Electronic Acknowledgement Receipt

EFS ID:	1442182
Application Number:	11623653
International Application Number:	
Confirmation Number:	5243
Title of Invention:	DETERMINING RELEVANCE OF ELECTRONIC CONTENT
First Named Inventor/Applicant Name:	Justin Marston
Customer Number:	00758
Filer:	Brian M. Hoffman
Filer Authorized By:	
Attorney Docket Number:	23682-12381
Receipt Date:	16-JAN-2007
Filing Date:	
Time Stamp:	18:22:44
Application Type:	Utility

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Submitted with Payment	yes
Payment was successfully received in RAM	$775
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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:

META-1002
IPR2025-00430

Document Number	Document Description	File Name	File Size(Bytes)	Multi Part /.zip	Pages (if appl.)
1	Drawings	12381_Drawings.pdf	3458830	no	22
Warnings:					
Information:					
2	Application Data Sheet	12381_ADS_Form_SB_14.pdf	46151	no	4
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
3		12381_Mail_Relevance_spec.pdf	419462	yes	106

Multipart Description/PDF files in .zip description

Document Description	Start	End
Specification	1	99
Claims	100	105
Abstract	106	106

Warnings:	
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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.

National Stage of an International Application under 35 U.S.C. 371
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.

DETERMINING RELEVANCE OF ELECTRONIC CONTENT

ABSTRACT

In an electronic mail system, a user's actions with an application for managing electronic content are monitored. Based on the user's actions and/or on the actions of other users in the system, a relevance analysis module determines a relevance to the user of a piece of electronic content based on a likelihood of interest of the electronic content piece to the user and/or a measure of a level of significance the user has to another entity associated with the electronic content piece.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	23682-12381
	Application Number	
Title of Invention	DETERMINING RELEVANCE OF ELECTRONIC CONTENT	

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Applicant Information:

Applicant 1

Applicant Authority ◉ Inventor ○ Legal Representative under 35 U.S.C. 117 ○ Party of Interest under 35 U.S.C. 118

Prefix	Given Name	Middle Name	Family Name	Suffix
Mr.	Justin		Marston	

Residence Information (Select One) ◉ US Residency ○ Non US Residency ○ Active US Military Service

City	Austin	State/Province	TX	Country of Residence i	US

Citizenship under 37 CFR 1.41(b) i: UK

Mailing Address of Applicant:

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Address 2			
City	Austin	State/Province	TX
Postal Code	78755	Country i	US

Applicant 2

Applicant Authority ◉ Inventor ○ Legal Representative under 35 U.S.C. 117 ○ Party of Interest under 35 U.S.C. 118

Prefix	Given Name	Middle Name	Family Name	Suffix
Dr.	Paul		Marston	

Residence Information (Select One) ○ US Residency ◉ Non US Residency ○ Active US Military Service

City	Lancashire	Country Of Residence i	UK

Citizenship under 37 CFR 1.41(b) i: UK

Mailing Address of Applicant:

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Address 2	Preston		
City	Lancashire	State/Province	
Postal Code	PR26 6TD	Country i	UK

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	23682-12381
	Application Number	
Title of Invention	DETERMINING RELEVANCE OF ELECTRONIC CONTENT	

☐ An Address is being provided for the correspondence Information of this application.			
Customer Number	00758		
Email Address	bhoffman@fenwick.com	Add Email	Remove Email

Application Information:

Title of the Invention	DETERMINING RELEVANCE OF ELECTRONIC CONTENT		
Attorney Docket Number	23682-12381	**Small Entity Status Claimed**	☑
Application Type	Nonprovisional		
Subject Matter	Utility		
Suggested Class (if any)		**Sub Class (if any)**	
Suggested Technology Center (if any)			
Total Number of Drawing Sheets (if any)	22	**Suggested Figure for Publication (if any)**	

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ Request Not to Publish. I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application has not been and will not be the subject of an application filed in another country, or under a multilateral agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Enter either Customer Number or complete the Representative Name section below. If both sections are completed the Customer Number will be used for the Representative Information during processing.

Please Select One:	◉ Customer Number	○ US Patent Practitioner	○ US Representative (37 CFR 11.9)
Customer Number	00758		

Domestic Priority Information:

This section allows for the applicant to claim benefit under 35 U.S.C. 119(e), 120, 121, or 365(c). Providing this information in the application data sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78(a)(2) or CFR 1.78(a)(4), and need not otherwise be made part of the specification.

Prior Application Status	Pending		Remove
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	non provisional of	60758828	2006-01-13

Additional Domestic Priority Data may be generated within this form by selecting the **Add** button.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	23682-12381
	Application Number	
Title of Invention	DETERMINING RELEVANCE OF ELECTRONIC CONTENT	

Foreign Priority Information:

This section allows for the applicant to claim benefit of foreign priority and to identify any prior foreign application for which priority is not claimed. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55(a).

Remove

Application Number	Country [i]	Parent Filing Date (YYYY-MM-DD)	Priority Claimed
			(•) Yes ( ) No

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button.

Assignee Information:

Providing this information in the application data sheet does not substitute for compliance with any requirement of part 3 of Title 37 of the CFR to have an assignment recorded in the Office.

Assignee 1

If the Assignee is an Organization check here. ☑

Organization Name	BlueSpace Software Corporation		
Mailing Address Information:			
Address 1	P.O. Box 30570		
Address 2			
City	Austin	**State/Province**	TX
Country [i] US		Postal Code	78755
Phone Number		Fax Number	
Email Address			

Additional Assignee Data may be generated within this form by selecting the **Add** button.

Signature:

A signature of the applicant or representative is required in accordance with 37 CFR 1.33 and 10.18. Please see 37 CFR 1.4(d) for the form of the signature.

Signature	/Brian Hoffman/			Date (YYYY-MM-DD)	2007-01-16
First Name	Brian	Last Name	Hoffman	Registration Number	39713

This collection of information is required by 37 CFR 1.76. 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 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet 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.**

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The information provided by you in this form will be subject to the following routine uses:

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

CLAIMS

What is claimed is:

1. A system, comprising:

a monitoring module configured to track actions by a plurality of users associated with an application for managing electronic content;

a relevance analysis module coupled to the monitoring module and configured to determine a relevance to a user of a piece of electronic content sent from a sender to the user, the relevance being determined dependent on:

a measure of a relevance of the piece of electronic content as determined dependent on one or more actions of the user on the piece of electronic content, and

a measure of a relevance of the piece of electronic content as determined dependent on one or more actions of at least one other of the plurality of users that is a recipient of the piece of electronic content.

2. The system of claim 1, wherein the relevance is further determined dependent on a measure of local importance describing an importance of the sender to the user.

3. The system of claim 1, wherein the relevance is further determined dependent on a measure of global importance describing an importance of the sender within an organization with which the plurality of users are associated.

4. The system of claim 1, wherein the relevance analysis module is further configured to identify at least one other of the plurality of users that is a recipient of the

piece of electronic content and is cognate to the user and wherein the relevance analysis module is further configured to determine the relevance to the user of the piece of electronic content dependent upon one or more actions of the at least one cognate recipient with respect to the piece of electronic content.

5. The system of claim 1, wherein the relevance analysis module is further configured to determine the relevance to the user of the piece of electronic content responsive to contents of the piece of electronic content.

6. The system of claim 1, wherein the relevance analysis module is further configured to determine the relevance to the user of the piece of electronic content responsive to one or more measures from the set consisting of:

a local importance describing an importance of the sender to the user;

a global importance describing an importance of the sender within an organization with which the plurality of users are associated;

a content relevance determined responsive to contents of the piece of electronic content; and

one or more actions with respect to the piece of electronic content of one or more of the plurality of users determined to be cognate to the user.

7. The system of claim 1, further comprising:

a content presentation module configured to present the piece of electronic content to the user in accordance with the determined relevance and to present to the user a value describing the determined relevance.

8. The system of claim 1, further comprising:

a search module configured to search the electronic content in accordance with the determined relevance.

9. The system of claim 1, wherein the piece of electronic content comprises an electronic mail object in a relational mail system.

10. The system of claim 1, wherein the electronic content comprises at least one of an email, a document, an instant message, and an SMS message.

11. A computer program product having a computer-readable medium having computer program instructions encoded thereon comprising:

a monitoring module configured to track actions by a plurality of users associated with an application for managing electronic content;

a relevance analysis module coupled to the monitoring module and configured to determine a relevance to a user of a piece of electronic content sent from a sender to the user, the relevance being determined dependent on:

a measure of a relevance of the piece of electronic content as determined dependent on one or more actions of the user on the piece of electronic content, and

a measure of a relevance of the piece of electronic content as determined dependent on one or more actions of at least one other of the plurality of users that is a recipient of the piece of electronic content.

12. The computer program product of claim 11, wherein the relevance is further determined dependent on a measure of local importance describing an importance of the sender to the user.

13. The computer program product of claim 11, wherein the relevance is further determined dependent on a measure of global importance describing an importance of the sender within an organization with which the plurality of users are associated.

14. The computer program product of claim 11, wherein the relevance analysis module is further configured to identify at least one other of the plurality of users that is a recipient of the piece of electronic content and is cognate to the user and wherein the relevance analysis module is further configured to determine the relevance to the user of the piece of electronic content dependent upon one or more actions of the at least one cognate recipient with respect to the piece of electronic content.

15. The computer program product of claim 11, wherein the relevance analysis module is further configured to determine the relevance to the user of the piece of electronic content responsive to contents of the piece of electronic content.

16. The computer program product of claim 11, wherein the relevance analysis module is further configured to determine the relevance to the user of the piece of electronic content responsive to one or more measures from the set consisting of:

a local importance describing an importance of the sender to the user;

a global importance describing an importance of the sender within an organization with which the plurality of users are associated;

a content relevance determined responsive to contents of the piece of electronic content; and

one or more actions with respect to the piece of electronic content of one or more of the plurality of users determined to be cognate to the user.

17. A method, comprising:

tracking actions by a plurality of users associated with an application for managing electronic content;

determining a relevance to a user of a piece of electronic content sent from a sender to the user, the relevance being determined dependent on:

a measure of a relevance of the piece of electronic content as determined dependent on one or more actions of the user on the piece of electronic content, and

a measure of a relevance of the piece of electronic content as determined dependent on one or more actions of at least one other of the plurality of users that is a recipient of the piece of electronic content.

18. The method of claim 17, wherein the relevance is further determined dependent on a measure of local importance describing an importance of the sender to the user.

19. The method of claim 17, wherein the relevance is further determined dependent on a measure of global importance describing an importance of the sender within an organization with which the plurality of users are associated.

20. The method of claim 17, wherein determining the relevance to the user further comprises:

identifying at least one other of the plurality of users that is a recipient of the piece of electronic content and is cognate to the user; and

determining the relevance to the user of the piece of electronic content dependent upon one or more actions of the at least one cognate recipient with respect to the piece of electronic content.

21. The method of claim 17, wherein the relevance is further dependent on contents of the piece of electronic content.

22. The method of claim 17, wherein the relevance is further dependent on one or more measures from the set consisting of:

a local importance describing an importance of the sender to the user;

a global importance describing an importance of the sender within an organization with which the plurality of users are associated;

a content relevance determined responsive to contents of the piece of electronic content; and

one or more actions with respect to the piece of electronic content of one or more of the plurality of users determined to be cognate to the user.

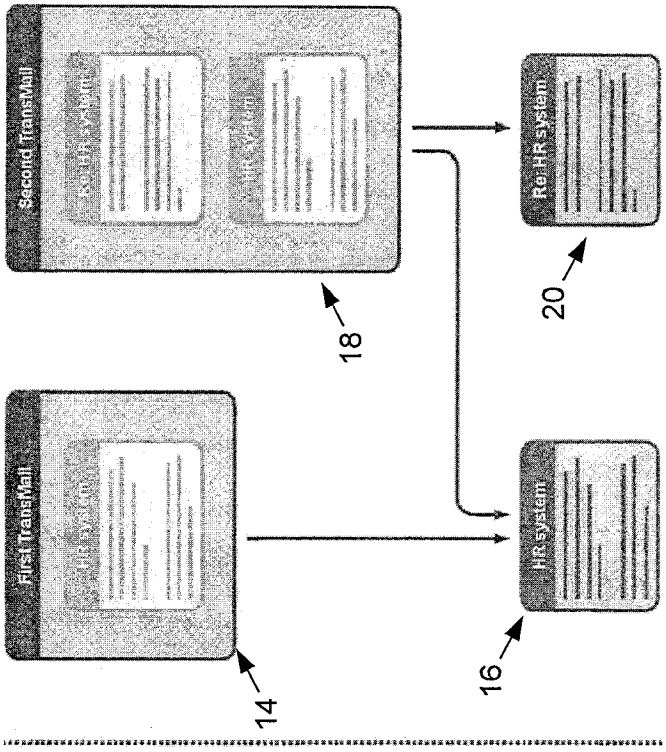


FIGURE 1B

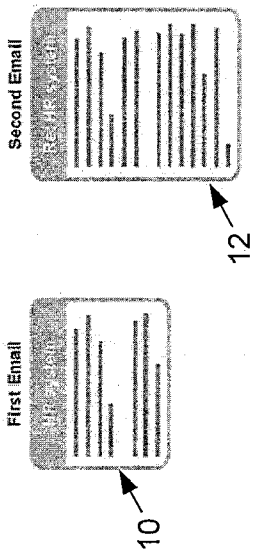


FIGURE 1A

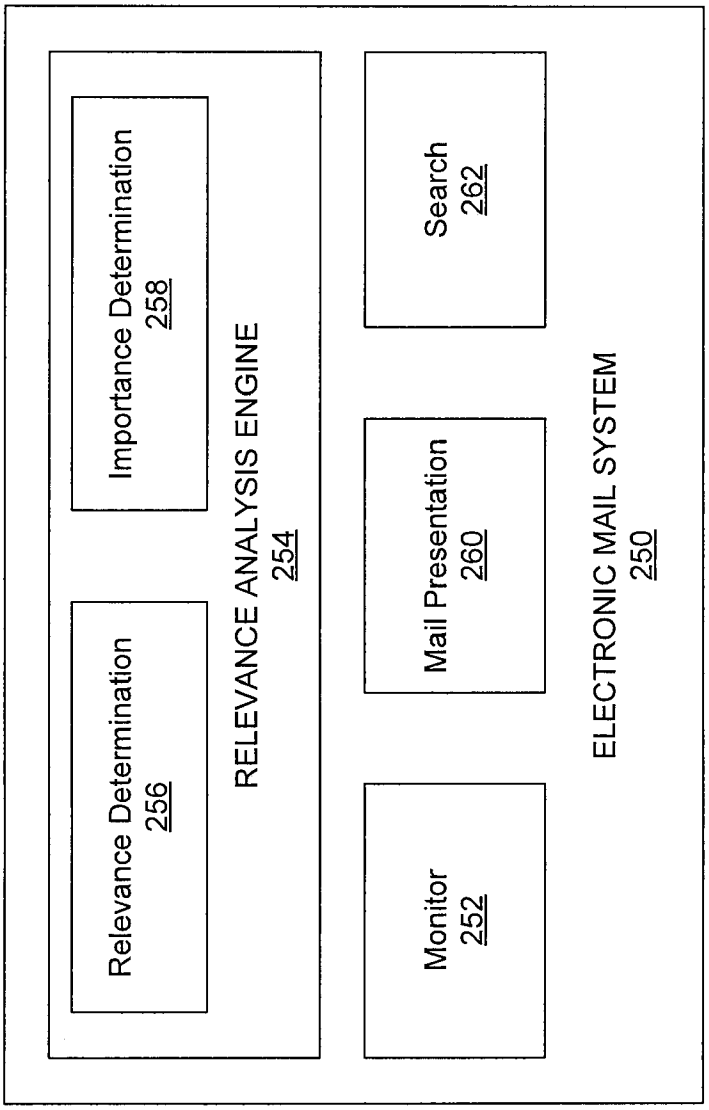

ELECTRONIC MAIL SYSTEM
250
Monitor
252
Mail Presentation
260
Search
262
RELEVANCE ANALYSIS ENGINE
254
Relevance Determination
256
Importance Determination
258

FIGURE 2

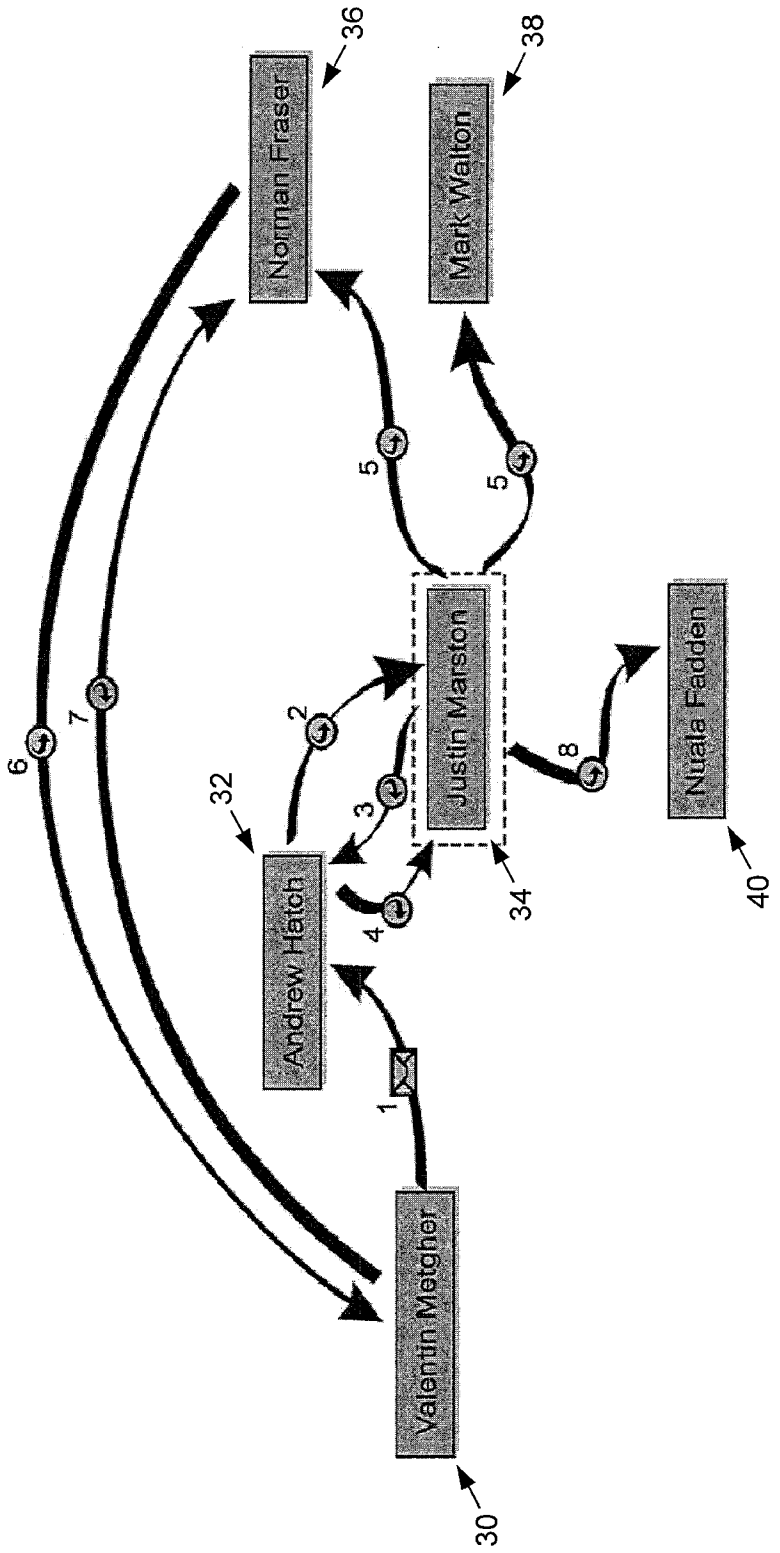

Norman Fraser
36
Mark Walton
38
Justin Marston
Andrew Hatch
32
Valentin Metgher
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Ntiala Fadden
40
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5
5
6
7
8

FIGURE 3

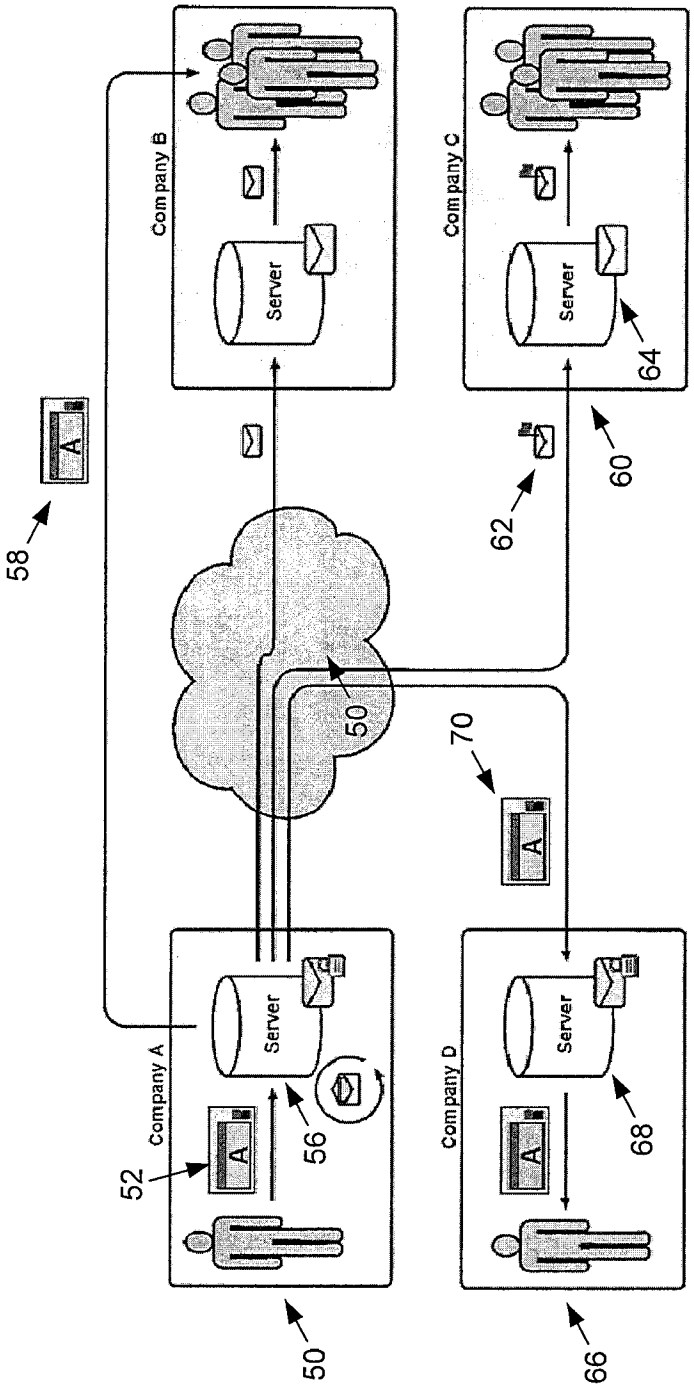

Company A
Company B
Company C
Company D
Server
A
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52
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58
60
62
64
66
68
70

