wherein external content resides at a location external to the messaging server and wherein the context module comprises:

a content association module for creating contexts associating at least a portion of the external content with a context category of the knowledge taxonomy.

12. (Original) The computer program product of claim 9, wherein the context module comprises:

a content association module for monitoring messages exchanged by the messaging system and automatically creating contexts associating content of the messages with context categories.

13. (Original) The computer program product of claim 9, wherein the messaging system is utilized by end-users and wherein the context module comprises:
a context rights module for specifying actions an end-user is allowed to perform with respect to a context and/or context category.
14. (Canceled)
15. (Currently Amended) The computer program product of claim 9, wherein the context module comprises:
a context properties module specifying a retention period for a context category, the retention period specifying a period of time during which an association between content and the context category is maintained by the context module, and specifying conditions for when to delete the context category.
16. (Original) The computer program product of claim 9, wherein the context module comprises:
a context operations module for performing operations in the messaging system utilizing the contexts.
17. (Currently Amended) A method of utilizing contexts in an electronic messaging system, the messaging system exchanging messages comprising one or more message components having content, the method comprising:
defining a knowledge taxonomy having context categories;
defining a validity period associated with a first category of the context categories,
the validity period defining a period of time during which new associations of
content to the first category can be made, and preventing new associations of
content to the first category after the period;
associating, within the validity period, content of the message components with ~~context categories~~ the first category of the knowledge taxonomy to create a context ~~contexts~~; and
searching and/or sorting the content responsive to the context ~~contexts~~.

18. (Original) The method of claim 17, wherein the messaging system is utilized by an enterprise and wherein the knowledge taxonomy is structured as a hierarchical tree having nodes for context categories representing knowledge possessed and/or activities performed by the enterprise.

19. (Original) The method of claim 17, wherein associating portions of content comprises:
monitoring messages exchanged by the messaging system and automatically creating contexts associating content of the messages with context categories.

20. (Original) The method of claim 17, wherein the messaging system is utilized by end-users and further comprising:
specifying actions an end-user is allowed to perform with respect to a context and/or context category.

21. (Canceled)

22. (Currently Amended) The method of claim 17, further comprising:
specifying a retention period for a context category, the retention period specifying a period of time during which an association between content and a context category is maintained by the contexts module, and specifying conditions for when to delete the context category.

23. (Original) The method of claim 17, wherein the messaging system is utilized by an end-user and further comprising:
providing a graphical user interface (GUI) to the end-user, the GUI enabling the end-user to create a context associating content of a message component with a context category, and/or view contexts associated with the context category.

24. (New) The messaging server of claim 1, wherein the messaging system is utilized by end-users and wherein the context module comprises:

a context rights module for specifying whether an end-user is allowed to create new context categories.

REMARKS

Claims 1-23 are pending. In an Office Action dated November 26, 2008, claims 1-23 were rejected. Applicants thank the Examiner for examination of the claims pending in this application and address the Examiner's comments below.

In view of the Amendments and the following Remarks, Applicants respectfully request that the Examiner reconsider all outstanding rejections, and withdraw them.

Response to Rejections 35 Under 35 § 101

Claim 1 and its dependent claims 2-8 are rejected under 35 U.S.C. § 101 as allegedly not being directed to statutory subject matter. In the interests of advancing prosecution, Applicants have amended claim 1 to recite a processor configured to execute computer program modules. Thus, claims 1-8 comply with the requirements of § 101.

Response to Rejections 35 Under 35 §§ 102(b) and 103(a)

Claims 1, 5-9, and 13-16 are rejected under 35 U.S.C. § 102(b) as being anticipated by Shaw, U.S. Patent No. 6,249,807. Additionally, claims 2-4, 10-12 and 17-23 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Shaw in view of Karamchedu, U.S. Patent Publication No. 2004/0054744. These rejections are now traversed together.