FIGURE 4

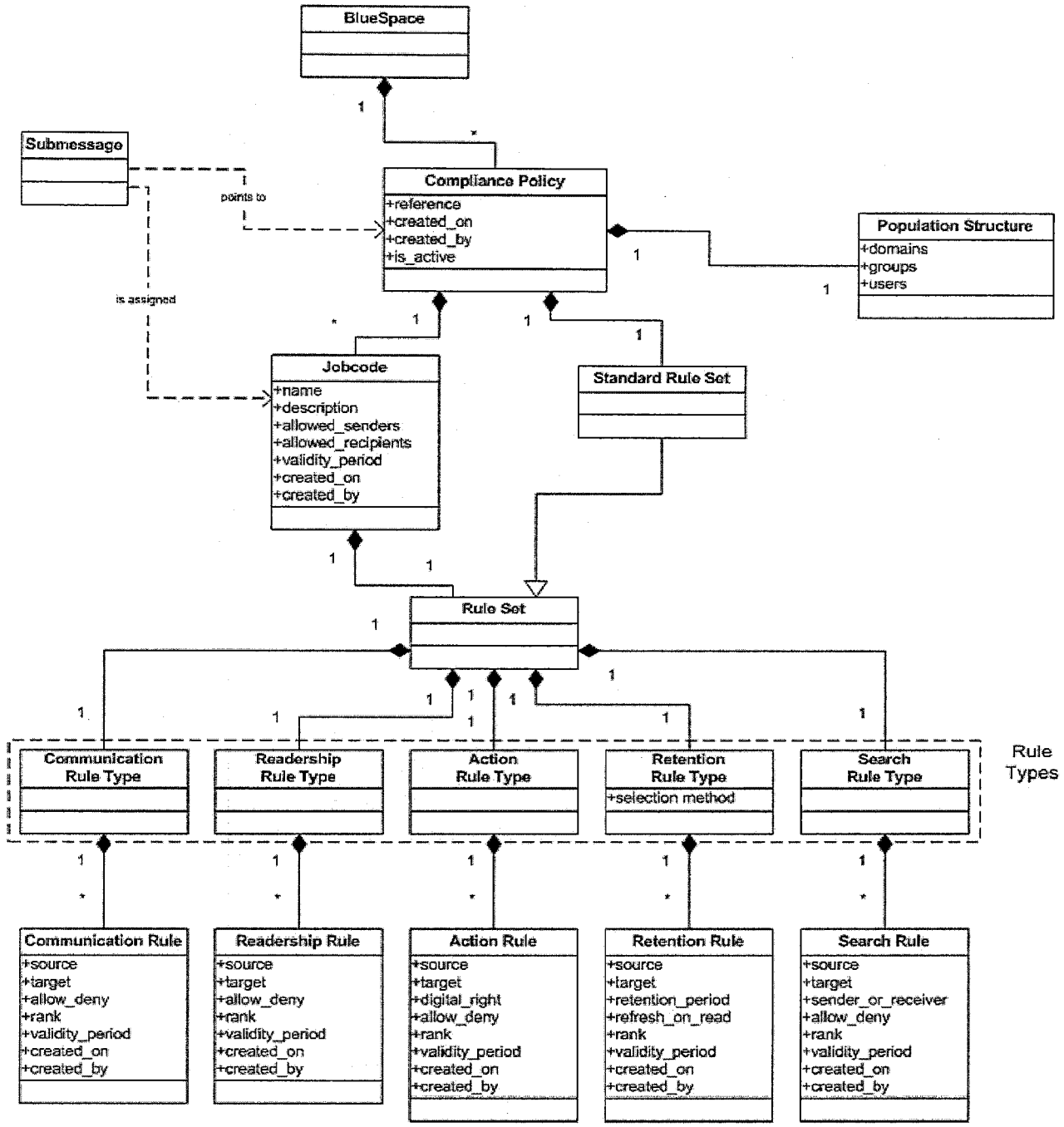

BlueSpace
Submessage
points to
is assigned
Compliance Policy
+reference
+created_on
+created_by
+is_active
Population Structure
+domains
+groups
+users
Jobcode
+name
+description
+allowed_senders
+allowed_recipients
+validity_period
+created_on
+created_by
Standard Rule Set
Rule Set
Communication Rule Type
Readership Rule Type
Action Rule Type
Retention Rule Type
+selection method
Search Rule Type
Rule Types
Communication Rule
+source
+target
+allow_deny
+rank
+validity_period
+created_on
+created_by
Readership Rule
+source
+target
+allow_deny
+rank
+validity_period
+created_on
+created_by
Action Rule
+source
+target
+digital_right
+allow_deny
+rank
+validity_period
+created_on
+created_by
Retention Rule
+source
+target
+retention_period
+refresh_on_read
+rank
+validity_period
+created_on
+created_by
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+target
+sender_or_receiver
+allow_deny
+rank
+validity_period
+created_on
+created_by

FIGURE 5

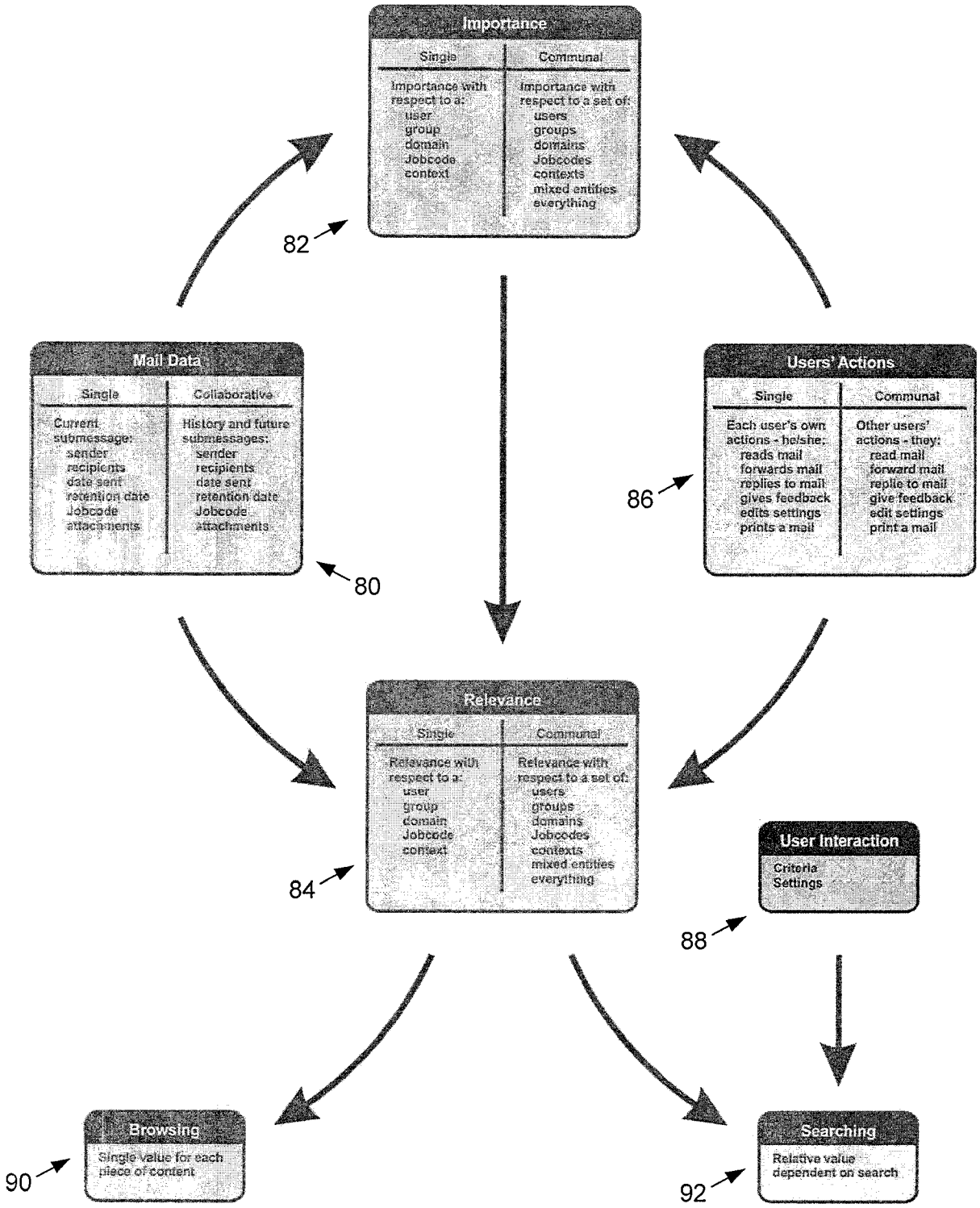

Importance
Single
Communal
Importance with respect to a:
user
group
domain
Jobcode
context
Importance with respect to a set of:
users
groups
domains
Jobcodes
contexts
mixed entities
everything
82
Mail Data
Single
Collaborative
Current submessage:
sender
recipients
date sent
retention date
Jobcode
attachments
History and future submessages:
sender
recipients
date sent
retention date
Jobcode
attachments
80
Users' Actions
Single
Communal
Each user's own actions - he/she:
reads mail
forwards mail
replies to mail
gives feedback
edits settings
prints a mail
Other users' actions - they:
read mail
forward mail
replie to mail
give feedback
edit settings
print a mail
86
Relevance
Single
Communal
Relevance with respect to a:
user
group
domain
Jobcode
context
Relevance with respect to a set of:
users
groups
domains
Jobcodes
contexts
mixed entities
everything
84
User Interaction
Criteria
Settings
88
Browsing
Single value for each piece of content
90
Searching
Relative value dependent on search
92

FIGURE 6

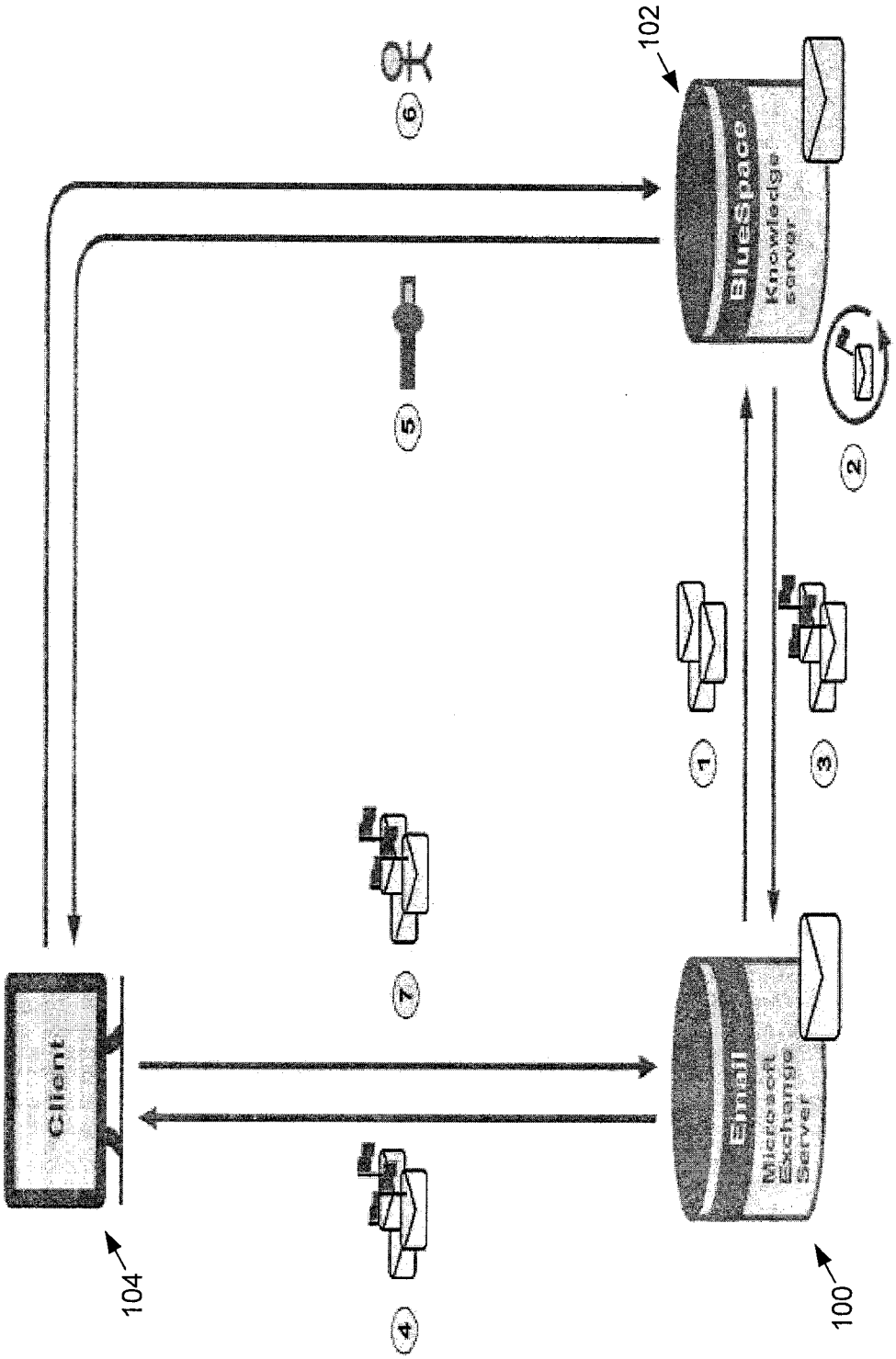

OK
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102
BlueSpace
Knowledge
Server
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2
1
3
7
Client
Email
Microsoft
Exchange
Server
4
104
100

FIGURE 7

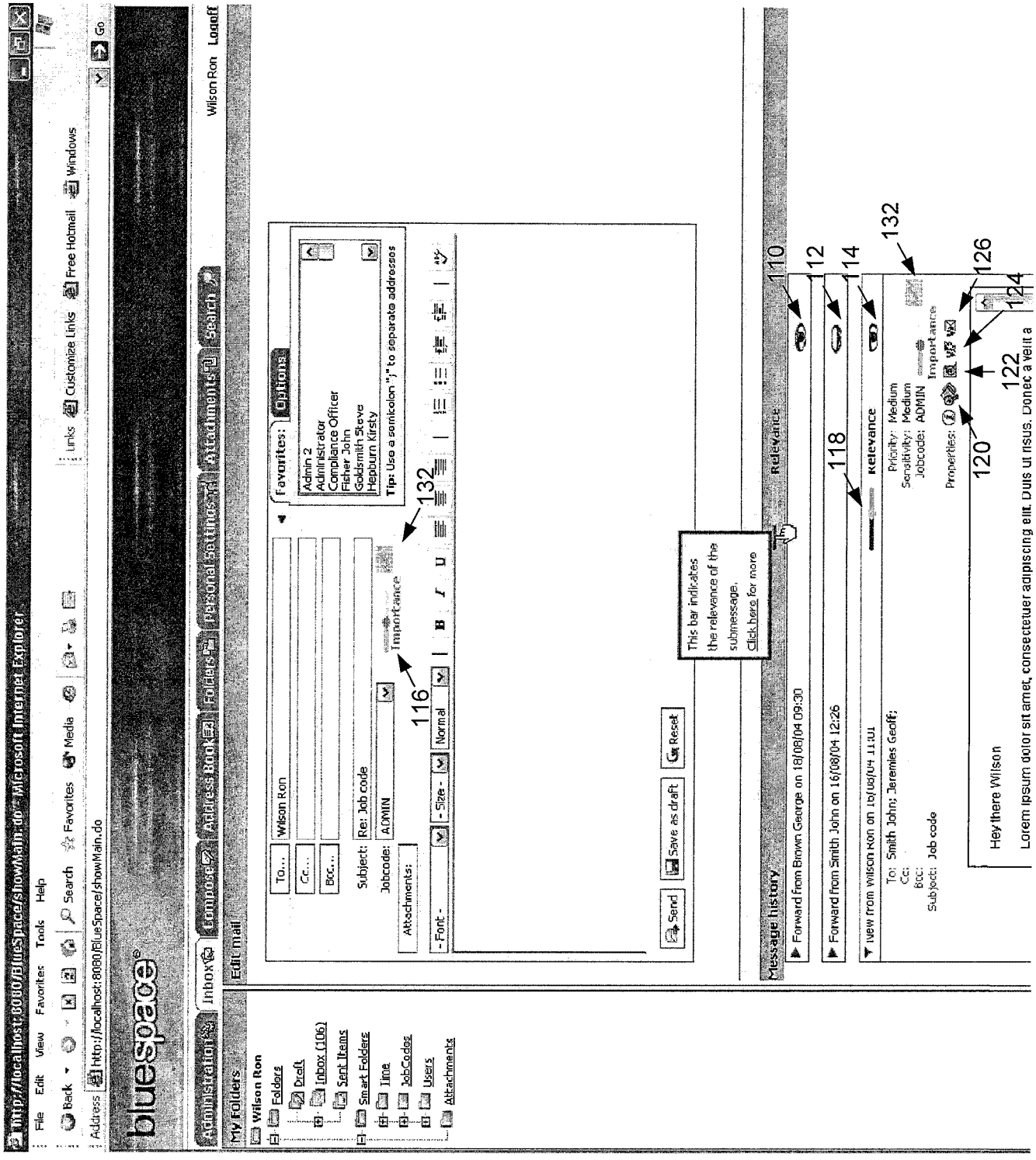

bluespace
Administration
Inbox
Compose
Address Book
Folders
Personal Settings
Attachments
Search
Wilson Ron
Logoff
Edit mail
My Folders
Wilson Ron
Folders
Draft
Inbox (106)
Sent Items
Smart Folders
Time
JobCodes
Users
Attachments
Favorites:
Options
Admin 2
Administrator
Compliance Officer
Fisher John
Goldsmith Steve
Hepburn Kirsty
Tip: Use a semicolon ";" to separate addresses
To...
Wilson Ron
Cc...
Bcc...
Subject: Re: Job code
Jobcode: ADMIN
Importance
Attachments:
- Font -
- Size -
Normal
Send
Save as draft
Reset
This bar indicates the relevance of the submessage. Click here for more
Message history
Relevance
Forward from Brown George on 18/08/04 09:30
Forward from Smith John on 16/08/04 12:26
View from Wilson Ron on 16/08/04 11:01
Relevance
To: Smith John; Jeremies Geoff;
Cc:
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Sensitivity: Medium
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Importance
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Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Duis ut risus. Donec a velit a
110
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FIGURE 8