Claim 1 as amended incorporates limitations of former claim 6 and recites, in part, a computerized messaging server in an electronic messaging system, comprising:

a context module adapted to control a context database storing a knowledge taxonomy having context categories and contexts associating content of the message components with the context categories, the context module comprising a context properties module **specifying a validity period for a context category, the validity period defining a period of time during which new associations of**

content to the context category can be made, and preventing new associations of content to the context category after the period.

Thus, a validity period is specified for a context category. The validity period defines a period of time during which new associations of content to the context category can be made, and after the period new associations are prevented. For example, as noted by the specification, once the validity period of a context category expires, the category can still be accessed and operated upon in the normal manner, except that end-users are prohibited from creating new associations of content with the context category. (Specification, paragraph 0057). Claims 9 and 17 recite similar limitations.

Shaw pertains to an enterprise email system designed to handle large volumes of email quickly and efficiently. (Shaw, Abstract). This involves actions on messages, such as routing a message to a specific email queue, or from an email queue to a user mailbox. However, Shaw fails to disclose or suggest the claimed validity period defining a period of time during which new associations of content to the context category can be made, and preventing new associations of content to the context category after the period.

In general, Shaw at best shows timers that track how long a message has been in an email queue or user mailbox. Specifically, regarding former claim 6, now incorporated into claim 1, the Examiner cited column 11, lines 62-67 of Shaw. However, this portion merely discloses that once a message has been moved to a user mailbox, the system creates a mailbox timer that specifies how long the message has been in the user's mailbox, separate from a timer specifying how long the message has been in a queue. If the mailbox timer expires, then the message is returned to the queue from which it came. (Shaw, Abstract). This does not “define[] a period of time **during which new associations of content to the context category can be made, and prevent[] new associations of content to the context category after the period**” as claimed.

Rather, this merely shows that a **given** message may be moved from a mailbox to a queue, or vice-versa, after expiration of some period of time. Moving a **given** message to a queue—the alleged associating of content (message) to a context category (queue)—does not define a period of time in which messages can be moved into queues in general, but rather affects only that individual message. In short, the system of Shaw does not restrict the times during which a new message can be moved to a queue, and thus neither defines a period of time during which new associations can be made, nor prevents new associations after the period, as claimed.

Karamchedu does not remedy the deficiencies of Shaw, nor does the Examiner allege that it does. Karamchedu generally discloses adding semantic qualifiers to message elements to provide message contextualization (Karamchedu, Abstract), but lacks the concept of a validity period.

Thus, Shaw and Karamchedu, whether taken singly or in combination, do not render the claimed invention obvious.

The remaining claims all depend, directly or indirectly, from one of claims 1, 9, or 17, and thus are patentably distinguishable from Shaw and Karamchedu for at least the same reasons discussed above with respect to claims 1, 9, and 17.

Additionally, claim 7 as amended recites “specifying a retention period for a context category, the retention period specifying a period of time during which an association between content and the context category is maintained by the contexts module, **and specifying conditions for when to delete the context category.**” Claims 15 and 22 recite similar limitations. The Examiner cites Shaw column 11, lines 32-37, which discloses a timer defining a predetermined amount of time that an email message will stay in a queue. The Examiner interprets the queue to be the context category, which implies that the presence of the message in

the queue must constitute the claimed association between content (message) and context category (queue), and that the timer constitutes the claimed retention period. However, Shaw does not show that the timer, or anything else, specifies conditions for when to **delete** a message queue (alleged context category), as claimed. There is no suggestion in Shaw that an entire queue would ever be deleted merely because, for example, it contained no more messages, and even less does Shaw suggest that the **timer** (alleged retention period) specifies **conditions for when** to delete the message queue. Karamchedu does not remedy the deficiencies of Shaw, nor does the Examiner suggest that it does.

Conclusion

In sum, claims 1-5, 7-13, and 15-24 are patentably distinguishable over the applied references.

Independent claim 9 has merely been amended to incorporate the limitations of its former dependent claim 14, which was previously examined. Thus, any subsequent Office Action rejecting claim 9 based on a new ground of rejection may not be made final. MPEP 706.07(a).

Applicants respectfully invite the Examiner to contact Applicants' representative at the number provided below if the Examiner believes it will help expedite furtherance of this application.

Respectfully submitted,

Dated: March 26, 2009

By: /Christopher King/

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Electronic Patent Application Fee Transmittal				
Application Number:		11426118		
Filing Date:		23-Jun-2006		
Title of Invention:		PROVIDING CONTEXT IN AN ELECTRONIC MESSAGING SYSTEM		
First Named Inventor/Applicant Name:		Justin Marston		
Filer:		Christopher-Charles P. King		
Attorney Docket Number:		23682-11745		
Filed as Small Entity				
Utility under 35 USC 111(a) Filing Fees				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 1 month with \$0 paid	2251	1	65	65

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Miscellaneous:				
Total in USD (\$)				65

Electronic Acknowledgement Receipt	
EFS ID:	5045373
Application Number:	11426118
International Application Number:	
Confirmation Number:	1387
Title of Invention:	PROVIDING CONTEXT IN AN ELECTRONIC MESSAGING SYSTEM
First Named Inventor/Applicant Name:	Justin Marston
Customer Number:	00758
Filer:	Christopher-Charles P. King
Filer Authorized By:	
Attorney Docket Number:	23682-11745
Receipt Date:	26-MAR-2009
Filing Date:	23-JUN-2006
Time Stamp:	22:26:36
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$65
RAM confirmation Number	4759
Deposit Account	192555
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)					
Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)					
Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)					
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		11745_US_Amendment_A.pdf	94250 349c40a605a190617f902c8b36d4197b2f5b6127	yes	12
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Amendment/Req. Reconsideration-After Non-Final Reject		1	1	
	Claims		2	7	
	Applicant Arguments/Remarks Made in an Amendment		8	12	
Warnings:					
Information:					
2	Fee Worksheet (PTO-06)	fee-info.pdf	30386 5c2d88fbc9662d9811036694aa6e120046cdcb1e	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			124636		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875					Application or Docket Number 11/426,118		Filing Date 06/23/2006		☐ To be Mailed	
APPLICATION AS FILED – PART I										
(Column 1)			(Column 2)		SMALL ENTITY ☒		OR		OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE (\$)	FEE (\$)			RATE (\$)	FEE (\$)		
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A				N/A			
☐ SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A				N/A			
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A				N/A			
TOTAL CLAIMS (37 CFR 1.16(j))	minus 20 =	*	X \$	=			X \$	=		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$	=			X \$	=		
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).									
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))										
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL				TOTAL			
APPLICATION AS AMENDED – PART II										
(Column 1)			(Column 2)	(Column 3)	SMALL ENTITY		OR		OTHER THAN SMALL ENTITY	
AMENDMENT	03/26/2009	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)		RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(j))	* 21	Minus	** 23	= 0	X \$26 =	0	OR	X \$ =	
	Independent (37 CFR 1.16(h))	* 3	Minus	***3	= 0	X \$110 =	0	OR	X \$ =	
	☐ Application Size Fee (37 CFR 1.16(s))							OR		
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE		
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)		RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(j))	*	Minus	**	=	X \$ =		OR	X \$ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =		OR	X \$ =	
	☐ Application Size Fee (37 CFR 1.16(s))							OR		
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE		
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.										

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Legal Instrument Examiner:
/RENEE HAWKINS/



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/426,118	06/23/2006	Justin Marston	23682-11745	1387

758 7590 06/15/2009
FENWICK & WEST LLP
SILICON VALLEY CENTER
801 CALIFORNIA STREET
MOUNTAIN VIEW, CA 94041

EXAMINER

PEREZ, CARLOS R

ART UNIT	PAPER NUMBER
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2444

MAIL DATE	DELIVERY MODE
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06/15/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 11/426,118	Applicant(s) MARSTON ET AL.	
	Examiner CARLOS R. PEREZ TORO	Art Unit 2444	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 26 March 2009.