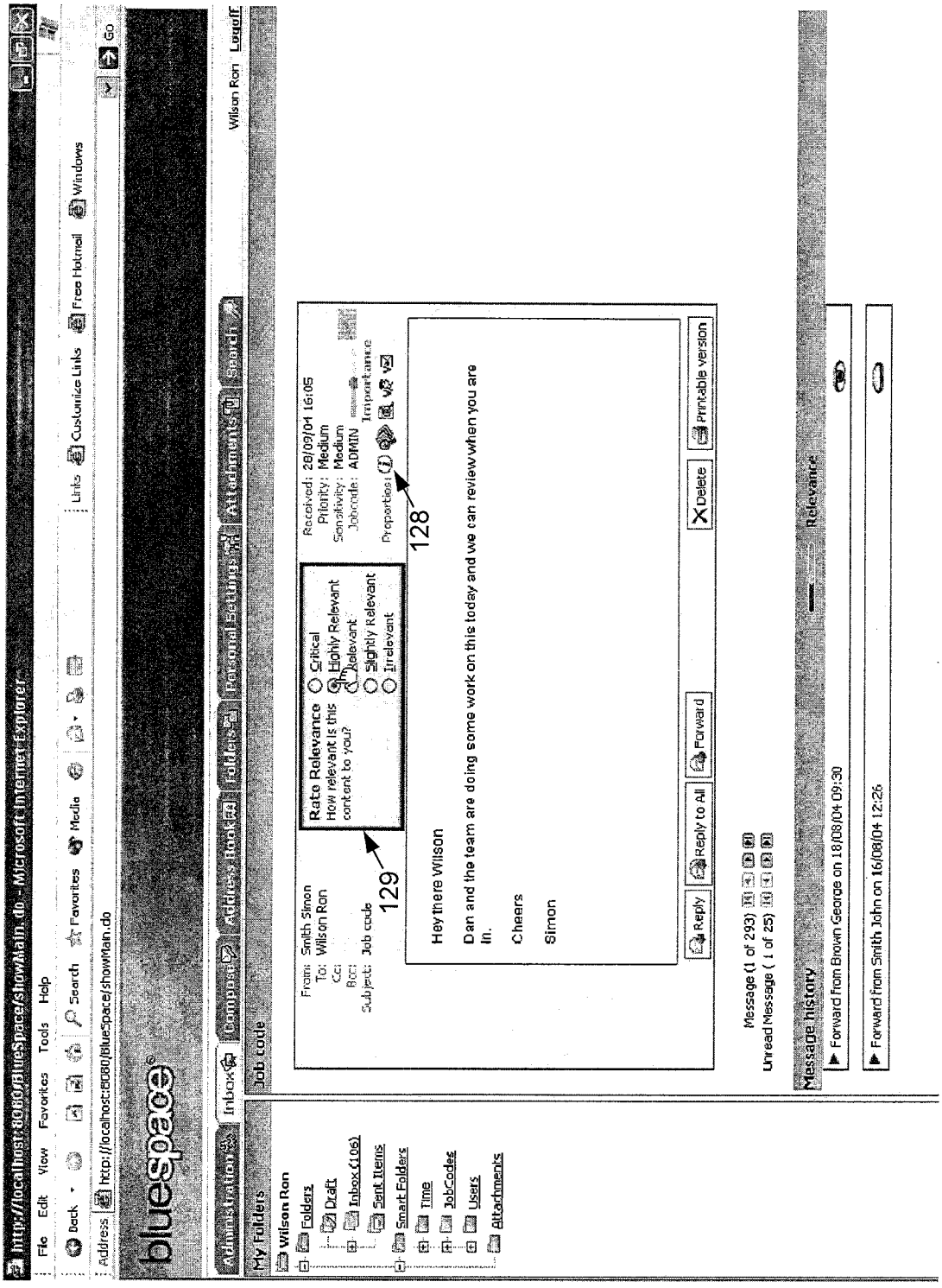

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File Edit View Favorites Tools Help
Back Search Favorites Media
Links Customize Links Free Hotmail Windows
Address http://localhost:8080/blueSpace/showMain.do
Go
bluespace
Administration
Inbox
Compose
Address Book
Folders
Personal Settings
Attachments
Search
Wilson Ron
Logoff
My Folders
Job code
Wilson Ron
Folders
Draft
Inbox (106)
Sent Items
Smart Folders
Time
JobCodes
Users
Attachments
From: Smith Simon
To: Wilson Ron
Cc:
Bcc:
Subject: Job code
Rate Relevance
How relevant is this content to you?
Critical
Highly Relevant
Relevant
Slightly Relevant
Irrelevant
129
Received: 28/09/04 16:05
Priority: Medium
Sensitivity: Medium
Jobcode: ADMIN
Importance
Properties
128
Hey there Wilson
Dan and the team are doing some work on this today and we can review when you are in.
Cheers
Simon
Reply
Reply to All
Forward
Delete
Printable version
Message (1 of 293)
Unread Message (1 of 25)
Message history
Relevance
Forward from Brown George on 18/08/04 09:30
Forward from Smith John on 16/08/04 12:26

FIGURE 9

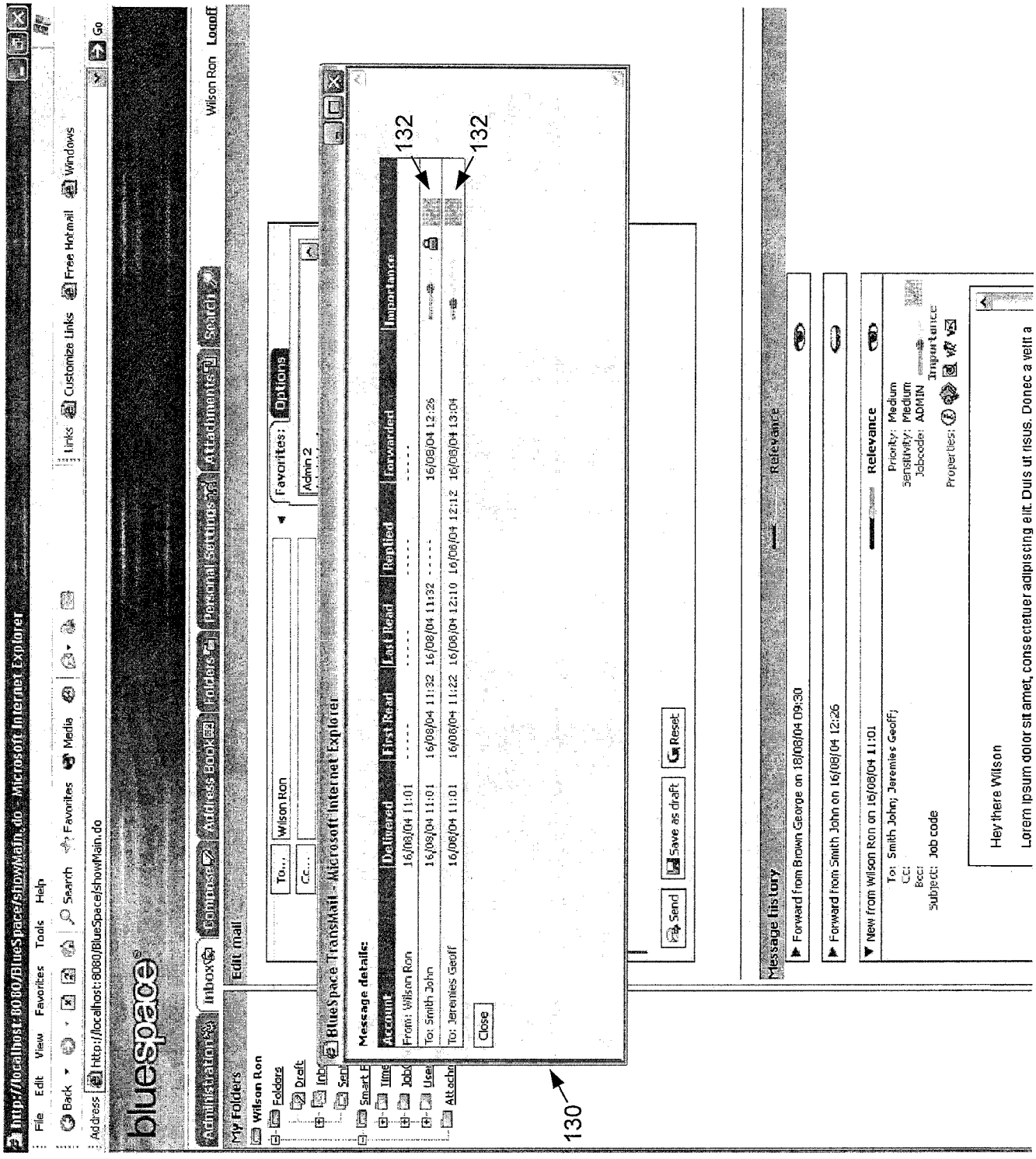

http://localhost:8080/BlueSpace/showMain.do - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Links Customize Links Free Hotmail Windows
Address http://localhost:8080/BlueSpace/showMain.do
Go
bluespace
Administration
Inbox
Compose
Address Book
Folders
Personal Settings
Attachments
Search
Wilson Ron
Logoff
My Folders
Wilson Ron
Folders
Draft
Edit mail
To...
Cc...
Wilson Ron
Favorites:
Options
Admin 2
BlueSpace TransMail - Microsoft Internet Explorer
Message details:
Account
Delivered
First Read
Last Read
Replied
Forwarded
Importance
From: Wilson Ron 16/08/04 11:01 ----- ----- ----- -----
To: Smith John 16/08/04 11:01 16/08/04 11:32 16/08/04 11:32 ----- 16/08/04 12:26
To: Jeremies Geoff 16/08/04 11:01 16/08/04 11:22 16/08/04 12:10 16/08/04 12:12 16/08/04 13:04
Close
132
132
130
Send
Save as draft
Reset
Message history
Relevance
Forward from Brown George on 18/08/04 09:30
Forward from Smith John on 16/08/04 12:26
New from Wilson Ron on 18/08/04 11:01
Relevance
To: Smith John; Jeremies Geoff;
CC:
Bcc:
Subject: Job code
Priority: Medium
Sensitivity: Medium
Jobcode: ADMIN
Importance
Properties:
Hey there Wilson
Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Duis ut risus. Donec a velit a

FIGURE 10

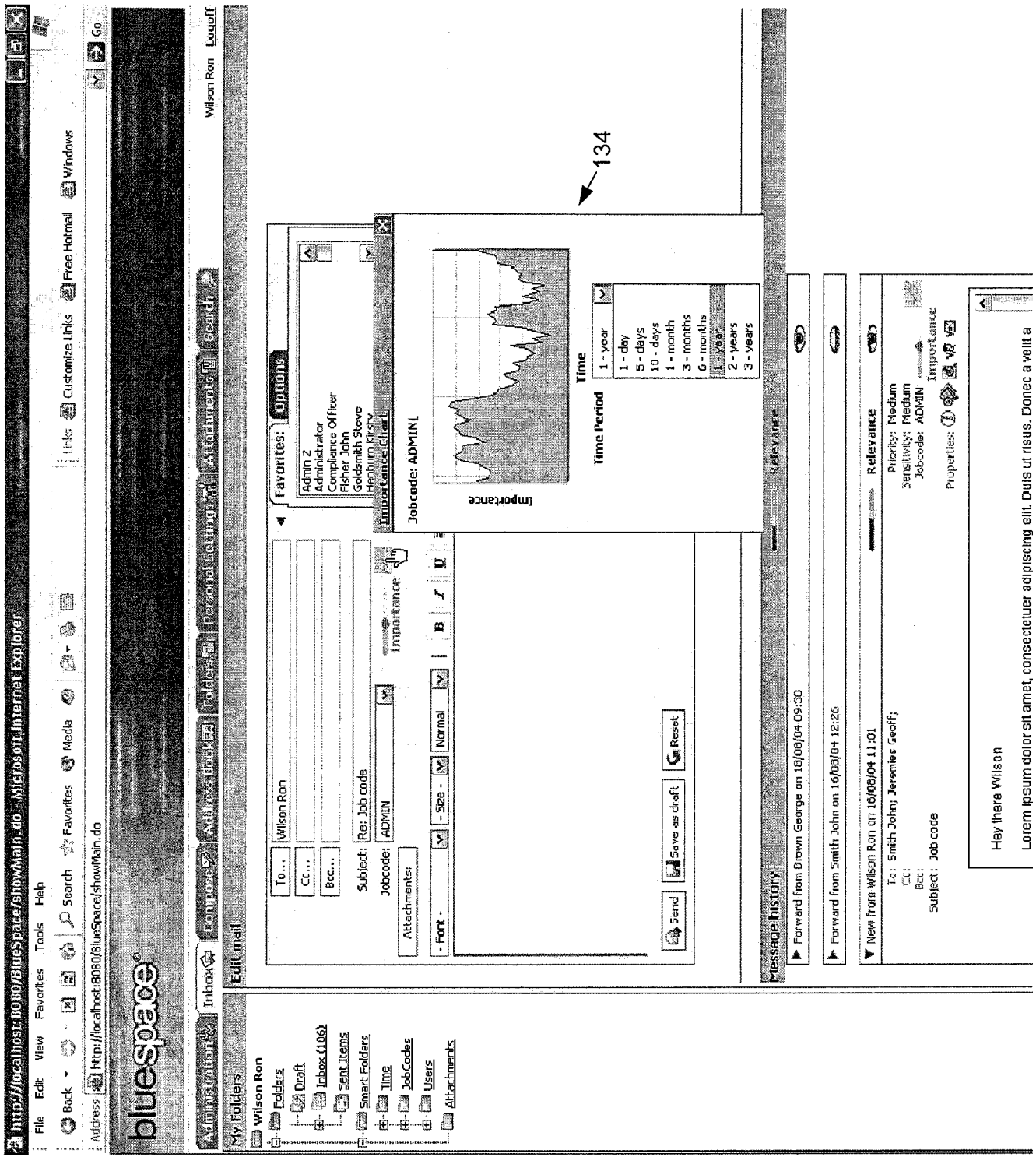

134
Importance
Time
Time Period
1 - year
1 - day
5 - days
10 - days
1 - month
3 - months
6 - months
1 - year
2 - years
3 - years
Jobcode: ADMIN
Favorites:
Options
Importance Chart
Edit mail
Message history
Relevance
Hey there Wilson
Lorem ipsum dolor sit amet, consectetuer adipiscing elit. Duis ut risus. Donec a velit a

FIGURE 11

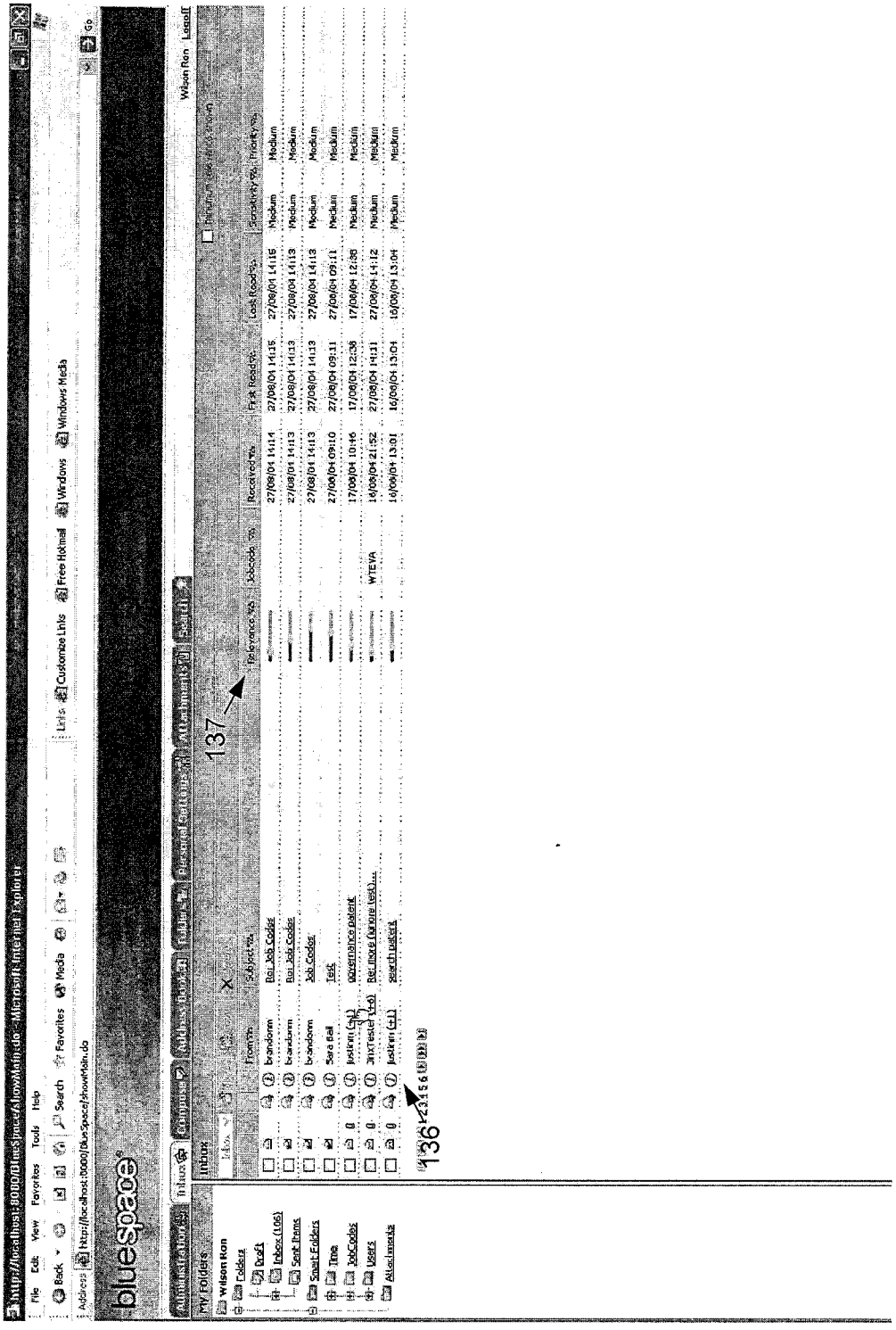

bluespace
Inbox
Compose
Address Book
Folders
Personal Contacts
All Attachments
Search
My Folders
wilson Ron
Folders
Draft
Inbox (106)
Sent Items
Saved Folders
Trash
JobCodes
Users
Attachments
From/To
Subject/To
Relevance %
JobCode %
Received %
First Received
Last Received
Sensitivity %
Priority %
137
136

FIGURE 12

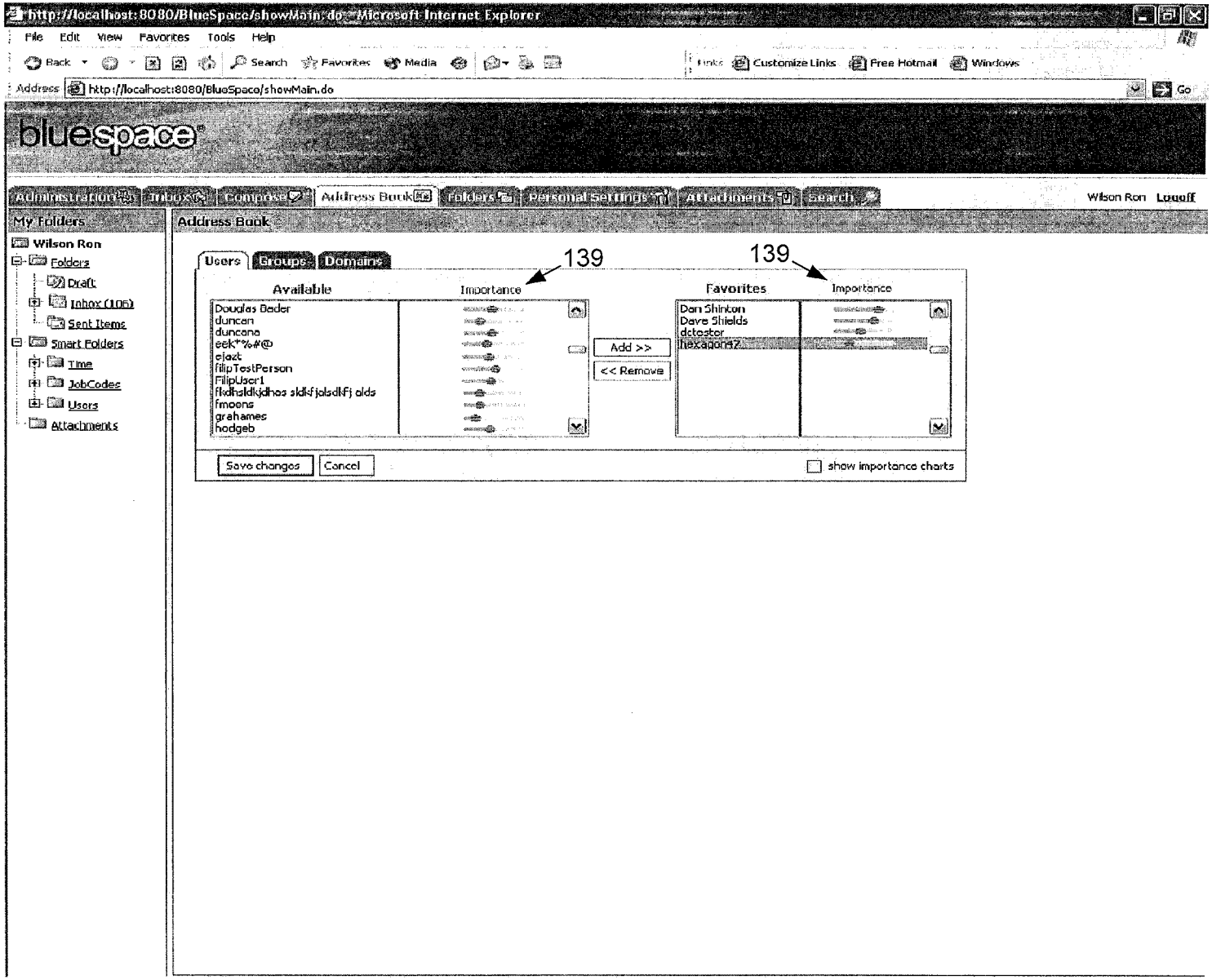

http://localhost:8080/BlueSpace/showMain.do - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Customize Links Free Hotmail Windows
Address http://localhost:8080/BlueSpace/showMain.do
Go
bluespace
Administration Inbox Compose Address Book Folders Personal Settings Attachments Search
Wilson Ron Logoff
My Folders
Wilson Ron
Folders
Draft
Inbox (105)
Sent Items
Smart Folders
Time
JobCodes
Users
Attachments
Address Book
Users Groups Domains
139
139
Available
Importance
Favorites
Importance
Douglas Bader
duncan
duncana
eek*%#@
ejazt
filipTestPerson
FilipUser1
fkdhsldkjdhas sldkfjalsdlkfj alds
fmoens
grahames
hodgeb
Add >>
<< Remove
Dan Shinton
Dave Shields
dctestor
hexagon42
Save changes
Cancel
show importance charts