2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-5, 7-13, 15-20, 22 and 23 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1-5, 7-13, 15-20, and 22-23 is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date _____

4) ☐ Interview Summary (PTO-413)
 Paper No(s)/Mail Date: _____

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____

DETAILED ACTION

1. This communication is in response to applicant's amendment filed under CFR 1.111 on 3/26/2009 to non-final office action regarding application 11/426,118. Claims 6, 14, and 21 have been cancelled. Claims 1-5, 7-13, 15-20, and 22-23 remain pending.

Response to Arguments

2. Applicant's arguments and amendments filed on 3/26/2009 have been carefully considered but they are not deemed fully persuasive. Applicant's arguments regarding claim 7 are deemed moot in view of the new grounds of rejection as explained below. The new grounds of rejection were necessitated by Applicant's substantial amendment to claim 7 which significantly affected the scope thereof. Specifically, by incorporating the limitations of claim 6 into independent claim 1, as well as the cancellation of claim 6, Applicant has changed the scope of dependent claim 7, which will require further search and consideration.

Claim 1

3. Applicant argues that Shaw fails to expressly disclose a "validity period for a context category, defining a period of time during which new associations of content to the context category can be made, and preventing new associations of content to the context category after the period." Specifically, Applicant states,

In general, Shaw at best shows timers that track how long a message has been in an email queue or user mailbox. Specifically, regarding former claim 6, now incorporated into claim 1, the Examiner cited column 11, lines 62-67 of Shaw. However, this portion merely discloses that once a message has been moved to a user mailbox, the system creates a mailbox timer that specifies how long the message has been in the user's mailbox, separate from a timer specifying how long the message has been in a queue. If the mailbox timer expires, then the message is returned to the queue from which it came. (Shaw, Abstract). This does not "define[] a period of time during which new associations of content to the context category can be made, and prevent[] new associations of content to the context category after the period" as claimed. Rather, this merely

shows that a given message may be moved from a mailbox to a queue, or vice-versa, after expiration of some period of time. Reply of 3/26/2009 at page 9, par. 3.

4. It is evident from the detailed mappings found in the below rejection(s) that Shaw teaches this functionality of a “validity period for a context category, defining a period of time during which new associations of content to the context category can be made, and preventing new associations of content to the context category after the period.” Shaw teaches a message queueing system based on categories. Shaw at col 6/ln 50-67; col 10/ln 10-20. There are actions associated with each category. Shaw at col 7/ln 40-42. Messages are placed in a queue, from which they can be transferred to a mailbox before a queue timer expires. Shaw at col 11/ln 32-48. Therefore, the new association of putting the message in a mailbox can only be made before the queue timer expires. In addition, it is clear from the numerous teachings (previously and currently cited) that the provision for categorizing emails for a predetermined amount of time was widely implemented in the networking art. Thus, Applicant’s arguments drawn toward distinction of the claimed invention and the prior art teachings on this point are not considered persuasive.

Claim Rejections - 35 USC § 101

5. In view of Applicant's amendment to claim 1, the § 101 rejection is hereby withdrawn.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claim 1, 5-9 and 13-16, and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Shaw et al. (US 6,249,807) (hereinafter Shaw).

8. Regarding claim 1, Shaw teaches a computerized messaging server in an electronic messaging system, comprising:

a message module (mail receiver 120) adapted to control a message database (130) storing messages exchanged in the (enterprise) messaging system (100), each message comprising one or more message components having content (other information) (col 4 / ln 8-15); and

a context module (mail receiver 120) adapted to control a context (category) database (135) storing a knowledge taxonomy (definiton) having context categories and contexts (rules) associating content of the message components with the context categories (col 6 / ln 50-67),

the context module comprising a context properties module specifying a validity period for a context category, the validity period defining a period of time during which new associations of content to the context category can be made, and preventing new associations of content to the context category after the period (col 11 / ln 62-67).

9. Regarding claim 5, Shaw teaches wherein the messaging system is utilized by end-users (171) and wherein the context module comprises:

a context rights module for specifying actions an end-user is allowed (assigned) to perform with respect to a context and/or context category (queue) (col 10 / ln 54-65).

10. Regarding claim 8, Shaw teaches wherein the context module comprises:

a context operations module for performing operations in the messaging system utilizing the contexts (col 7 / ln 40-42).

11. Claim 9 is substantially the same as claim 1 and is thus rejected for reasons similar to those in rejecting claim 1.

12. Claims 13, 14, and 16 are substantially the same as claims 5, 6, and 8, respectively, and are thus rejected for reasons similar to those in rejecting claims 5-8.

13. Regarding claim 24, the messaging system is utilized by end-users and wherein the context module comprises:

a context rights module for specifying whether an end-user is allowed to create new context categories (Shaw col 12/ln 55-67 through col 13/ln 1-12).

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if 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 said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 2-4, 10-12, 17-21, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shaw in view of Karamchedu et al. (US 2004/0054744) (hereinafter Karamchedu).

16. Shaw substantially teaches the invention as recited in claim 1.

Regarding claim 2, Shaw teaches wherein the messaging server is utilized by an enterprise (col 2 / ln 63-66).

However, Shaw does not explicitly teach the context module comprising a taxonomy of context categories representing knowledge or activities of the enterprise.

However, in the same field of invention, Karamchedu teaches wherein the context module comprises:

a taxonomy definition module (semantic qualification module) for defining the knowledge taxonomy, the taxonomy structured as a hierarchical tree having nodes for context categories (schema) representing knowledge possessed and/or activities performed by the enterprise (e.g., lab processing, claims processing) [Karamchedu 0037, Fig 5].

At the time the invention was made, given the teachings for associating a message database with a context database, the teachings of Karamchedu for including a knowledge taxonomy with the context database would have been obvious. One of ordinary skill in the art would be motivated to combine these teachings in order to facilitate searching and processing of electronic message [Karamchedu 0020].

17. Regarding claim 3, Shaw-Karamchedu teaches wherein external content resides at a location external to the messaging server and wherein the context module comprises:

a content association module for creating contexts associating (contextualization) at least a (highlighted) portion of the external content with a context category (semantic qualifier) of the knowledge taxonomy [Karamchedu 0022, 0024].

18. Regarding claim 4, Shaw-Karamchedu teaches wherein the context module comprises:

a content association module for monitoring messages exchanged by the messaging system and automatically creating (by a semantic qualification logic) contexts associating (assigning) content of the messages with context categories [Karamchedu 0037].

19. Regarding claim 17, Shaw-Karamchedu teaches a method of utilizing contexts in an electronic messaging system, the messaging system exchanging messages comprising one or more message components having content, the method comprising:
defining a knowledge taxonomy having context categories (Shaw col 6 / In 50-67);

associating content of the message components with context categories of the knowledge taxonomy to create contexts [Karamchedu 0022]; and
searching and/or sorting (post-processing) the content responsive to the contexts [Karamchedu 0020].

20. Claims 18-21 are substantially the same as claims 2 and 4-6, respectively, and are thus rejected for reasons similar to those in rejecting claims 2 and 4-7.

21. Regarding claim 23, Shaw-Karamchedu teaches wherein the messaging system is utilized by an end-user and further comprising:

providing a graphical user interface (GUI) to the end-user, the GUI enabling the end-user to create a context associating content of a message component with a context category, and/or view contexts associated with the context category (Karamchedu Fig 4b and 4c).

22. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shaw in view of Fitzpatrick et al. (US 2006/0168029) (hereinafter Fitzpatrick).

23. Shaw substantially teaches the invention as recited in claim 1.

24. Regarding claim 7, Shaw teaches wherein the context module comprises:
a context properties (parameter) module specifying a retention period for a context category, the retention period specifying a period of time during which an association between content and the context category (queue) is maintained by the contexts module (Shaw col 11 / ln 32-37).

25. However, Shaw does not explicitly teach specifying conditions for when to delete the context category.

26. However, in the same field of invention, Fitzpatrick teaches specifying conditions for when to delete the context category (stale role) [Fitzpatrick 0034].

At the time the invention was made, given the teachings for associating a message database with a context database and specifying a retention period for a

context category, the teachings of Fitzpatrick for specifying when to delete a context category would have been obvious. One of ordinary skill in the art would be motivated to combine these teachings in order to provide categorized emails with flexibility to shift as categories and roles of users shift [Fitzpatrick 0011].