FIGURE 13

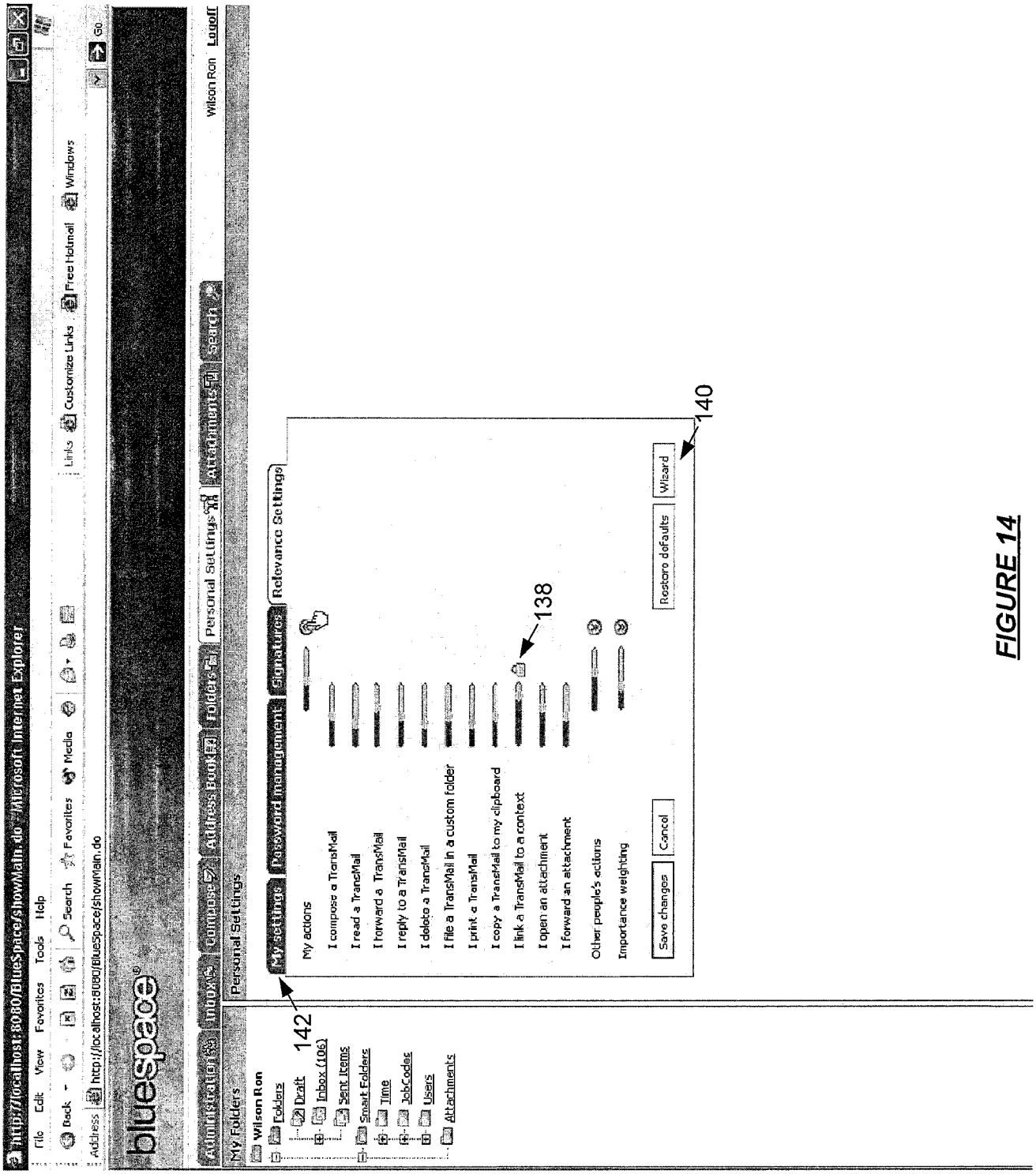

http://localhost:8080/BlueSpace/showMain.do - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media Links Customize Links Free Hotmail Windows
Address http://localhost:8080/BlueSpace/showMain.do
bluespace
Administration
Inboxes
Compose
Address Book
Folders
Personal Settings
Attachments
Search
Wilson Ron Logoff
My Folders
Personal Settings
Wilson Ron
Folders
Draft
Inbox (106)
Sent Items
Smart Folders
Time
JobCodes
Users
Attachments
142
My Settings
Password management
Signatures
Relevance Settings
My actions
I compose a TransMail
I read a TransMail
I forward a TransMail
I reply to a TransMail
I delete a TransMail
I file a TransMail in a custom folder
I print a TransMail
I copy a TransMail to my clipboard
I link a TransMail to a context
I open an attachment
I forward an attachment
138
Other people's actions
Importance weighting
Save changes
Cancel
Restore defaults
Wizard
140

FIGURE 14

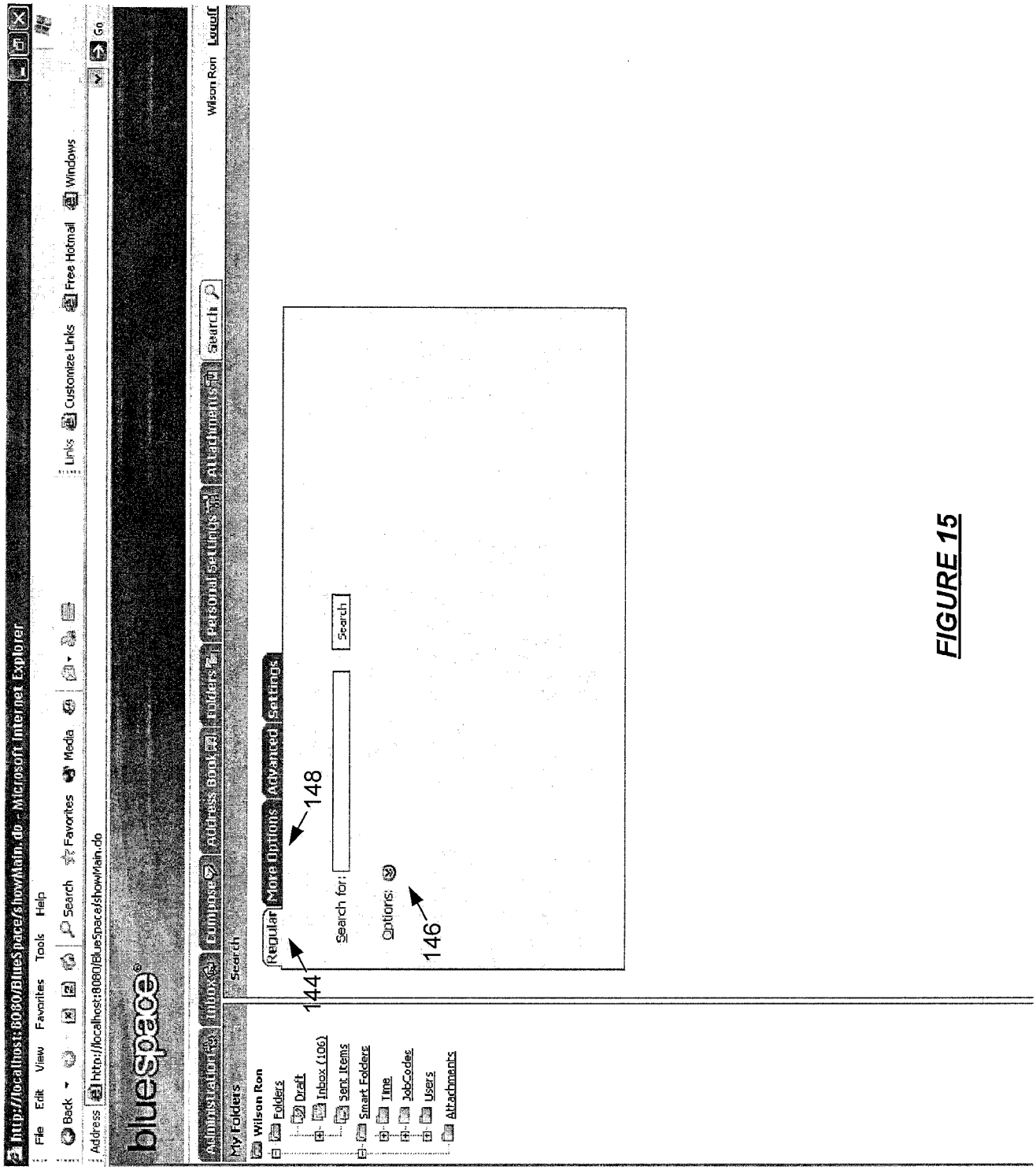

http://localhost:8080/BlueSpace/showMain.do - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://localhost:8080/BlueSpace/showMain.do
Links Customize Links Free Hotmail Windows
Go
bluespace
Administration
Inbox
Compose
Address Book
Folders
Personal settings
Attachments
Search
Wilson Ron
Logoff
My Folders
Search
Wilson Ron
Folders
Draft
Inbox (106)
Sent Items
Smart Folders
Time
JobCodes
Users
Attachments
Regular
More Options
Advanced
Settings
144
148
Search for:
Search
Options:
146

FIGURE 15

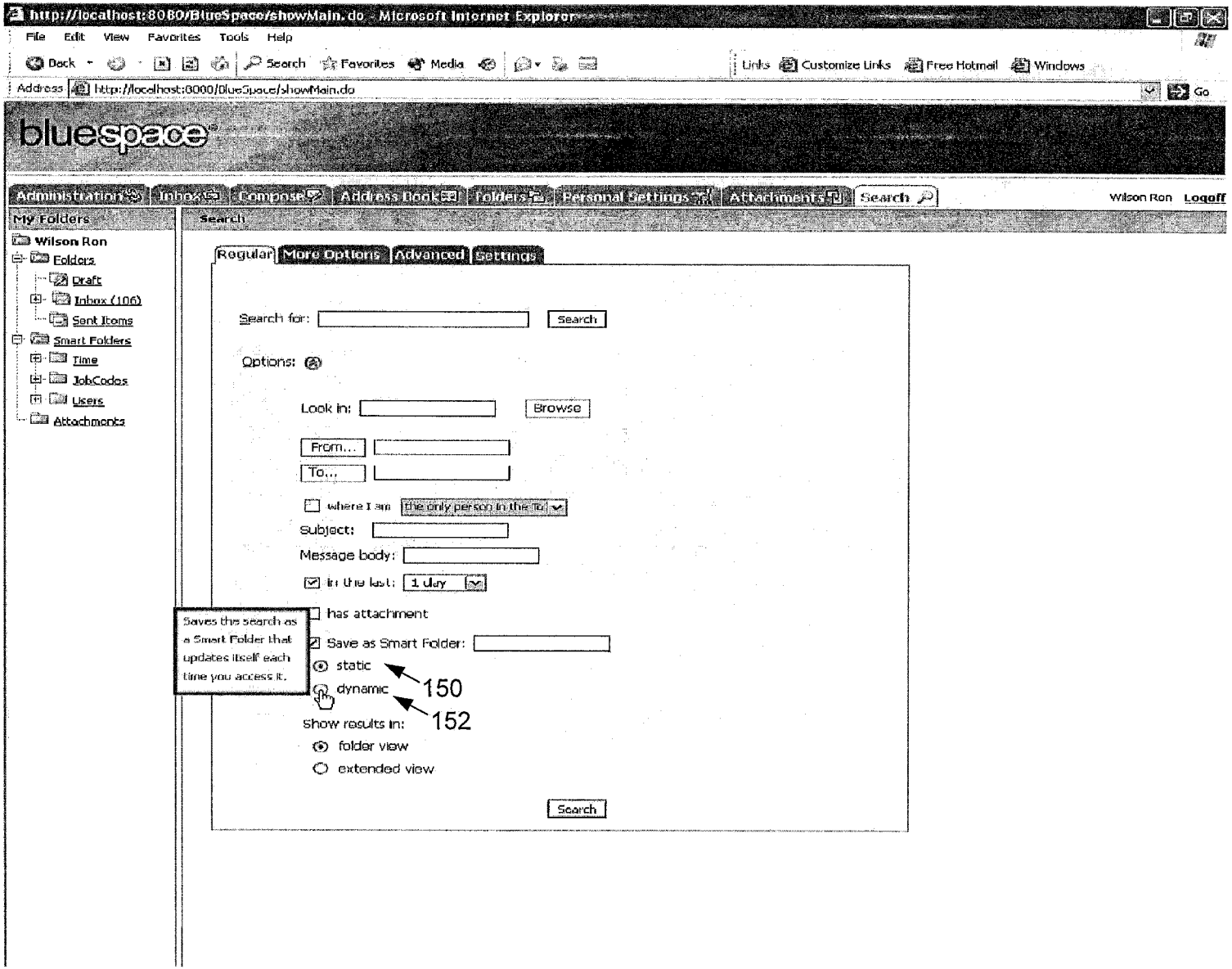

http://localhost:8080/BlueSpace/showMain.do - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media Links Customize Links Free Hotmail Windows
Address http://localhost:8080/BlueSpace/showMain.do
Go
bluespace
Administration Inbox Compose Address Book Folders Personal Settings Attachments Search
Wilson Ron Logoff
My Folders
Wilson Ron
Folders
Draft
Inbox (106)
Sent Items
Smart Folders
Time
JobCodes
Users
Attachments
Search
Regular More Options Advanced Settings
Search for:
Search
Options:
Look in:
Browse
From...
To...
where I am
the only person in the To
Subject:
Message body:
in the last:
1 day
has attachment
Save as Smart Folder:
Saves the search as a Smart Folder that updates itself each time you access it.
static
dynamic
150
152
Show results in:
folder view
extended view
Search

FIGURE 16

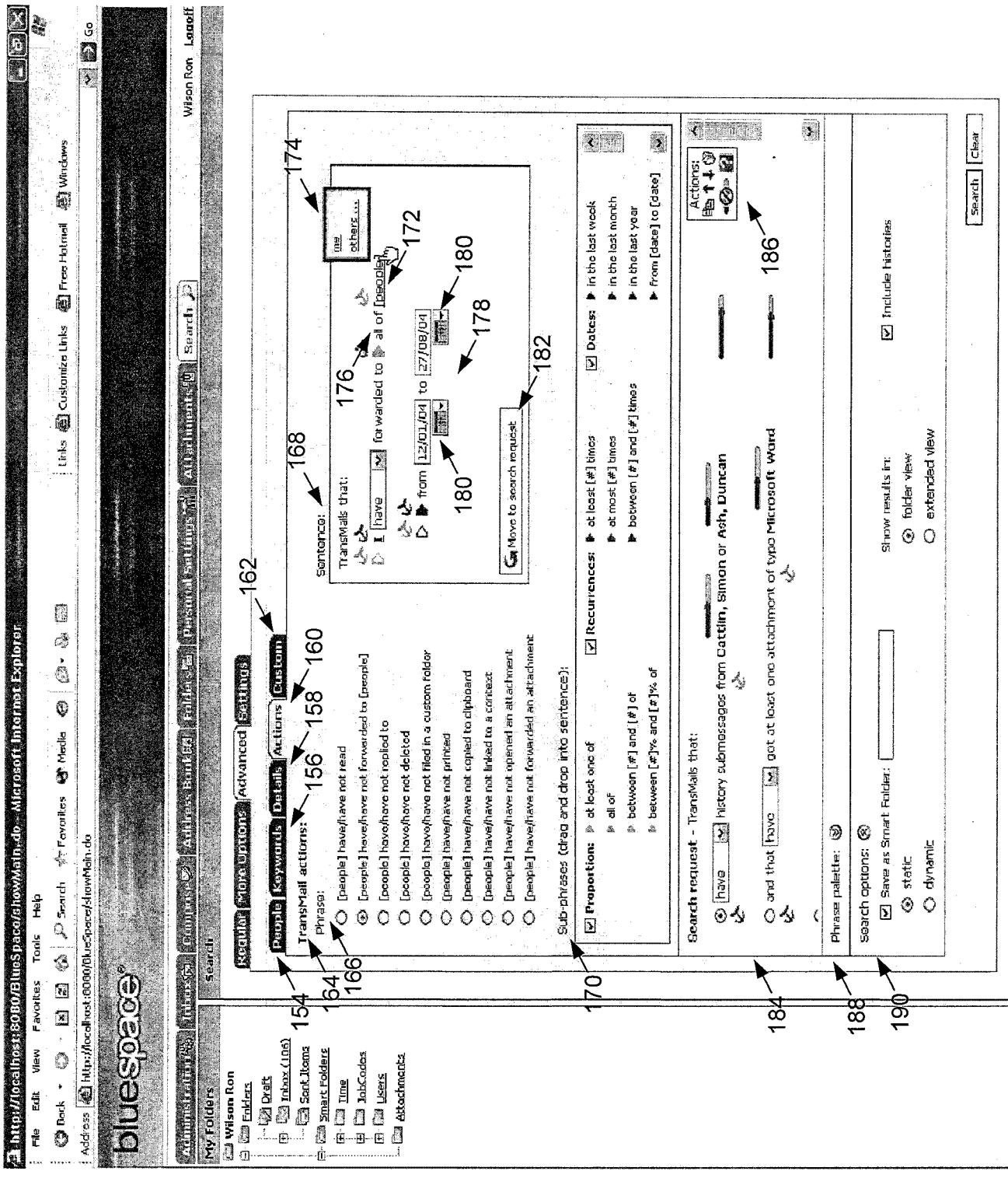

http://localhost:8080/BlueSpace/showMain.do - Microsoft Internet Explorer
bluespace
Wilson Ron
Logoff
Search
Reading
More Options
Advanced
Settings
People
Keywords
Details
Actions
Custom
TransMail actions:
Phrase:
[people] have/have not read
[people] have/have not forwarded to [people]
[people] have/have not replied to
[people] have/have not deleted
[people] have/have not filed in a custom folder
[people] have/have not printed
[people] have/have not copied to clipboard
[people] have/have not linked to a context
[people] have/have not opened an attachment
[people] have/have not forwarded an attachment
Sentence:
TransMails that:
have
forwarded to
all of [people]
me
others...
from 12/01/04 to 27/08/04
Move to search request
Sub-phrases (drag and drop into sentence):
Proportion:
at least one of
all of
between [#] and [#] of
between [#]% and [#]% of
Recurrences:
at least [#] times
at most [#] times
between [#] and [#] times
Dates:
in the last week
in the last month
in the last year
From [date] to [date]
Search request - TransMails that:
have
history submessages from Cattlin, Simon or Ash, Duncan
and that have got at least one attachment of type Microsoft Word
Actions:
Phrase palette:
Search options:
Save as Smart Folder:
static
dynamic
Show results in:
folder view
extended view
Include Histories
Search
Clear
154
156
158
160
162
164
166
168
170
172
174
176
178
180
182
184
186
188
190

FIGURE 17

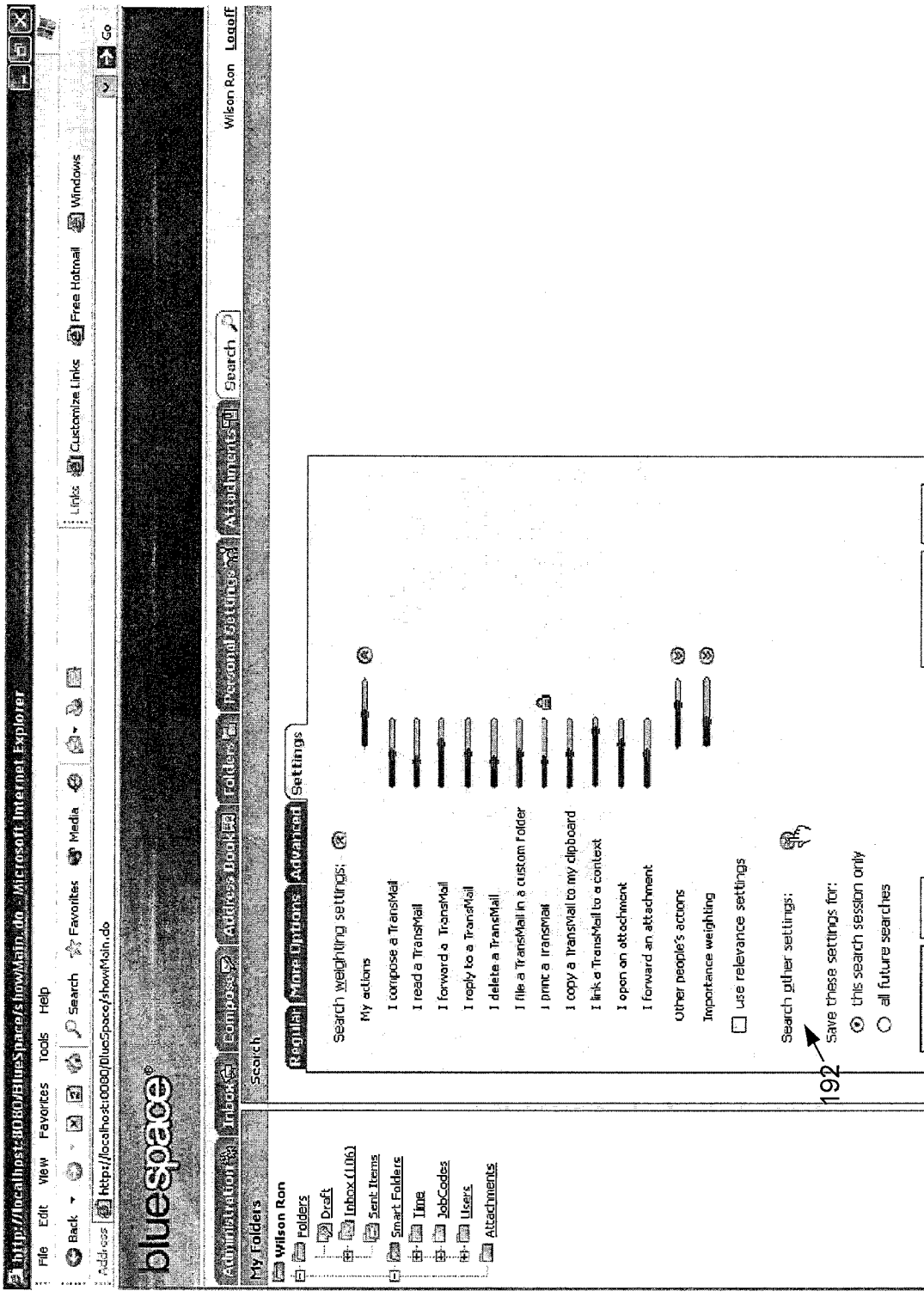

http://localhost:8080/BlueSpace/showMain.do - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://localhost:8080/BlueSpace/showMain.do
Links Customize Links Free Hotmail Windows
bluespace
Administration Inbox Compose Address Book Folders Personal Settings Attachments Search
Wilson Ron Logoff
My Folders
Search
Wilson Ron
Folders
Draft
Inbox (106)
Sent Items
Smart Folders
Time
JobCodes
Users
Attachments
Regular Mora Options Advanced Settings
Search weighting settings:
My actions
I compose a TransMail
I read a TransMail
I forward a TransMail
I reply to a TransMail
I delete a TransMail
I file a TransMail in a custom folder
I print a TransMail
I copy a TransMail to my clipboard
I link a TransMail to a context
I open an attachment
I forward an attachment
Other people's actions
Importance weighting
Use relevance settings
Search other settings:
192
Save these settings for:
this search session only
all future searches
Save changes
Cancel
Restore defaults
Wizard