27. Claim 15 does not teach or define any new limitations above claim 7. Therefore, similar reasons for rejection apply.

28. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shaw-Karamchedu-Fitzpatrick.

29. Claim 22 does not teach or define any new limitations above claims 7 and 17. Therefore, similar reasons for rejection apply.

Conclusion

30. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

31. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CARLOS R. PEREZ TORO whose telephone number is

Art Unit: 2444

(571) 270-5649. The examiner can normally be reached on Monday-Friday 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Vaughn can be reached on 571-272-3922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/C. R. P./

Examiner, Art Unit 2444

/William C. Vaughn, Jr./

Supervisory Patent Examiner, Art Unit 2444

Notice of References Cited	Application/Control No. 11/426,118		Applicant(s)/Patent Under Reexamination MARSTON ET AL.	
	Examiner CARLOS R. PEREZ TORO		Art Unit 2444	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2006/0168029 A1	07-2006	Fitzpatrick et al.	709/206
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Index of Claims 	Application/Control No. 11426118	Applicant(s)/Patent Under Reexamination MARSTON ET AL.
	Examiner CARLOS R PEREZ TORO	Art Unit 2444

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant				☐ CPA		☐ T.D.		☐ R.1.47	
CLAIM		DATE							
Final	Original	11/17/2008	06/09/2009						
	1	✓	✓						
	2	✓	✓						
	3	✓	✓						
	4	✓	✓						
	5	✓	✓						
	6	✓	-						
	7	✓	✓						
	8	✓	✓						
	9	✓	✓						
	10	✓	✓						
	11	✓	✓						
	12	✓	✓						
	13	✓	✓						
	14	✓	-						
	15	✓	✓						
	16	✓	✓						
	17	✓	✓						
	18	✓	✓						
	19	✓	✓						
	20	✓	✓						
	21	✓	-						
	22	✓	✓						
	23	✓	✓						

Search Notes 	Application/Control No. 11426118	Applicant(s)/Patent Under Reexamination MARSTON ET AL.
	Examiner CARLOS R PEREZ TORO	Art Unit 2444

SEARCHED			
Class	Subclass	Date	Examiner
709	206	11/17/2008; 6/9/2009	CRP

SEARCH NOTES		
Search Notes	Date	Examiner
EAST Inventor and Assignee Search	11/17/2008; 6/9/2009	CRP
EAST Class-limited Search	11/17/2008; 6/9/2009	CRP
EAST Text-based Search	11/17/2008; 6/9/2009	CRP
Double Patenting Search	6/9/2009	CRP
Conferred with Examiner Greg Bengzon regarding final rejection	6/9/2009	CRP

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

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EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L4	5432	709/206.ccls. and ((@ad or @rlad) < "20050624")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/10 10:22
L6	6	L4 and ((e\$1mail with (category categories tag\$3 taxonomy)) same (priorit \$7 context contextualization)) and (timer expire expires)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/10 10:37
L7	2	L4 and ((e\$1mail with (category categories tag \$3)) with (project version)) and (timer expire expires)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2009/06/10 10:51
S1	1	11/426118	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/13 14:04
S2	14	((justin near2 marston) (amy near2 flamenbaum)). in.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/13 14:05
S3	6108	709/206.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/13 14:11
S5	5071	709/206.ccls. and ((@ad or @rlad) < "20050624")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/13 14:16

S6	389	S5 and ((e\$1mail with (categoriz\$5 tag\$3 taxonomy))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/13 14:16
S7	6	S5 and ((e\$1mail with (categoriz\$5 tag\$3 taxonomy)) same (content near10 (match\$3 associat \$3)))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/13 14:17
S8	14	bluespace.as.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/17 10:07
S9	2	("2004/0054744").URPN.	USPAT	OR	ON	2008/11/17 10:35
S10	5071	709/206.ccls. and ((@ad or @rlad) < "20050624")	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/17 10:44
S11	84	S10 and ((e\$1mail with (categoriz\$5 tag\$3 taxonomy)) same (action response))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/17 10:44
S19	32	S10 and ((e\$1mail with (categoriz\$5 tag\$3 taxonomy)) same (priorit \$7 context contextualization qualification))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/17 11:10
S20	286	S10 and ((e\$1mail with (categoriz\$5 tag\$3 taxonomy)) and (priorit\$7 context contextualization))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/17 11:10
S21	333	S10 and ((e\$1mail with (category categories tag\$3 taxonomy)) and (priorit\$7 context contextualization))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/17 11:11

22	61	S10 and ((e\$1mail with (category categories tag\$3 taxonomy)) same (priorit \$7 context contextualization))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/17 11:12
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6/ 10/ 2009 11:32:18 AM

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/426,118	06/23/2006	Justin Marston	23682-11745	1387

758 7590 12/22/2009
FENWICK & WEST LLP
SILICON VALLEY CENTER
801 CALIFORNIA STREET
MOUNTAIN VIEW, CA 94041

EXAMINER

PEREZ, CARLOS R

ART UNIT	PAPER NUMBER
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2444

MAIL DATE	DELIVERY MODE
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12/22/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of Abandonment	Application No.	Applicant(s)	
	11/426,118	MARSTON ET AL.	
	Examiner	Art Unit	
	CARLOS R. PEREZ TORO	2444	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

This application is abandoned in view of:

1. ☒ Applicant's failure to timely file a proper reply to the Office letter mailed on 15 June 2009.
 - (a) ☐ A reply was received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the period for reply (including a total extension of time of _____ month(s)) which expired on _____.
 - (b) ☐ A proposed reply was received on _____, but it does not constitute a proper reply under 37 CFR 1.113 (a) to the final rejection. (A proper reply under 37 CFR 1.113 to a final rejection consists only of: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114).
 - (c) ☐ A reply was received on _____ but it does not constitute a proper reply, or a bona fide attempt at a proper reply, to the non-final rejection. See 37 CFR 1.85(a) and 1.111. (See explanation in box 7 below).
 - (d) ☒ No reply has been received.
2. ☐ Applicant's failure to timely pay the required issue fee and publication fee, if applicable, within the statutory period of three months from the mailing date of the Notice of Allowance (PTOL-85).
 - (a) ☐ The issue fee and publication fee, if applicable, was received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the statutory period for payment of the issue fee (and publication fee) set in the Notice of Allowance (PTOL-85).
 - (b) ☐ The submitted fee of \$ _____ is insufficient. A balance of \$ _____ is due.
The issue fee required by 37 CFR 1.18 is \$ _____. The publication fee, if required by 37 CFR 1.18(d), is \$ _____.
 - (c) ☐ The issue fee and publication fee, if applicable, has not been received.
3. ☐ Applicant's failure to timely file corrected drawings as required by, and within the three-month period set in, the Notice of Allowability (PTO-37).
 - (a) ☐ Proposed corrected drawings were received on _____ (with a Certificate of Mailing or Transmission dated _____), which is after the expiration of the period for reply.
 - (b) ☐ No corrected drawings have been received.
4. ☐ The letter of express abandonment which is signed by the attorney or agent of record, the assignee of the entire interest, or all of the applicants.
5. ☐ The letter of express abandonment which is signed by an attorney or agent (acting in a representative capacity under 37 CFR 1.34(a)) upon the filing of a continuing application.
6. ☐ The decision by the Board of Patent Appeals and Interference rendered on _____ and because the period for seeking court review of the decision has expired and there are no allowed claims.
7. ☒ The reason(s) below:

Applicant's representative confirmed intention to abandon over the phone. See attached Interview Summary.

/C. R. P./
Examiner, Art Unit 2444

/Yemane Mesfin/
Primary Examiner, Art Unit 2444

Petitions to revive under 37 CFR 1.137(a) or (b), or requests to withdraw the holding of abandonment under 37 CFR 1.181, should be promptly filed to minimize any negative effects on patent term.