FIGURE 18

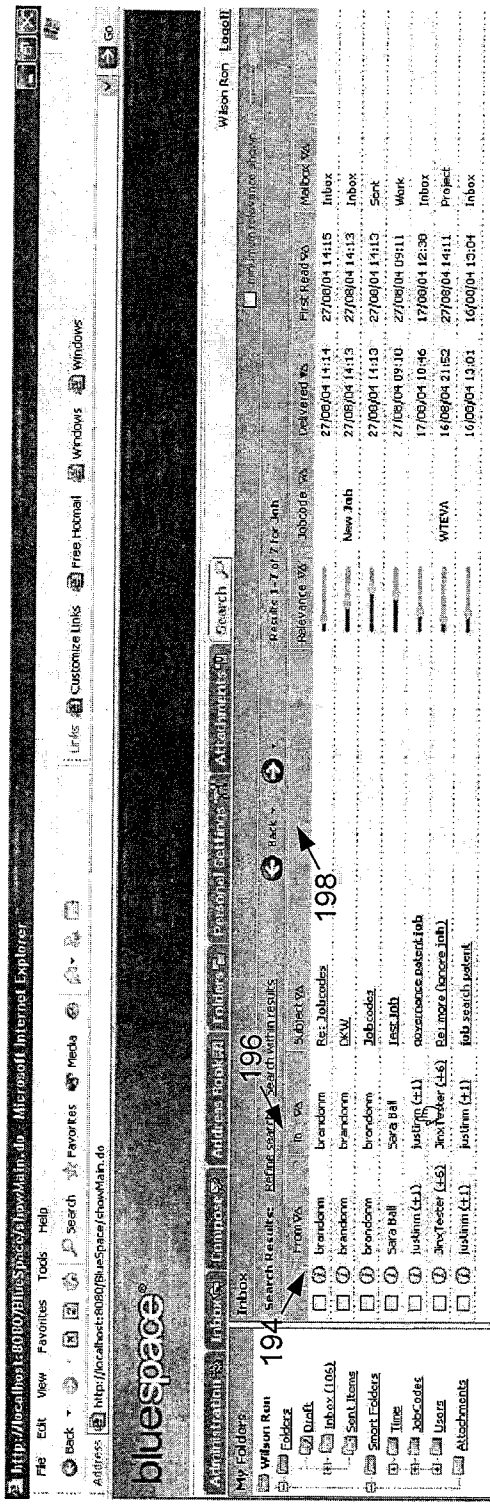


FIGURE 19

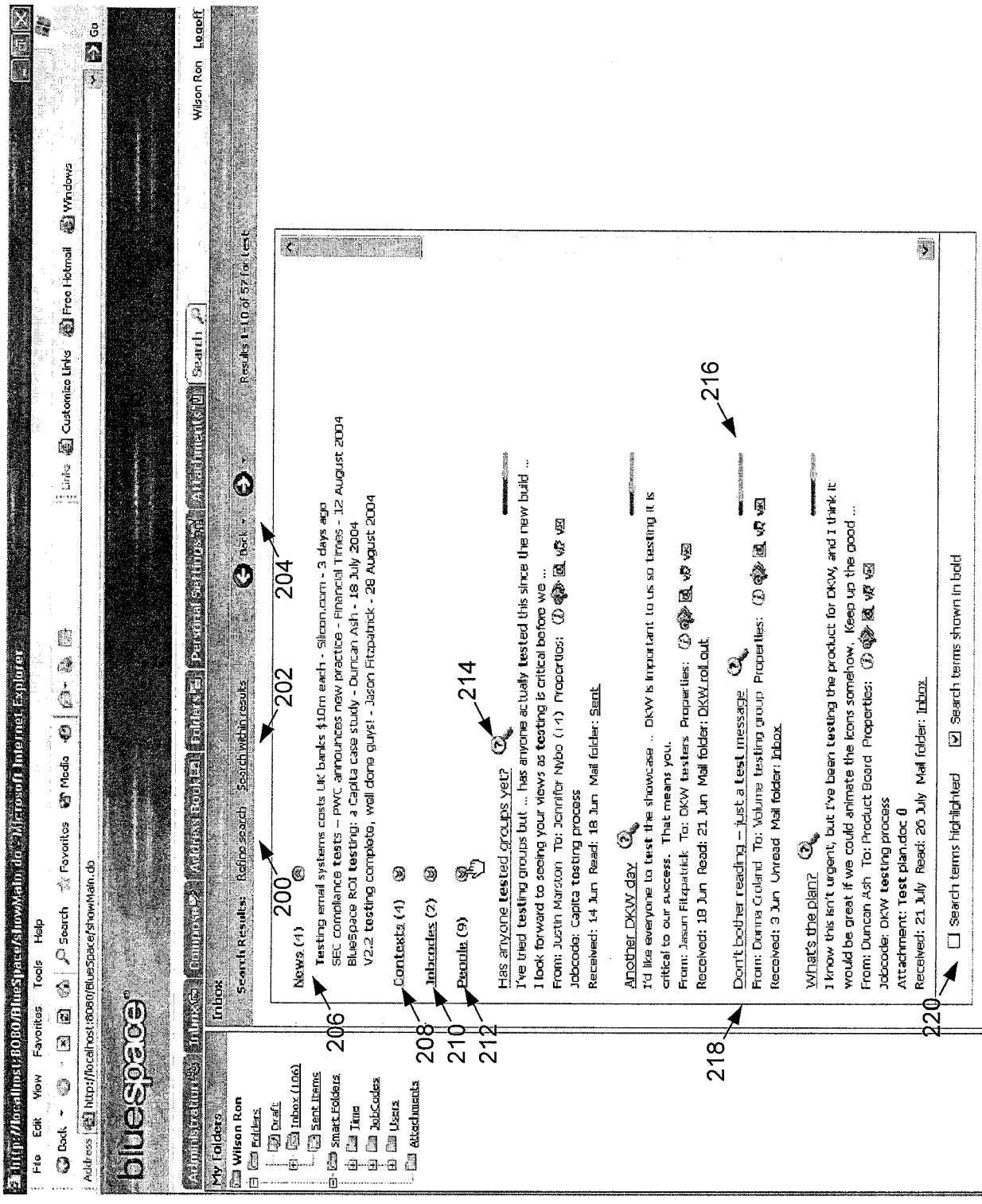

200
202
204
206
208
210
212
214
216
218
220
Inbox
Search Results: Refine search Search within results
News (4)
Testing email systems costs UK banks $10m each - Silicon.com - 3 days ago
SEC compliance tests -- PWC announces new practice - Financial Times - 12 August 2004
BlueSpace ROI testing: a Capita case study - Duncan Ash - 18 July 2004
V2.2 testing complete, well done guys! - Jason Fitzpatrick - 28 August 2004
Contexts (4)
Inboxodes (2)
People (9)
Has anyone tested groups yet?
I've tried testing groups but ... has anyone actually tested this since the new build ...
I look forward to seeing your views as testing is critical before we ...
From: Justin Marston To: Jennifer Nybo (14) Properties:
Jobcode: Capita testing process
Received: 14 Jun Read: 18 Jun Mail folder: Sent
Another DKW day
I'd like everyone to test the showcase ... DKW is important to us so testing it is
critical to our success. That means you.
From: Jason Fitzpatrick To: DKW testers Properties:
Received: 18 Jun Read: 21 Jun Mail folder: DKW roll out
Don't bother reading -- just a test message
From: Donna Cleland To: Volume testing group Properties:
Received: 3 Jun Unread Mail folder: Inbox
What's the plan?
I know this isn't urgent, but I've been testing the product for DKW, and I think it
would be great if we could animate the icons somehow. Keep up the good ...
From: Duncan Ash To: Product Board Properties:
Jobcode: DKW testing process
Attachment: Test plan.doc 0
Received: 21 July Read: 26 July Mail folder: Inbox
Search terms highlighted
Search terms shown in bold

FIGURE 20

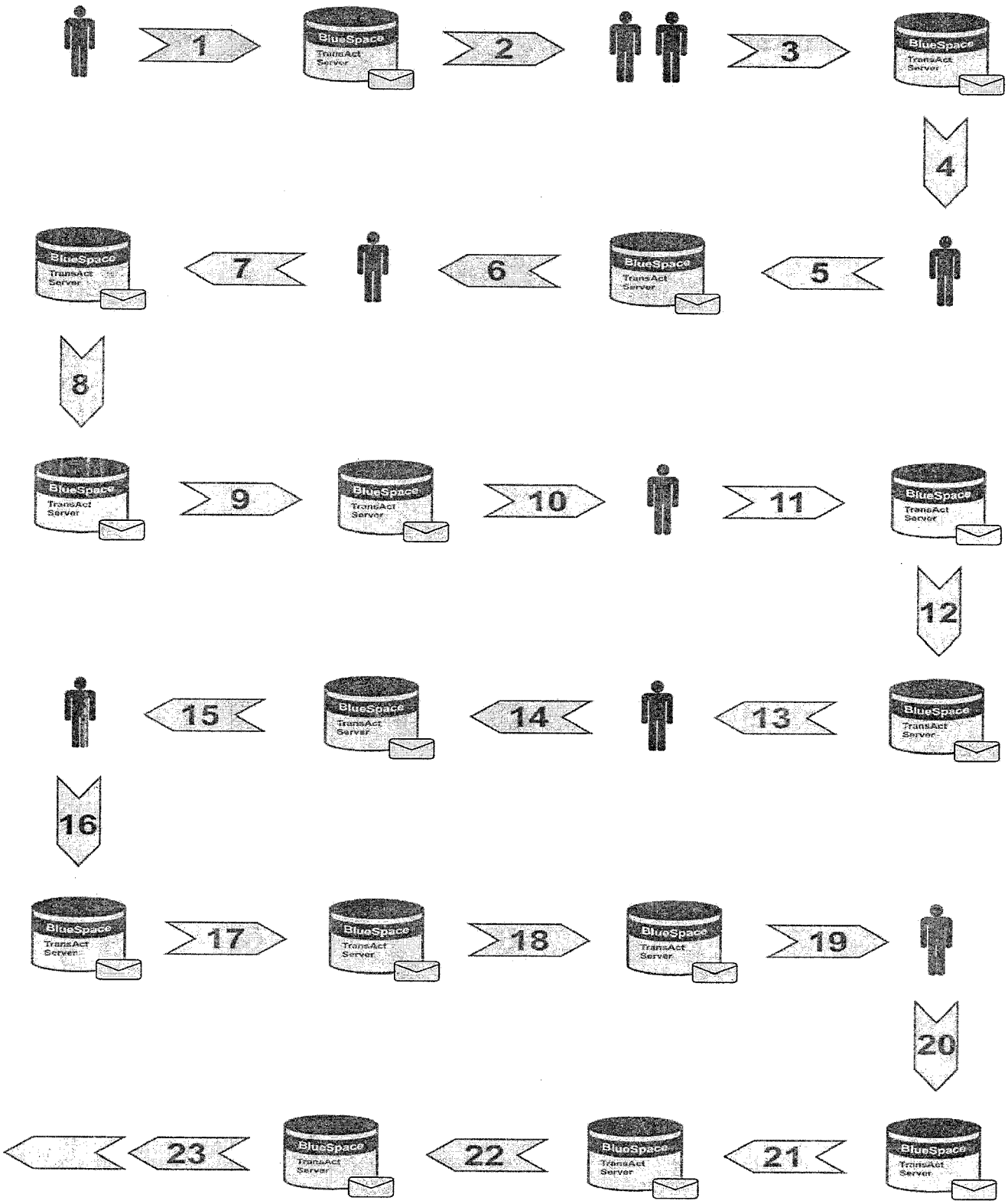
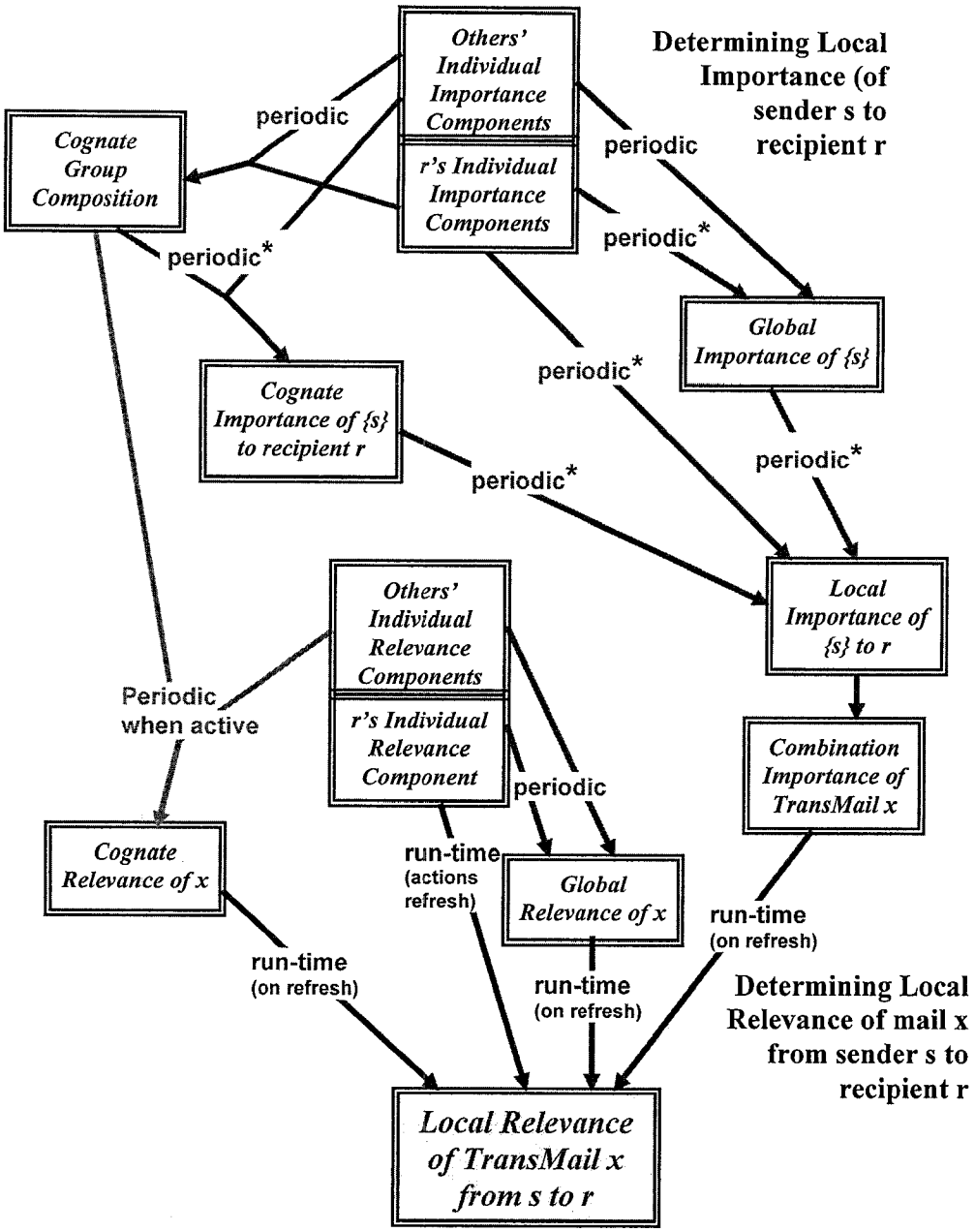

1
BlueSpace TransAct Server
2
3
BlueSpace TransAct Server
4
BlueSpace TransAct Server
5
6
BlueSpace TransAct Server
7
BlueSpace TransAct Server
8
BlueSpace TransAct Server
9
BlueSpace TransAct Server
10
11
BlueSpace TransAct Server
12
BlueSpace TransAct Server
13
14
BlueSpace TransAct Server
15
16
BlueSpace TransAct Server
17
BlueSpace TransAct Server
18
BlueSpace TransAct Server
19
20
BlueSpace TransAct Server
21
BlueSpace TransAct Server
22
BlueSpace TransAct Server
23

FIGURE 21



Note: If this is the first contact between *s* and *r* then the arrows marked * will be absent and the arrival of mail will trigger the calculations of arrows marked * (which are usually done only on periodic review) because no local importance figure will previously exist.

FIGURE 22

Electronic Acknowledgement Receipt

EFS ID:	1442182
Application Number:	11623653
International Application Number:	
Confirmation Number:	5243
Title of Invention:	DETERMINING RELEVANCE OF ELECTRONIC CONTENT
First Named Inventor/Applicant Name:	Justin Marston
Customer Number:	00758
Filer:	Brian M. Hoffman
Filer Authorized By:	
Attorney Docket Number:	23682-12381
Receipt Date:	16-JAN-2007
Filing Date:	
Time Stamp:	18:22:44
Application Type:	Utility

Payment information:

Submitted with Payment	yes
Payment was successfully received in RAM	$775
RAM confirmation Number	948
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 /.zip	Pages (if appl.)
1	Drawings	12381_Drawings.pdf	3458830	no	22
Warnings:					
Information:					
2	Application Data Sheet	12381_ADS_Form_SB_14.pdf	46151	no	4
Warnings:					
Information:					
This is not an USPTO supplied ADS fillable form					
3		12381_Mail_Relevance_spec.pdf	419462	yes	106

Multipart Description/PDF files in .zip description

Document Description	Start	End
Specification	1	99
Claims	100	105
Abstract	106	106

Warnings:	
Information:	
Total Files Size (in bytes):	3932989

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.

New Applications Under 35 U.S.C. 111
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.

National Stage of an International Application under 35 U.S.C. 371
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.

DETERMINING RELEVANCE OF ELECTRONIC CONTENT

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of U.S. Provisional Application No. 60/758,828, filed January 13, 2006, the entirety of which is hereby incorporated by reference.

BACKGROUND

[0002] Electronic mail is perhaps the most common form of modern communication among individuals and entities. Virtually anyone with access to a computer network (e.g., the Internet) can send and receive email. To a large degree, the use of email has replaced reliance on more traditional forms of communication, such as telephone and postal mail. In fact, for many corporations and organizations, email is now a mission-critical tool, the failure of which can greatly hinder, or altogether stop, the operations of the corporation or organization. Further, although email is already a primary form of communication as described above, the volume of email continues to considerably grow at a fast rate and merits the close attention of email administrators.

[0003] Given the heavy use of electronic mail, many email users receive hundreds of different emails a day. Oftentimes, much of the email received by an individual is irrelevant (or more colloquially, is "junk") and serves as a nuisance that the individual must navigate through. In other situations, while a certain set of received emails may all be at least somewhat relevant to the recipient, the recipient must still take the time to go

through those emails to determine which ones are more important than others.

[0004] As email is received and sent over time, the recipient's "inbox" and "sent folder" becomes a vast store of information. For many corporations and organizations, email might be the most comprehensive and up-to-date repository of knowledge possessed by the corporation or organization. However, despite the potential richness of information in stored email, typical email applications are resigned to providing unintelligent mechanisms (e.g., keyword, sender, recipient, and/or date range searches) for mining through email.

SUMMARY

[0005] According to at least one aspect of one or more embodiments of the present invention, a system and computer program product include: a monitoring module configured to track actions by a plurality of users associated with an application for managing electronic content; a relevance analysis module coupled to the monitoring module and configured to determine a relevance to a user of a piece of electronic content sent from a sender to the user, where the relevance is determined dependent on a measure of a relevance of the piece of electronic content as determined dependent on one or more actions of the user on the piece of electronic content, and a measure of a relevance of the piece of electronic content as determined dependent on one or more actions of at least one other recipient of the piece of electronic content.

[0006] According to another aspect of one or more embodiments of the present invention, a method comprises tracking actions by a plurality of users associated with an

application for managing electronic content, and determining a relevance to a user of a piece of electronic content sent from a sender to the user. The relevance is determined dependent on: a measure of a relevance of the piece of electronic content as determined dependent on one or more actions of the user on the piece of electronic content, and a measure of a relevance of the piece of electronic content as determined dependent on one or more actions of at least one other of the plurality of users that is a recipient of the piece of electronic content.

[0007] The features and advantages described herein are not all inclusive, and, in particular, many additional features and advantages will be apparent to those skilled in the art in view of the following description. Moreover, it should be noted that the language used herein has been principally selected for readability and instructional purposes and may not have been selected to circumscribe the present invention.

BRIEF DESCRIPTION OF DRAWINGS

[0008] Figure 1A shows a traditional prior art email system.

[0009] Figure 1B shows a relational electronic mail system in accordance with one or more embodiments of the present invention.

[0010] Figure 2 shows an electronic mail system in accordance with an embodiment of the present invention.

[0011] Figure 3 shows an example of a series of electronic mail transactions in accordance with one or more embodiments of the present invention.

[0012] Figure 4 shows different techniques as to how an electronic mail object may

be sent to external recipients in accordance with one or more embodiments of the present invention.

[0013] Figure 5 shows a compliance model in accordance with one or more embodiments of the present invention.

[0014] Figure 6 shows an overview of information flow in an electronic mail system in accordance with one or more embodiments of the present invention.

[0015] Figure 7 shows an electronic mail system integration in accordance with one or more embodiments of the present invention.

[0016] Figure 8 shows a screenshot of an example of a mail view web page in accordance with one or more embodiments of the present invention.

[0017] Figure 9 shows a screenshot of an example of a mail view web page in accordance with one or more embodiments of the present invention.

[0018] Figure 10 shows a screenshot of an example of a mail view web page in accordance with one or more embodiments of the present invention.

[0019] Figure 11 shows a screenshot of an example of a web page with an importance chart in accordance with one or more embodiments of the present invention.

[0020] Figure 12 shows a screenshot of an example of a folder view web page in accordance with one or more embodiments of the present invention.

[0021] Figure 13 shows a screenshot of an example of an address book web page in accordance with one or more embodiments of the present invention.

[0022] Figure 14 shows a screenshot of an example of a preference setting web page in accordance with one or more embodiments of the present invention.

[0023] Figure 15 shows a screenshot of an example of a search interface web page in accordance with one or more embodiments of the present invention.

[0024] Figure 16 shows a screenshot of an example of a search interface web page in accordance with one or more embodiments of the present invention.

[0025] Figure 17 shows a screenshot of an example of an advanced search interface web page in accordance with one or more embodiments of the present invention.

[0026] Figure 18 shows a screenshot of an example of a search settings web page in accordance with one or more embodiments of the present invention.

[0027] Figure 19 shows a screenshot of an example of a folder view search results web page in accordance with one or more embodiments of the present invention.

[0028] Figure 20 shows a screenshot of an example of an extended view search results web page in accordance with one or more embodiments of the present invention.

[0029] Figure 21 shows an example flow process of a relevance mechanism flow in accordance with one or more embodiments of the present invention.

[0030] Figure 22 shows a relevance determination mapping and flow in accordance with one or more embodiments of the present invention.

[0031] Each of the figures referenced above depict an embodiment of the present invention for purposes of illustration only. Those skilled in the art will readily recognize

from the following description that one or more other embodiments of the structures, methods, and systems illustrated herein may be used without departing from the principles of the present invention.

DETAILED DESCRIPTION

[0032] In the following description of embodiments of the present invention, numerous specific details are set forth in order to provide a more thorough understanding of the present invention. However, it will be apparent to one skilled in the art that the present invention may be practiced without one or more of these specific details. In other instances, well-known features have not been described in detail to avoid unnecessarily complicating the description.

[0033] In general, embodiments of the present invention relate to a technique for determining the relative relevances of electronic mail messages. Particularly, one or more embodiments, in addition to possibly having traditional email search capabilities, may determine the relevance and/or importance of an instance of electronic mail based on, for example, user actions (e.g., what did the user do with that piece of electronic mail), other user actions (e.g., what did other users do with that piece of electronic mail), and/or administrative settings.

[0034] It is noted that although one or more embodiments are described herein with respect to traditional electronic mail, one or more embodiments may be applicable to other forms of electronic messages and content. For example, one or more embodiments may be used for determining relevance in document management applications. In

another example, one or more embodiments may be used in conjunction with instant message (IM) communications and/or short message service (SMS) messages.

[0035] Some forms of electronic mail, such as "TransMail" developed by BLUESPACE SOFTWARE CORP., use a relational architecture. In such a relational mail system, a piece of mail written by a user is managed as a single instance object during its life in the mail system. To illustrate the use of a relational mail system, Figures 1A and 1B show a comparison between traditional e-mail and email and electronic mail in a relational architecture in accordance with one or more embodiments. With traditional email, a first email **10** is replied to with a second email **12**, in which the content of the first email **10** is duplicated – there is no link between the first email **10** and the second email **12**. In a relational mail system according to one or more embodiments, a first electronic mail object **14** points to a first message **16**, and a second electronic mail object **18**, representing the reply to the first electronic mail **14**, points to the first message **16** and a second message **20**, where the second message **20** represents the reply content. Thus, in a relational mail system, electronic mail is transacted through the use of links, or "pointers," among electronic mail objects as they are created over time.

[0036] To further illustrate the use of links in a relational mail system, Figure 3 shows an example of a series of electronic mail transactions (transactions numbered in Figure 3) in accordance with one or more embodiments. In step 1, user **30** sends an electronic mail object to user **32** containing submessage A. In step 2, user **32** forwards the electronic mail object to user **34**, thereby creating a new electronic mail object that contains B|A (a current submessage B, with history portion submessage A). Then, in step

3, user **34** replies to user **32**, creating an electronic mail object that contains C|BA (a current submessage C, with history submessages B and A). In step 4, user **32** replies to user **34**, creating an electronic mail object that contains D|CBA (a current submessage D, with history submessages C, B, and A). Then, in step 5, user **34** forwards the electronic mail object containing D|CBA to users **36**, **38**, thereby creating new electronic mail objects containing E|DCBA (a current submessage E, with history submessages D, C, B, and A). In step 6, user **36**, seeking clarification from user **30**, sends an electronic mail object to user **30**, thereby creating an electronic mail object containing F|EDCBA (a current submessage F, with history submessages E, D, C, B, and A). User **30**, in step 7, replies to user **36**, thereby creating an electronic mail object that contains G|FEDCBA (a current submessage G, with history submessages F, E, D, C, B, and A). At some later time, in step 8, user **34** forwards the electronic mail object received from user **32** to user **40**, thereby creating an electronic mail object containing H|DCBA (a current submessage H, with history submessages D, C, B, and A).

[0037] As apparent from the above description with reference to Figure 3, a "current" submessage is a submessage at the top of the chain for a given electronic mail object. The current submessage will have been written by the user who created the electronic mail object. For example, in Figure 1B, submessage **16** is the current submessage of electronic mail object **14** and submessage **20** is the current submessage of electronic mail object **18**. In step 5 of Figure 3, for example, submessage E is the current submessage.

[0038] The previous submessage in the chain of a given electronic mail object are

referred to herein as "history" submessages. History submessages are content created before the current submessage and its respective electronic mail object. For example, in Figure 1B, submessage **16** is a history submessage of electronic mail object **18**. In step 5 of Figure 3, for example, submessages D, C, B, and A are the history submessages. Moreover, it is noted that in one or more embodiments, a submessage may only have one history path.

[0039] Further, for a given submessage, submessages that appear in later electronic mail objects that reference the original submessage are referred to herein as "future" submessages. For example, in Figure 1B, submessage **20** is a future submessage with respect to submessage **16**. In step 5 of Figure 3, for example, submessages F and G are future submessages, but submessage H is not because the electronic mail object created in step 8 does not include submessage E. Rather, submessage H is a future submessage in step 4 of Figure 3. Moreover, it is noted that in one or more embodiments, a submessage may have a plurality of future paths, as it may be included in several branching forward and reply structures.

[0040] An electronic mail object in accordance with one or more embodiments may be sent to a destination external to a relational mail system in which the electronic mail object is created. For example, now with reference to Figure 4, it shows different techniques as to how an electronic mail object may be sent to external recipients in accordance with one or more embodiments. In a first technique, a user in company **50** sends an electronic mail object **52** in accordance with one or more embodiments to recipients in company **54**. This occurs by a relational mail server **56** in company **50**

sending an electronic mail notification (with, for example, a uniform resource locator (URL) to the electronic mail object **52**) **58** to the recipients in company **54**. The recipients in company **54** may then select the URL to read the electronic mail object **52** using a web browser.

[0041] Still referring to Figure 4, in another technique, a user in company **50** sends an electronic mail object **52** in accordance with one or more embodiments to recipients in company **60**. In this case, the relational mail server **56** wraps the electronic mail object **52** in a simple mail transfer protocol (SMTP) envelope **62** and sends it like a regular email to an email server **64** in company **60**. The recipients in company **60** may then view the email as they normally would, without having to select a web link.

[0042] In another technique, a user in company **50** sends an electronic mail object **52** in accordance with one or more embodiments to recipients in company **66**. In this case, the relational mail server **56** may determine that a mail server **68** in company **66** is a relational-type mail server, and thus, may send an electronic mail object **70** using a protocol based on web services.

[0043] In one or more embodiments, electronic mail content may be managed according to rules specified in a compliance model. Such a model may be used to determine, for example, how long content is kept for, who can access content, where content should reside, and other allowable actions to be carried out by users. Figure 5 shows an example, in unified modeling language (UML) representation, of a compliance model in accordance with one or more embodiments. Using such a compliance model, search rules may be layered over a content system, determining, for example, who has the

right to search different pieces of content in the system. For example, in the case of an investment bank, an analyst might have the right to search all content related to analyst processes written by other analysts; however, the same analyst may not have the ability to search content that does not pertain to his/her role in the bank.

[0044] Turning now to a more detailed description of one or more embodiments, an electronic mail relevance application helps users make sense of vast quantities of electronic mail by inferring a user's interest in content and other users based on monitoring that user's actions with in the application. Such relevance may be thought of as having at least two components: relevance, which applies to content (e.g., submessages); and importance, which applies to entities (e.g., users and job codes).

[0045] A "relevance" component may be used to rate electronic mail content in an order reflecting a user's likely interest in the content. For example, a high relevance value may indicate that the content is likely to be of significant interest to the user, while a low relevance value may indicate that the content is likely to be of little interest to the user.

[0046] An "importance" component may used to rate an entity in order to reflect a user's likely interest in content involving that entity. For example, a high importance value may indicates that a given job code is likely to be of significant interest to the user in question, while a low importance value may indicates that a job code is likely to be of little interest to the user. As used herein, a "job code" may be thought of as metadata used to track the process to which a particular electronic mail object relates.

[0047] In one or more embodiments, relevance and importance values may be determined based on monitoring users' actions. Such monitoring may occur as part of an automatic, background process. As will be apparent from the description herein, users' actions may indicate valuable information about both content and entities in the system. For example, if a user receives an electronic mail object, saves the electronic mail in a custom folder and subsequently forwards it to three other users, then the electronic mail is likely to be much more relevant to those users than if the sending user had just deleted the electronic mail as soon as he or she had finished reading it. In another example of associating relevance and importance in an electronic mail system, it is likely that a user's direct manager will be important to the user because the user will typically read messages from their manager in a timely manner, will often reply to those messages, and will send their manager a significant number of electronic mail objects. As will be described in detail further below, by monitoring a collection of user actions and then performing an analysis of those actions, valuable information may be learned for subsequent use in an electronic mail application in accordance with one or more embodiments.

[0048] As described above, a relational electronic mail system in accordance with one or more embodiments separates electronic mail objects into its constituent message objects, likely written by different authors (see, for example, Figure 1B). The use of such constituent parts promotes a level of granularity that may used to support a relevance analysis engine that can be applied to the electronic mail system. In such a manner, behavioral information may be efficiently gleaned from the mail environment and used to

help improve content relevance as presented to one or more users.

[0049] Now referring to Figure 2, it shows an example representation of an electronic mail system **250** in accordance with one or more embodiments. As shown in Figure 2, the electronic mail system **250** has a plurality of modules, where a "module" may be any program, circuitry, logic, and/or functionality implemented in either software and/or hardware.

[0050] The electronic mail system **250** has a monitoring module **252**, which generally monitors and registers user actions and those of users associated or corresponding with a particular user. Such behavioral information may then serve as inputs to a relevance analysis engine **254**, which is formed of a relevance determination module **256** and an importance determination module **258**. The relevance determination module **256** assesses user action data provided by the monitoring module **252** and calculates relevance scores for objects accessible to the user. The importance determination module **258** assesses user action data provided by the monitoring module **252** and calculates importance scores for objects accessible to the user. It is noted that operations of the relevance analysis engine **254** may not be limited to applying to any one user, but may instead, for example, be used to determine relevance and importance scores for all users in a particular organization of which the electronic mail system **250** is part. Further, the electronic mail system **250** has a mail presentation module **260**, which is generally used to provide a user his/her electronic mail (along with features therewith) in accordance with the relevance and importance scores determined by the relevance analysis engine **252**. Moreover, the electronic mail system **250** has a search module **262**,

which is generally used to provide a user with search capabilities in accordance with the relevance and importance scores determined by the relevance analysis engine **252**.

[0051] Still referring to Figure 2, the electronic mail system **250**, or any combination of the modules shown therein, may run on any type of computer system (e.g., a client-side device, a server-side device, a single processor computer, a multiprocessor computer). Further, the electronic mail system **250**, or any combination of the modules shown therein, may be contained on a computer-readable medium (e.g., memory, a hard drive, a compact disc (CD), a digital video disc (DVD), a magnetic tape drive, an optical drive, a universal serial bus (USB) drive, a flash drive). As contained on such a computer-readable medium, the functionality of the electronic mail system **250**, or of any combination of the modules shown therein, may be partly or wholly carried out in response to one or more processors executing software instructions stored on the computer-readable medium.

[0052] Further, based on the description provided below, it will be apparent which of the modules shown in Figure 2 may be applicable to the various techniques, uses, and functions described herein. For example, the monitoring module **252** may be used for performing any of the techniques described herein relating to tracking the actions of users in a particular environment or associated with a particular system. The relevance analysis engine **254** may be used for determining or calculating any of the relevance related values described herein. More particularly, for example, the relevance determination module **256** may be used for determining or calculating any one or more of the various types of relevance scores described herein, and the importance determination

module **258** may be used for determining or calculating any one or more of the various types of importance scores described herein. Further, the mail presentation module **260** may be used for generating any one or more of the various types of web pages described herein (it is noted that in one or more embodiments, non-web user interfaces may also or instead be presented by the mail presentation module **260**). Moreover, for example, the search module **262** may be used for performing any of the search techniques described herein.

[0053] An electronic mail application in accordance with one or more embodiments may help users in performing one or more of various different types of actions. For example, in a browsing mode, a user may browse through a folder of content, such as looking through newly received electronic mail objects in their inbox. In this case, the electronic mail objects may be sorted or ranked according to the relevance and importance of each. In, for example, a searching mode, a user may actively look for a specific piece of information or for information of a given type based on given search criteria (e.g., keywords, dates, specific senders). In this case, for example, a piece of content may be deemed to be more relevant to a search if two of the words in the subject are keyword search terms as opposed to if there was only one matched word. Moreover, relevance scores may be displayed to the user in response to performing a particular electronic mail action.

[0054] In regard to what types of information may be extracted from an electronic mail system in accordance with one or more embodiments, mail data, or data in an electronic mail itself (e.g., keywords, creation dates, recipient information, job codes)

may be recovered. Further, mail action data, or information regarding users' actions on electronic mail content (e.g., the number of times an electronic mail has been read, the number of times an electronic mail has been forwarded), may be recovered. Further, users may themselves rate various aspects and entities in the system to improve an accuracy of the relevance analysis engine. For example, a user may provide feedback regarding the relevance of any given piece of content, and/or the user may provide feedback regarding the importance of any given entity. Moreover, a user may also change various weighting factors used to determine settings of the relevance analysis engine, where such settings may otherwise be self-adjusting.

[0055] A user may interact with an electronic mail system in accordance with one or more embodiments in one or more of various ways. For example, in the case of reading new electronic mail, when a user receives a new electronic mail object, the electronic mail system may indicate how useful to the user that content is likely to be. In another example, in the case of reading existing mail, the electronic mail system may indicate how important to the user each electronic mail object and submessage is likely to be. In yet another example, in the case of searching through electronic mail, the electronic mail system may help rank search results and indicate to the user how likely each piece of content is to be of interest.

[0056] An overview of information flow, including various elements and relationships described above, in an electronic mail system according to one or more embodiments is shown in Figure 6. In one aspect, what is shown in Figure 6 may be thought of as representing the information flow in a relevance analysis engine according

to one or more embodiments. As used in Figure 6, "single" aspects refer to individual units (e.g., content, users), and "collaborative"/"communal" aspects refer to collections of units (e.g., content, users).

[0057] Turning now more specifically to Figure 6, mail data **80** represents properties of each electronic mail, including the current submessage (single), as well as both history and future submessages (collaborative). Mail data **80** serves as an input to importance **82** in that it determines the entities listed in the mail environment and where they appear. Further, mail data **80** acts as an input to relevance **84** as the entities involved in the mail help to determine its initial and ongoing relevance values.

[0058] Users' actions **86** represent the ways users interact with the electronic mail system, e.g. reading mails, replying to mails, changing settings. Users' actions **86** encompass an individual user's own actions and other users' actions (the communal elements of the system). These actions may help to determine relevance, as relevance is calculated based on the way users interact with content. Users' actions **86** may also help determine importance, as the importance of entities reflects the significance with which users treat them.

[0059] Importance **82** of a given entity may be stated with respect to a local importance to a single entity (e.g., "how important is John to Doug?") or a set of entities (e.g., "how important is John to the Medix drug development team?"). Importance **82** may draw input from mail data **80**, which determines the "fields of engagement" for entities, and from users' actions **86**, which reflect how significant a given entity is to a given user or set of users. Importance **82** may also act as an input to relevance **84**, as it

helps to determine the relative weightings given to different actors in the electronic mail system. It is noted that importance values for different entities may be shown in a user's graphical interface.

[0060] Still referring to Figure 6, relevance **84** of a given piece of content may be stated with respect to a single entity (e.g., "how relevant is the electronic mail object to John?") or with respect to a set of entities (e.g., "how relevant is the electronic mail object to the Medix drug development team?"). Relevance **84** may have as inputs the mail data **80** (properties of the content in question), users' actions **86** (what users have done with the content), and importance **82** (the significance users attribute to the entities involved in the content). Various sub-aspects of relevance **84** may be identified: "local relevance" – the relevance value presented to the user as they browse through their mail folders; "incoming relevance" – estimated relevance to a recipient before an electronic mail object is opened; "post-reading relevance" – relevance assigned after an electronic mail object is opened and dealt with by a recipient; and "search relevance" – the relevance assigned by the system to items identified in a specific search by a user.

[0061] User interaction **88** is present so that when users are searching for something, they have some idea of what they are looking for and can guide the system to that content by stating criteria and changing their search settings.

[0062] Browsing **90** is an activity a user spends most of their time doing in an electronic mail system – navigating through mail folders and reading content. Local relevance acts as an input to browsing **90**, helping to guide the user to the content they might wish to do deal with first. In one or more embodiments, there may be only one

local relevance value for each piece of content with respect to a given user. Further, it is noted that local relevance may initially be the incoming relevance value (described above), and once the user in question has read the electronic mail object, the local relevance value may be the post-reading relevance value (described above).

[0063] Continuing with reference to Figure 6, searching **92** is an activity that a user may use to search electronic mail amongst potentially thousands of electronic mails the user has sent and received. It is noted that the search relevance value (described above) for content relating to a given search may vary depending on the search criteria settings and/or the user's settings.

[0064] In addition to the components of the information flow shown in Figure 6, an electronic mail system in accordance with one or more embodiments may have access to relatively independent data points by, for example, indirect "watching" of users' actions and mail data and direct "questioning" (e.g., asking users whether the results are accurate). However, such data points may vary according to users' opinions of the significance of entities and content presented to them by the electronic mail system.

[0065] As described above, mail data represents the properties of a particular electronic mail object. Such properties may include, but are not limited to, the following: keywords in subject; keywords in message body; keywords in other fields; keywords in attachments (both names and content); a signature assigned to the message; a date the content was created; the recipients of the content; whether the electronic mail object was sent to:/cc:/bcc:; the sender of the content; the body size; the attachment size; the attachment type; and flags for follow up (e.g., the sender indicates the electronic mail

requires action by the recipient). Thus, for example, in one or more embodiments, a user may build a search query looking for different submessages that make up a particular electronic mail object and may specify different creation dates, senders, recipients, and/or other details for each submessage they are looking for that make up the electronic mail object.

[0066] Other criteria may also be used to leverage the relational architecture of an electronic mail system according to one or more embodiments: job codes – a mechanism for linking an entire submessage to a specific business process; context – a mechanism for linking text in a submessage to a specific process, either on a user or enterprise-wide basis; groups – sets of users across the system; domains – a naming directory across the system; priority – an urgency tag linked to notification processes; sensitivity – a confidentiality tag linked to readership and search rights; validity date – the period of time for which the content is viewable by the user; retention date – the period of time for which the content is retained by the corporation; allowed readers – the users who are allowed to read the mail; allowed geographies – the geographies to which the mail content is allowed to be sent; rule contravention – content sent that had weak conflicts (e.g., a history submessage could not be included for one of twenty recipients) or strong conflicts (e.g., a user tries to send an electronic mail object to another user with whom they are not allowed to communicate) with compliance rules, and was altered or managed appropriately by the application; other compliance interactions – various other interactions with the governance engine; other meta-style information stored relationally with respect to the mail; and other business processes that are triggered by the mail event.

[0067] Examples of scenarios in which mail data can affect relevance are now provided. In other words, the following description lists examples of ways in which mail data parameters, such as those described above, might affect relevance to a given user, either while browsing or as part of a search. In one case, if a user received an electronic mail object as one of fifty other recipients, the electronic mail object is less likely to be of relevance to the user than if the user received the electronic mail object as the sole recipient. In another situation, if an electronic mail object is flagged for follow up by the sender, it is more likely to be of significant relevance to the user. In another case, if the keyword a user is looking for is in the body, then the electronic mail object is likely to be relevant to the user. In yet another example, if a user is looking for a particular file, then electronic mails with attachments of the requested file type are relevant to the search. In another scenario, if a user is looking for a piece of content they received some time ago from a particular, important department, then criteria such as date period, priority, and department domain may be relevant to the search. In another case, if a user is looking for all content relating to a particular business transaction, and that content has been tagged with one or more job codes, then content with the appropriate job codes may be relevant to the search. In still another example, if a user is looking for content that may have caused compliance violations, then all content that caused weak or strong interactions with a given set of compliance rules may be relevant to the search. In another situation, for example, if a user is looking for all electronic mail objects that will trigger a financial purchase over the next 30 days, then the user can search for electronic mails that will cause a purchase over the defined date range.

[0068] Other scenarios may be used to leverage a relational structure of an electronic mail system in accordance with one or more embodiments to determine the "communication context" of electronic mail. Such scenarios may rely on history submessages (older submessages in the chain of the electronic mail object) and future submessages (submessages written later as part of other electronic mail objects that contain a present submessage). For example, if an electronic mail object is received by a user as a reply to an electronic mail object they themselves sent, then a submessage in the history will map to the "current submessage" – the one at the top of the chain – in an electronic mail object the user's "sent folder." In this case, the incoming electronic mail object is likely to be of significant relevance. In another example, if a particular submessage appears several times in a user's "inbox," then a new electronic mail object containing this submessage is likely to be of relevance to the user. In yet another example, if a new electronic mail object received by a user contains one or more history submessages written by the user, then it is likely that the new electronic mail object is of relevance to the user. In still another example, if historical submessages in a new electronic mail object were found to have high relevance ratings, then it is likely that the new submessage will have significant relevance to the user. In a further example, if a submessage, A does not contain a given keyword, but many submessages that were sent in replying to and forwarding submessage A do contain the keyword, then submessage A is likely to still be relevant in a search for the given keyword.

[0069] Now turning to users' actions, as described above, users' actions represent the ways users interact with an electronic mail system in accordance with one or more

embodiments. The electronic mail system monitors user actions inside the electronic mail system. It is noted that such actions may be deemed important as they reflect the users' opinions of the content and the value they place on it. Examples of users' actions include, but are not limited to, the following: a user composes an electronic mail object; a user reads an electronic mail object; a user forwards an electronic mail object; a user replies to an electronic mail object; a user deletes an electronic mail object; a user files an electronic mail object in a custom folder; a user prints an electronic mail object; a user saves a local copy of an electronic mail object; a user copies an electronic mail object to their clipboard; a user links an electronic mail object (or part of a submessage) to a context; a user finds an electronic mail object as part of a search; a user includes an electronic mail object in a visualization; a user opens or saves an attachment; and a user forwards an attachment.

[0070] The relevance of users' actions relies on the user's actions to help determine content relevance for content in the user's mail folders, both sent and received. The following examples illustrate how a user's own actions may be used as an input to a relevance analysis engine in accordance with one or more embodiments. In one scenario, if a user receives an electronic mail object from another user and immediately forwards it to three other users with comments, then the electronic mail object is likely to have had relevant content. In another case, if a user receives an electronic mail object and replies to it, then the content of the original electronic mail object is likely to be of significant relevance. In another situation, if a user receives an electronic mail object from another user and immediately deletes it, it is unlikely that they perceived the content to be of

significant relevance. In a further example, if a user reads an electronic mail object and then moves it to a custom folder out of the "inbox," then it is likely that the content had relevance to the user. In still another case, if a user has read a given electronic mail object many times, then it is likely to be of significant relevance to the user. In another scenario, the longer the user has an electronic mail object displayed on a screen, the more likely it is to be relevant to the user. In still another situation, if a user copies text from a given electronic mail object to their clipboard, then the electronic mail object will likely be more relevant than an electronic mail object from which the user did not copy text. In another example, if a user links a piece of content to a context, it is more likely to be of relevance to them. In yet another situation, if a user always deletes content from a specific user quickly, then it is unlikely that any content from this user is of significant relevance to them. Further, in another case, if a user always reads content from another specific user before reading content from other users in any given new set of new mail received in their inbox, then it is likely that content from this specific user is of significant relevance. In still another scenario, if a user typically only reads short electronic mail objects rather than long ones, then the chances are that short ones are more relevant to that user than longer ones. In a different case, if a user never reads messages sent to a particular group or domain, then content sent to that group or domain is likely to be of less relevance to the user. In yet another situation, if a user never reads electronic mail objects tagged with a particular job code, then this content is likely to be of little relevance to the user. In yet another example, if a user rarely reads electronic mail objects designated as lowest priority (or reads them last when browsing their

"inbox"), then that lowest priority content is likely to be of little relevance to the user. In another case, if a user sends an electronic mail object to a many users, it may potentially be more relevant than an electronic mail object sent to a single user. In still another situation, if a user sends an electronic mail object and then later forwards it to other users, it is likely to be of more relevance than an electronic mail object that was sent once but never resent. In a further example, if a user reads an electronic mail object from their "sent folder," then the content is likely to be of significant relevance. Continuing with another scenario, if a user saves an attachment to their local hard disk or network system, both the attachment and the accompanying electronic mail object are likely to be of significant relevance. Moreover, in another case, if a user prints an attachment or electronic mail object, it is likely to be of high relevance to the user. In yet another case, if a user sends an electronic mail object to their supervisor, the electronic mail is likely to be more relevant than an electronic mail object sent to a junior secretary. In still another situation, if a user sends an electronic mail object with extensive formatting, it is more likely to be relevant to the user than if they only wrote a few lines of plain text. In another example, if a user has not accessed the folder in which the content is stored for over a year, then it is likely that the content is not particularly relevant.

[0071] As described above, the actions of other users may also be used to determine the relevance of content in a given user's folders, both sent and received. Examples of such actions are now described. In one case, if a user sends an electronic mail object to someone, and that someone reads the electronic mail object, then that electronic mail object is more likely to be relevant (to both the receiver and sender) than if the recipient

did not read it. In another situation, if a user sends an electronic mail object to a group of users, and most of the recipients reply to the electronic mail object, forward the electronic mail object, and/or copy the electronic mail object to custom folders, the electronic mail object is more likely to be generally or globally relevant than if the recipients immediately deleted the electronic mail object. In another scenario, if most other recipients of an electronic mail object delete it as soon as it arrives in their "inbox," then the recipient in question will probably not find the content particularly relevant. In still another example, if most other recipients copy a given electronic mail object to a custom folder (or reply or forward it) once they have read it, then the recipient in question will probably find the content to be of significant relevance. In yet another case, if a given user is always copying another user on their mail content (e.g., an employee copying their supervisor), then the content is less likely to be of relevance to that other individual. In a further example, if a user sends a submessage to another user, but the recipient does not read the submessage, then this may have an affect on the relevance of the content. In another situation, if the vast majority of the users in a given department read a piece of content sent globally, then the content is likely to be relevant to another user in that department. In still another scenario, if the majority of other users tend to read content linked to a particular job code, then content attached to that job code is more likely to be relevant to the user in question. Further, for example, if the majority of other users tend to read content linked to a particular context, then content attached to that context is more likely to be relevant to the user in question. In another situation, if most users read content from a particular author (e.g., a supervisor), then content from this author is

typically of greater relevance than content from a different author that is not widely read. In yet another case, if most users reply to content from a particular author (e.g., a supervisor), then content from this author is typically of greater relevance than content from a different author not widely replied to.

[0072] In one or more embodiments, in addition to considering content and users' action with content, an electronic mail system may analyze the importance of particular authors and entities when determining relevance. Such entities include, but are not limited to, the following: users; groups; domains; folders; job codes; contexts (categories to which pieces of content can be assigned); signatures; other business process information; and back-end/automated actors (e.g., external computer systems). As an example of a use of relying on the importance of authors and entities when determining relevance, in an organization, every member or employee may have an importance rating for other members/employees. In such an environment, it is likely that a member/employee would find other individuals who report to them and those to whom they themselves report to be of greater importance than individuals working in a different department.

[0073] Importance, as determined by a relevance analysis engine in accordance with one or more embodiments, may be a relative value, respective to each user (or other entity) in the system. For example, users, groups, domains, and other entities may all have different relative importance values describing a particular job code. As such, it is possible to calculate an overall importance value for any given entity in the system, which describes that entity's importance to the entire organization, where "organization"

may be defined as all the users of all the entities. This calculated importance value may be referred to as the "global importance value" for that entity.

[0074] Further, in one or more embodiments, the importance for a given contact may be represented as a pair of different values. A first value may reflect the user's interest in content they received from the contact, and a second value may reflect the user's interest in content they sent to the contact. While in some cases, these two values may be similar, in other cases, they may not be similar. For example, if a particular supervisor is extremely talkative or verbose, he/she may have low importance when sending content to other users, but those other users may view the supervisor as being very important when they themselves are initiating the communication.

[0075] Moreover, it is noted that different users' actions have different effects on relevance, due to varying importance factors. Thus, for example, if a user, such as a supervisor, deletes a particular electronic mail object, then this will have a greater effect than if a junior secretary deletes the electronic mail object. Also, importance may have multiple feedback effects. For example, if user B receives an electronic mail object from user A, and then user B forwards the electronic mail object to user C who is of high importance, then this affects the importance of all three users.

[0076] Now turning to another example illustrating the use of importance values, in an organization with, for example, 100,000 employees, it is likely that any given user will communicate with new contacts each week. As described above, importance is a relative factor for each pair of users' (or entities') interactions and is stored with respect to each user. However, when a new contact communicates with a user for the first time, the

system may still make a "best guess" about that new contact's importance based on communal importance (described above with reference to Figure 6). This importance value may then change as the user interacts with this new contact. The first "best guess" value may be important nonetheless because in a system with a large population, the usability may be hampered if the importance value of every new contact started at a particular default value.

[0077] In one or more embodiments, an organization may decide to tie importance to roles instead of or in addition to specific users. This approach may be particularly likely in highly-regimented environments, such as the military, where roles are of greater significance than the actual human personality involved.

[0078] Now turning to some examples illustrating the use of roles for determining importance, if a user moves position within a company, their role will likely change, and, in turn, they will have greater relevance to some users and less relevance to others. Thus, an organization may choose to integrate their personnel system with a mail relevance analysis engine in accordance with one or more embodiments. When a person moves positions, the learning sensitivity of the engine with respect to that user may be increased, so that the relevance and importance values may reach their new equilibrium more quickly. Further, the increased sensitivity may be decreased according to an appropriate statistical function over time, until the sensitivity is at regular levels.

[0079] In another situation, if a user moves into a role that was previously filled, the relevance identity for the previous occupant of the role may also act as an input to the individual taking on the new role. This may be referred to as "role importance," which is

a factor of a role holder's local and global importance values. This further reflects the blend of role and the user's own identity in determining importance values and relevance of associated electronic mail content. Thus, for example, a person moving into a new role may still attach the same importance to content received from their spouse, but would likely move to a different importance value for their new supervisor.

[0080] Further, it is noted that may exist scenarios in which a single person has multiple roles, in which case, they may be able to send and receive electronic mail using different user accounts. Another possible scenario is when a single role is shared by a number of different individuals, all of whom write and receive content using a single account. In this case, an organization may choose to treat the role as a single entity in isolation (so there is no correlation with the users using the account). Alternatively, in one or more embodiments, an organization may specify a blend of the person's identity and the role being used, in which case performing an action while signed into one account affects the values in other accounts.

[0081] As described above, in a large system, a user may often be interacting with a new entity for the first time. One approach to setting an initial importance value in these cases is to recognize correlated or cognate entities. This may be done, for example, through the use of tree structures. For example, one human resources employee is generally likely to have similar importance as another one, especially if they are of similar position in a tree structure (e.g., they both work in employee appraisal form processing). Further, it is noted that in one or more embodiments, branched structures, such as knowledge taxonomies for contexts and directories for users and job code

hierarchies, may be used as a correlative basis for importance on an ongoing basis. Thus, for example, an importance change for one user may have a cascading "ripple effect" for similar users.

[0082] In regard to recognizing "cognate" entities are referred to above, an electronic mail system in accordance with one or more embodiments may identify a "cognate group" for a user, based on historical actions. More particularly, for each user, over time, the system may identify a cognate group of the *n* other users regarded as most similar. Such a group may be defined by similar past user actions and assessments, and/or a direct input by a user. Further, it is noted that it may not be inherent that the population of recipients falls into separate and mutually exclusive cognate groups. Rather, each recipient may have their own cognate group of those the system regards as most similar to that recipient. Thus, for example, in a certain case, user A may be in user B's cognate group because user A is part of a group of *n* users most similar to B, but at the same time user B may not be in A's cognate group because there are *n* other users more similar to user A than is user B. Accordingly, it may be assumed in certain instances that the actions of this particular group on an electronic mail object will give more indication of its relevance to the user than would a global reaction to the electronic mail.

[0083] In addition to the actions that users perform in an electronic mail system in accordance with one or more embodiments, the electronic mail system may take direct user input to help determine relevance as described above with reference to Figure 6. In this regard, users may be thought of as having an "importance slider" for other users in

the electronic mail system. For example, a user might make their boss "very important" and mark their junior, sales clerk "rarely important." Such weightings may be considered by the mail relevance analysis engine described above.

[0084] As to the "importance slider" referred to immediately above, a piece of mail content, or a submessage, may be presented to the user along with a slider that indicates its current local relevance score. The user may move this slider and apply the change in relevance to that specific piece of content, or the user may add that change back in to how relevance is calculated across the whole user's mailbox.

[0085] Further, to assist in providing tangible data points for the relevance analysis engine, one or more embodiments may also directly query the user on the relevance of content sampled from the system. It is noted that such a sampling mechanism may also be used as a way to corroborate data. For example, in one case, researchers may be asked to rate the usefulness of a piece of content to the project they are currently working on. In another case, rather than asking the user to rate the relevance of a piece of content, the electronic mail system may query the user to rate their estimation of whether the content is true. Moreover, sampling may be conducted in a random or structured manner.

[0086] In addition to an end user being able to affect relevance directly for their own "inbox," certain "super-user" roles may have the ability to affect relevance across the entire system, or at least a considerable portion thereof. In other words, for example, a "relevance administrator" may provide a boost to communications from a particular department. At least one reason for such manipulation is that relevance may not be a purely user-centric phenomenon – a separate question may relate to relevance for the

entire organization.

[0087] As described above, an electronic mail system in accordance with one or more embodiments may have a relational mail architecture, in which each piece of content written by a user is managed as a single instance object during its life in the mail system. The granularity of such an architecture may allow the electronic mail system to record all actions by users in the system, ensuring that the system has audited the entire lifecycle of the content. Further, relevance determination techniques in accordance with one or more embodiments may be applied to electronic mail at different levels. For example, relevance analysis may be applied to an electronic mail unit, where such a unit is considered as a whole regardless of what other electronic mails the unit contains. Such electronic mail unit analysis may be considered as a basic approach to determining relevance in electronic mail content. It allows relevance to be based on simple criteria such as, for example, the number of recipients, whether the user in question received the electronic mail object as a to:, cc: or bcc: recipient, the importance flag of the electronic mail object, and the time it was sent.

[0088] At another level, relevance analysis may be applied to relationally restructured electronic mail, where electronic mail is broken into its component messages, and the relational structure of the electronic mail system is mapped to the electronic mail store. In one or more embodiments, an electronic mail system may have the ability to analyze regular electronic mail content and convert it into a relational system. When the electronic mail system structures information once it has already been sent, the criteria for search may be, for example, keywords and other standard inputs,

user mail flow actions (e.g., compose, reply, and forward), and communal user mail flow actions (e.g., compose, reply, and forward).

[0089] When an electronic mail system in accordance with one or more embodiments is integrated with an electronic mail environment at the application level (as opposed to being a purely "downstream" process), then one or more of the following criteria may be used: user mail management actions (e.g., read, forward, reply, delete and file to custom folder); user attachment management actions (e.g., view, forward, save to disk); and mail content path (e.g., tying together multiple instances of the same electronic mail). By using a relational architecture for regular electronic mail, an electronic mail system in accordance with one or more embodiments allows for the searching of regular electronic mail, with a similar relevance system to that of a search engine used for an electronic mail system operating on electronic mail objects as described above with reference to Figure 1B.

[0090] Integration with a conventional email system may be achieved in various ways. In client-side integration, for example, a plug-in to the email client may be used to monitor end users' actions on the mail content. In server-side integration, a relational electronic mail server (e.g., one developed by BLUESPACE SOFTWARE) may be connected to the legacy email server and tag content with "flags" so that it can track what happens to the content. Examples of these two mechanisms are shown in Figure 7.

[0091] Turning to the processes shown in Figure 7, in step 1, new email received by a legacy email server (e.g., MICROSOFT EXCHANGE) **100** is retrieved by a relational knowledge server (e.g., one developed by BLUESPACE SOFTWARE) **102**. In step 2,

the knowledge server **102** adds meta-tags to each email in an effort to track that content through the lifecycle. In step 3, the tagged emails (represented as having flags) are then replaced on the email server **100**. In step 4, an email client (e.g., Microsoft Outlook) **104** downloads the tagged emails. In step 5, a plug-in to the email client **104** immediately retrieves the current relevance values for the content. Then, in step 6, the user carries out actions on the content in the email client **104**, and the plug-in records these actions and sends them back to the relational knowledge server **102**. In step 7, one of the actions carried out by the end user is to send emails in replies and forwards – these include the meta-tags positioned by the relational knowledge server **102**.

[0092] Still referring to Figure 7, it is noted that steps 5 and 6 may form a continuous feedback loop, where each time the user carries out an action, a corresponding relevance value changes. Further, plug-in to the email client **104** may also interact with search results to include and reflect the relevance values in the search listings.

[0093] Now turning to the use of one or more embodiments for research or forensics purposes, as the volume of email transacted has increased, so has the challenge for productively searching through vast quantities of email. A relevance analysis engine in accordance with one or more embodiments may be applied to regular electronic mail (as described above with reference to Figure 7), with one or more important benefits for forensics processes. In one aspect, the relevance analysis engine may combine a granular analysis process with a particular relevance algorithm (detailed examples of which are further described below). Content that meets certain criteria including relevance

parameters may be flagged for human inspection, and the most important individuals in a community may be inferred automatically. In another aspect, the relevance analysis engine may allow for the determination of similar or "cognate" entities and users by automatic analysis of users' actions (as opposed to attempting taxonomic structuring based on automated content analysis). This is based on "fingerprinting" different users (and entities) for similar direct and passive behavior. In still another aspect, high-level representations of user communities and sub-communities may be created based on a granular understanding of that community's interactions. This may reflect the importance of different individuals, based on the same flow analysis mechanisms for relevance described herein. In yet another aspect, increased granular capabilities in an electronic mail system in accordance with one or more embodiments allows for advanced visualization of communication communities. In another aspect, the approaches described immediately above may be combined for improved content sampling, through either or both of fully automated sampling and interactive human sampling. Further, it is noted that one or more of these approaches may be essentially language neutral.

[0094] Turning now to a description of user interface aspects relating to an electronic mail system in accordance with one or more embodiments, there may be several pages of an electronic mail application that include one or more of the various relevance and importance aspects described above. Such pages may include, for example, a mail view (when a user is viewing a single electronic mail object), a folder view (a folder listing showing many electronic mail objects), an address book (a list of contacts, groups, and domains), and preferences (a list of information). Each of these is

described in detail below.

[0095] In a mail view, a user is looking at a single electronic mail object and is able to see its entire content. An extension of this view is a reply view, as shown in 8. There are various relevance sliders in Figure 8, one for each submessage in the mail view and one for the entire electronic mail object, taking into account the current submessage and all history submessages. Relevance sliders **118** for history submessages may only be shown when the submessage is expanded, as in the second history submessage in Figure 8.

[0096] When a user hovers their mouse over a relevance slider, a pop-up window may appear, indicating why a particular relevance value is as it is, thereby potentially helping the user understand how the relevance value was determined. A similar pop-up window may appear for importance sliders, as further described below.

[0097] The user may provide feedback to the relevance analysis engine by changing the level of any given slider. When a user clicks and drags the level, the application may display a pop-up window above the slider indicating the value to which the user has moved the slider. The respective values may, for example, be: "irrelevant" – 0% to 10%; "slightly relevant" – 11% to 30%; "relevant" – 31% to 70%; "highly relevant" – 71% to 90%; and "critical" – 91% to 100%.

[0098] Further, the user interface may indicate to the user which submessages they have already seen before (e.g., in the case of a reply history) and which are new (e.g., in the case of a forward history). This is shown in Figure 8 via the state of the illustrated

"eyes" **110**, **112**, **114** in each submessage. If the eye is open (e.g., eyes **110**, **114**), the user has seen the submessage, and if the eye is closed (e.g., eye **112**), the user has not seen the submessage. Thus, as shown in Figure 8, if the active user (Wilson Ron) opened the submessage from Smith John, the respective eye icon for that submessage would become open.

[0099] Figure 8 shows further icons. Icon **120** allows the user to see a custom search folder, showing every electronic mail object that contains the given submessage. Another searching icon **122** allows the user to search for similar content to the given submessage, as determined by a search algorithm. Two more icons **124**, **126** allow the user to view the lifecycle of any given submessage, spawning pop-up windows (not shown in Figure 8) that visualize its path through the system and all users that have carried out actions on it.

[00100] In addition to relevance feedback, the mail view may present information on importance. Job code importance and other custom created variables may be given importance sliders **116**, as shown in Figure 8. A user may alter an importance slider, and either lock it at the new value or allow it to recalculate over time.

[00101] Further, in one or more embodiments, in addition to or instead of being able to provide feedback to a relevance analysis engine by moving relevance sliders, a user may also be requested to provide direct feedback on a sampled basis. In this case, for example, the user may be asked to directly rate the relevance of a given electronic mail objects, thus presenting the relevance analysis engine with a direct relevance data point, as opposed to correlating relevance with the user's actions. Such direct user questioning

is illustrated in box **129** shown in Figure 9.

[00102] As depicted in Figure 9, a user may not be forced to set the relevance value before being able to leave the mail view; however, in one or more embodiments, the interface may indicate that it is important for the user to do so. In one or more embodiments, it may be important that a high response rate be achieved for such relevance rating questions, as the effectiveness of the relevance analysis engine may correlate to the lack of bias in the survey sampling.

[00103] The number of times a user is asked to rank content may be determined based on their usage frequency (e.g., every 100 mail views) or absolute time (e.g., 5 times per week). A system administrator may determine this value, with the option to allow users to customize it through their preferences. Further, in one or more embodiments, a system administrator may also make direct user interaction mandatory for scenarios in which user feedback is required.

[00104] In one or more embodiments, direct feedback values submitted when users assign relevance to content through the survey function may be particularly helpful in the early stages of a given system. Such values help provide reliable relevance values to stabilize the weightings given to each type of user action. A system administrator may thus be able select a time-based factor to decrease the frequency of surveying users. Alternatively, a system administrator may base decreases in sampling frequency on statistical results derived from, for example, the stability of the global weighting factors.

[00105] Still referring to Figure 9, in regard to users' actions and users' importance

(as well as that of groups and domains), rather than clutter the interface with all this information by default, the application may allows the user to click details icon **128**, which, when selected, displays a new box (not shown in Figure 9) that presents this information, as shown in Figure 10. The box **130** shows, for example, the sender and each recipient of the electronic mail object, their actions on the content (forwarding, replying), and the importance of each recipient.

[00106] Further, it is noted that importance may change over time. For example, when a user is interacting strongly with another user on a given project, then that other user may be of greater importance at that point than a year after the time when the project has finished. In another example, if a user is working on a deal linked to a specific job code, that job code may be of greater relevance during the deal than six months after the deal has finished. The chart icons **132** in Figures 8 and 10 may be used to generate a chart showing the evolution of importance over time (for a definable period set by the user), as shown in the pop-up window **134** of Figure 11.

[00107] Now turning to a folder view as described above, reference is made to Figure 12. As shown in Figure 12, there is a relevance column **137**, which shows a relevance slider (shown, but not labeled) for every electronic mail object in the folder listing. As in the mail view described above, a user may move a relevance slider to provide feedback to the electronic mail application. In addition, the user may click the details icon **136** which, when selected, presents a similar box as that shown in Figure 10, indicating users' actions and importance indicators.

[00108] Now turning to an address book as described above, reference is made to

Figure 13. In Figure 13, importance slider **139** is provided for each user, group, or domain, and allows the user to directly interact with the importance values given to their contacts. The user may either lock the value or provide it as a new start value from which the electronic mail system equilibrates. Further, it is noted, for example, that when user A adds user B to their "favorites," the importance of user B with respect to user A may be given a boost.

[00109] Now turning to preference settings as described above, reference is made to Figure 14. Using preferences, the user can affect the different inputs into the relevance analysis engine. This may allow the user to tune the relevance analysis engine to provide the content that the user is interested in. For example, the user may affect the relative strength of the different actions by users, as well as affecting the relative strength of the different entities with importance (e.g., job codes, users).

[00110] In addition to varying the relative strengths of various inputs to the relevance analysis engine, the user may also alter the importance of the different entities in the system, using an interface similar to that depicted in Figure 13, as linked from Figure 14. The user may either lock the input at that value or let it equilibrate over time (the slider for the impact of linking content to a context is locked **138** in Figure 14).

[00111] Further, the actions shown in Figure 14 may be customized. Such customizations may be done on implementation or by a system administrator. Moreover, it is noted that the mechanism of surveying users described above may provide the raw data that usually determines the weighting values. A given user's input may partially determine both their own weighting values and, possibly to a much smaller extent, the

overall default weightings across the entire system. At least one reason for taking a content surveying approach to determining weightings is that weightings may be regarded as an esoteric factor, and it is very difficult for a typical user to determine these values directly.

[00112] Moreover, in one or more embodiments, determining weightings values may be done via a consulting exercise by an integrator entity implementing the system. The electronic mail application may have the ability to serve automated surveys to users via the weightings interface, in which users are "walked through" various scenarios and their responses determine the weighting values. This may be provided via the "Wizard" button **140** shown in Figure 14. Additionally, the user may restore the sliders back to their default values.

[00113] Another option for searching in one or more embodiments is to display a search capability on every page of the application, allowing the user a familiar search function from wherever they are in the application. This choice may appear under the "My settings" tab **142** in Figure 14.

[00114] Now turning to search interface aspects relating an electronic mail system in accordance with one or more embodiments, reference is first made to Figure 15. A search tool may be divided into two areas – a search form and the search results. The tab **144** shown to be selected in Figure 15 is the simple search option, in which a user just enters any keywords they are interested in. A search algorithm then searches for this text in all possible criteria (e.g., users, groups, job codes, message subjects, message bodies). If the user clicks the "options" roll down **146** in the search form interface as shown in

Figure 15, the application may then provides some additional search options, such as shown in Figure 16. It is noted that in one or more embodiments, the application may remember when the user clicks the options roll down **146** and serves the search interface to them with the options already showing the next time the user goes to the search page. The options roll down **146** allows the user to specify, for example, which mail folders to look in, people involved, key words to search for, the date range, and/or whether the electronic mail object should have attachments.

[00115] Further, the search interface shown in Figure 16 provides the user with two pairs of options relating to what happens to search results. Each of these options may have descriptive help in the form of a pop-up window that appears when the user moves their mouse over the option. A user may save any search they are doing as a "smart folder" that appears in a custom folder in their folder tree. A static "smart folder" **150** keeps the historical results of the search, so the user sees the same result set each time they click the "smart folder." A dynamic "smart folder" **152** may carry out the search again each time the user clicks the "smart folder." The user manages "smart folders" through a standard folder management interface. To edit any given "smart folder," the user may click the folder, and the application presents the folder's respective search query through the appropriate search interface. A final decision for the user to make is whether they would like the folder view or extended view for their search results.

[00116] Referring again to Figure 15, the "more options" tab **148** provides another screen similar to that shown in Figure 16, but with more options for the user to choose through, for example, checkboxes and text fields.

[00117] Now turning to a description of advanced search aspects related to an electronic mail system in accordance with one or more embodiments, reference is made to Figure 17. With the interface shown in Figure 17, a user may build search sentences and then use the sentences to do searches. A description of Figure 17 is further detailed below in regard to sentence types, electronic mail object actions, search request boxes, phrase palettes, and search options.

[00118] In one or more embodiments, there may be a plurality of different sentence types in an advanced search interface: people **154** – user, groups, and domains that the mail is from and to; keywords **156** – keywords in any field in the system (e.g., the subject or message body); details **158** – details and properties of the mail (e.g., whether it has attachments or has been assigned a job code); actions **160** – user's actions on mail content, such as reading or replying; and custom **162** – access to a library of other sentences. Such sentence types may be presented to the user through a tabbed interface as shown in Figure 17, allowing the user to switch between the different types as they build up their search request.

[00119] Mail actions **164** represent a large area of the user interface shown in Figure 17, because it is that sentence type that is shown in the interface. There may be a plurality of subsections within this part of the view: phrase **166** – the area in which the user selects the type of action they wish to use in their search request; sentence **168** – the area in which the user builds up the sentence they wish to add to their search request; and sub-phrase **170** – the area from which the user can introduce modifications to their basic phrase.

[00120] In Figure 17, an action selected is that of a person forwarding a mail to other people (be they users, groups, or domains). This phrase appears in the sentence box **168**, allowing the user to "fill in the blanks." In Figure 17, the user has already selected the first blank – that they themselves forwarded the mail. The user is in the process of filling in the second blank. By clicking the "people" field **172** with their mouse, they have caused the application to spawn a pop-up window **174**. This window **174** allows the user to select the most requested choice or go to a modified view of their address book to select the people they wish.

[00121] The user may customize the phrase in the sentence box by adding in sub-phrases from the sub-phrase screen area **170** . Each of the different sub-phrase types may have a color-coordinated arrow next to a given sub-phrase and a matching slot in the sentence box. The user can drag and drop sub-phrases into the sentence box **168** and then customize them as they wish. Figure 17 shows two sub-phrases have been added in – the "all of" sub-phrase **176** and the "from [date] to [date]" sub-phrase **178**. The date sub-phrase may require further user interaction to specify the dates, which the user has already carried out using the associated calendar buttons **180**. Each calendar button **180** spawns a calendar that allows the user to specify a date. It is noted that date formatting may be a user preference determined globally across the application via the "personal settings" tab.

[00122] Once a user has built a search sentence that they wish to add to their search request, they may click the "move to search request" button **182**, which will add the sentence to the bottom of the list in the search request box. In addition, the user may use

an "anchor" system. Any hard anchor, depicted in Figure 17, may be dragged to an anchor slot, subject to certain rules regarding how phrases can be combined. The anchor system may be common to the sentence area, the search request box, and the phrase palette. It is further noted that in order to assist the user, there may be various user pop-up help boxes that appear when the user moves their mouse over the different parts of the interface.

[00123] A search request box **184** is the screen area in which the user builds up their search criteria, drawing on sentences from each of the different sentence types. Each sentence is shown, along with anchors allowing each sentence to be extended with other sub-phrases. For example, the sentence, "have history submessages from Cattlin, Simon or Ash, Duncan" may be extended at the "from" point to "have history submessages (from Cattlin, Simon or Ash, Duncan) or contain the keywords 'sales proposition.'" Each sentence (in both the search request box **184** and the sentence box **168**) may be changed between positive and negative logic. The user may change the "have" dropdown box to "have not." There may be weightings for each sentence and each of its sentence criteria. These are shown by sliders in Figure 17, and the user can move the positions of these sliders to affect the relative importance of the respective inputs in the search request. In the example shown in Figure 17, electronic mail objects having history submessages from Simon Cattlin would be given higher ranking than those from Duncan Ash in the search results listing. Further, the first sentence regarding history submessage authorship would be given slightly greater weighting than the requirement to have at least one attachment.

[00124] Another part of a search request box shown in Figure 17 is an "actions" box **186**. This part may contain icons that allow the user to manage the sentences that make up their query. The top row from left to right allows the user to copy a sentence (e.g., to search for two very similar sentences), move a sentence up the list, move a sentence down the list, and delete a sentence.

[00125] Still referring to Figure 17, an icon may allow the user to toggle the weighting sliders on and off. When the user turns the weighting sliders off, the ordering of the list is particularly important, as the system automatically attaches greater weighting to sentences further up the list. It is noted that when a weighting slider is off, such may be indicated in the user interface. If the weighting sliders are hidden, an icon may be displayed to show the slider to indicate that it would toggle the weighting sliders back on again.

[00126] Another icon in the actions box **186** is a "?" symbol that provides the user with help on using the advanced search interface. When clicked, this icon launches a debugging interface in a pop-up window that walks the user through debugging their sentence to ensure that it is consistent. Such interactive debugging may be useful in helping to ensure that the interface is usable by most individuals, as well as being both sophisticated and powerful.

[00127] Further, it is noted that if a user starts designing a search in the regular search interface shown in Figure 16 and then moves to the advanced search interface as described above with reference to Figure 17, the user's initial input may be represented as a sentence in the advanced search interface. The user may then further customize and

extend the search from there. This provides a convenient first step for a user attempting to move from the regular search interface to the advanced search interface.

[00128] Still referring to Figure 17, a phrase palette **188** may be provided to offer a "dumping ground" for a user to move phrase and sub-phrases about. It is shown rolled up in Figure 17, but the user can expand it by clicking the appropriate icon/tab. The phrase palette may be particularly useful to the user when transferring phrases from their custom sentence type to mix with other sentence types.

[00129] Many of the elements in the search options box **190** may be similar to those provided in other web pages of an electronic mail system in accordance with one or more embodiments. For example, the user may save a search as a "smart folder" that appears in their "custom smart folder" set. The "smart folder" may either be static, in which case it keeps the same result listing as when the search was first run, or dynamic, in which case the application reruns the query each time the user views the smart folder.

[00130] Search results may either be displayed in folder view or in extended view, as described above. An additional option for the user is whether to include the historical submessages or not.

[00131] Still referring to Figure 17, a custom sentence type provides access to a library of phrases and sub-phrases. Such a library may be a centralized resource held server-side across an organization. The user may type in phrase fragments and search for phrases that match their desired input, thereby effectively bridging the gap between natural language searching and logic-based searching. The organization may also update

the library with new phrases and sub-phrases, mapping these to new logic elements at the search level. Examples of additional phrases include: "that I wrote that became part of a tree linked to job code X"; and "that I wrote and were read by Clarke, John." Other phrases may act to alter the search algorithm's action, such as: "that will help me find someone's name"; "that will help me find a historical document"; and "that will help me find out about a project." These phrases alter the search results in such a way as to assist the user in finding the type of information they are looking for.

[00132] Now referring to Figure 18, a user may interact with the settings for the search algorithm and results ranking. Using the interface shown in Figure 18, a user may change the relative strengths of the inputs to the search algorithm, in a similar manner as a user can adjust inputs to a relevance analysis engine as described above. The user may have the option of tying the weighting settings to be the same as their relevance settings. The user may have additional options they can change under "search other settings" **192** including, for example, the following: the number of results per page in both search result views; the information to include in the extended view; and the columns to include in the folder view (including local relevance and search relevance).

[00133] In addition, a user may add in new buttons that allow them to further alter the search results. These may be accessed via a library similar to that described above. Examples of different purposes of such custom buttons include: "limit it to mail I read"; "show me mail read by more people"; "show me more recent content"; and "let me change the weightings" (presents the user with a pop-up window to change the weightings of their search criteria).

[00134] Further, a user may enforce any changes on either a session basis (during a particular log in session of searches) or for all future searches. This option allows the user to increase the weighting towards specific criteria for a given search in which those criteria are important.

[00135] Now turning to a description of search results aspects of an electronic mail system in accordance with one or more embodiments, the electronic mail system may have a plurality of views for presenting search results. For example, a "folder view" represents a way a user may be accustomed to viewing search results. In another view, an "extended view" more closely resembles the way users are accustomed to viewing web search results. It is noted that providing a plurality of such views and then allowing the user to choose which they prefer as they conduct their search promotes user satisfaction. Further, the electronic mail application may "remember" the user's previous choice and defaults to this view when the user conducts a new search.

[00136] Figure 19 shows an example of folder view search results. In one aspect, this view may be regarded as being intuitive. The table indicates the author **194** and recipients **196** of each mail, the subject, any designated job code, key dates (delivered and read), and the mailbox the electronic mail object resides in. In addition, the table may include an information icon that allows access to a similar pop-up window as that shown in Figure 10. Further, the table may display relevance sliders for each electronic mail object returned by the search.

[00137] Still referring to Figure 19, the row above the column headings includes some potentially useful capabilities for the user. The user may refine the search and may

also search within the results they have already been presented with. "Back" and "forward" buttons **198** allow the user to move up and down their search history with a single click. The user may also sort each column ascending or descending to further customize the results view.

[00138] Now turning to a description of search results presented in an extended view, reference is made to Figure 20. As in the folder view for search results described above with reference to Figure 19, the extended view interface shown in Figure 20 includes options to refine the search **200**, search within results **202**, and move backward and forward **204** through search history.

[00139] Still referring to Figure 20, a "news" content set **206** is the results of searching an organization's knowledge base and intranet site, not electronic mail objects. In the example shown, the first two items are links to external content that a search spider found on the intranet site, while the second two items have been written by other employees as part of the organizational knowledge base. In is noted that the search results presented in accordance with one or more embodiments are highly customizable, and additional content feeds may be placed into these top items. The organization may assign content feeds to each user through the administrative interface or may allow the user themselves to choose different content feeds.

[00140] The next three items shows in Figure 20 are not expanded, but the user may select one of the icons to display each set of search hits. The content makes up these categories includes, for example, the following: contexts (e.g., development, sales) **208**; job codes **210**; and people (e.g., users, domains, groups) **212**. Each of these sets may

constitute a set of entities and the occurrences of the search term within them. The number shown in brackets denotes the number of search hits in each category.

[00141] Still referring to Figure 20, below the categories described above (e.g., news **206**, contexts **208**, job codes **210**, people **212**), the search results list hits within electronic mail content. Each search hit highlights the content that caused the item to appear in the search results, with, for example, the following display schema: the subject of the submessage; a magnifying glass containing a question mark; the relevance of the submessage; the body text showing the instances of the search term; the people involved (senders and recipients); a set of property icons similar to those described above with reference to Figure 8; a job code or attachment name if they are part of the search hit; the date the mail was received and read; and the mail folder in which the respective electronic mail object appears.

[00142] In one or more embodiments, clicking a user (or group or domain) name causes the application to display the respective "smart folder" of the searcher's interactions with that population entity. Clicking a job code, context, or other entity may have a similar effect.

[00143] Clicking the magnifying glass **214** with a question mark inside may spawn a pop-up window indicating to the user how the result matches their query. This allows the user a quick way to understand why the result would be of relevance to their query and how the application arrived at that decision. It also allows the user to provide feedback to the electronic mail application by indicating whether the result was what they were looking for.

[00144] It is noted that the relevance slider **216** for the submessage with the subject "don't bother reading – just a test message" **218** is quite low given that this is the first page of the search results. This highlights that the relevance sliders may not be respective to the search being conducted – they are local relevance values based on the output of the relevance algorithm. Relevance in search is used to determine the ranking for the search results (though, this may also be displayed as a user preference). The test submessage was deemed to have low relevance as few people read the submessage, given that the submessage was a test and not real content. However, because the body of the submessage includes many instances of the word "test," this helped drive the submessage up the ranking of the search results given the query was for the word "test."

[00145] As shown in Figure 20, the search result "don't bother reading – just a test message" **218** does not show the instances of the search term in the message body. This is because the submessage is unread, and in one or more embodiments, an electronic mail system may not allow partial reading of a piece of content in a user's incoming electronic mail. In this case, the user may click the submessage to read it if they wish to view the content.

[00146] In one or more embodiments, search terms displayed in search results may be highlighted in one or more of a plurality of ways. For example, as shown in Figure 20, search terms are displayed in bold to help the user identify the terms. Another option, used at the bottom of the interface shown in Figure 20, is to highlight the search terms **220**. Such a feature may be particularly useful for searches for multiple terms, as it may highlight each search term in a different color.

[00147] As described above, an electronic mail system in accordance with one or more embodiments may use a relevance analysis engine for one or more of various purposes (e.g., managing and presenting electronic mail, forensics, searching). Now will be provided a more detailed description of how such a relevance analysis engine may be implemented in either software and/or hardware. "Importance" and "relevance" are at least two components or concepts associated with the relevance analysis engine. A "relevance" score attaches to electronic mail and indicates to the recipient the priority they should give to dealing with this piece of electronic mail. Because a given piece of electronic mail may actually have more than one "sender" (e.g., an individual and a job code, a forwarded user), the relevance of the piece of electronic mail may relate to a set {s} of senders. An "importance" score attaches to an individual user (though this could sometimes be, for example, a job code rather than an individual). Importance is a metric used to help to determine the relevance of electronic mail objects by reference to who sent or forwarded them.

[00148] In order to describe one or more embodiments of a relevance analysis engine, the following components will be used:

1. Mail Data Component: a mail data component is a feature of or attachment to a particular electronic mail object (e.g., date or flag for follow up). [symbol: ${}^{x}MDC$ for mail data component of electronic mail object x; this is calculated from the various mail data factors ${}^{x}MDF_i$]
2. Individual Relevance Component: an IRC value is a relevance score for a piece of content respective to a given individual user, and is based on the actions of that user. [symbol: ${}^{x}IRC_r$ for recipient r's actions on electronic mail object x from senders {s}]
3. Individual Importance Component: an IIC value is an importance

score for an entity (e.g., a sender or job code) s respective to a given individual user, and is based on the actions of that user. [symbol: IIC_{sr} for recipient r's actions on past mail from sender s]

4. Global Importance: a global importance value is an importance score for an entity respective to the entire system, and is a weighted average of all IIC values for that entity. [symbol: I_s^g for sender-entity s]

5. Global Relevance: a global relevance value is a relevance score for a piece of content respective to the entire system, and is a weighted average of all IRC values for that piece of content. The weights used relate to the global importance values of those to whom the IRCs relate. [symbol: ${}^xR^g$ for a piece of content x from senders {s}]

6. Cognate Group: for each user, over time, the system identifies a "cognate group" of the n other users regarded as most similar. This group is defined by similar past user actions and assessments, and/or a direct input by a user. It is noted that it is not assumed that the population of recipients falls into separate and mutually exclusive cognate groups. Rather, each recipient may have their own cognate group of those the system regards as most similar to that recipient. Thus, in some cases, for example, user A may be in user B's cognate group (because A is in the n users most similar to B), but at the same time, B may not be in A's cognate group (because there are n other users more similar to A than B is).

7. Cognate Relevance Value: a cognate relevance value is a relevance score for a piece of content respective to a given recipient based on a weighted average of the IRC's of the n users considered to be the cognate group for that recipient. [symbol: ${}^xR_r^c$ for the relevance input from the cognate group c of recipient r, on electronic mail object x sent by senders {s} to recipient r]

8. Cognate Importance Value: a cognate importance value is an importance score for an entity respective to a given user, based on a weighted average of the IIC's of the n users considered to be the cognate group for that recipient. [symbol: I_{sr}^c for the sender s to recipient r in cognate group c]

9. Local Importance: a local importance value is the importance value for an entity (e.g., a sender, a job code) to a given user which is shown to that user through the interface. It is a function of the user's own IIC for that sender, together with global and cognate importance values for the sender. [symbol: I_{sr}^l for local importance of sender s to recipient r]

10. Combined Importance: local importance values are stored locally

for each recipient for each sender or entity with which that recipient has interacted. There may be a set {s} of senders associated with a given incoming electronic mail object, and the local importance factor germane to that electronic mail object is then not a single sender local importance but a value arising from the combination of local importance values for that set of senders. Whereas local, cognate and global importance values may each relate only to individual senders, the combined importance is a combination of importance values that relate to the particular set associated with a particular electronic mail object. [symbol: ${}^{x}CI_{\{s\}r}^{l}$ for local importance to recipient r of the particular set of senders {s} associated with electronic mail object x]

11. Local Relevance: a local relevance value is the relevance value for a piece of content to a given user that is shown to this user through the interface; it is a function of the user's own IRC, the global and cognate relevance scores, and the combined importance relating to that mail. [symbol: ${}^{x}R_{\{s\}r}^{l}$ for content x sent by senders {s} to recipient r]

[00149] Further, Figure 21 shows an example chronological scenario for the relevance analysis engine. Figure 21 shows at a high level how the terms described above relate to each other and the process by which they are calculated in the functioning of relevance analysis engine. Below is provided a more in-depth description of relevance techniques and computational implementation. It is noted that the scenario in Figure 21 depicts a final relevance mechanism (described below), which includes cognate relevance.

[00150] The steps exemplified in Figure 21 are as follows. In step 1, John sends an electronic mail object to Sue, Harry, and Chris. In step 2, a "knowledge server" (or "object-based electronic mail server") (e.g., TransAct developed by BLUESPACE SOFTWARE) in accordance with one or more embodiments carries out the following processes: sends the first electronic mail object; and calculates the combination

importance for each recipient. Then, in step 3, Sue and Harry are active or logged in. Subsequently, in step 4, the knowledge server initiates a batch cognate relevance recalculation for Sue, and so calculates the first cognate relevance value for this electronic mail object (at this point, the values is zero because there are no IRCs yet, so it has no input to the local relevance when evaluated). In step 5, Sue accesses her inbox. Then, in step 6, the knowledge server calculates Sue's local relevance value for the electronic mail object (in order to show the value in her folder listing). Thereafter, in step 7, Sue reads the electronic mail object. In step 8, the knowledge server carries out the following processes: marks the electronic mail object as having been read by Sue; calculates Sue's IRC value for the electronic mail object; recalculates Sue's IIC value with respect to John; and recalculates Sue's local relevance value (which changes because she has done something with it). Then, in step 9, the knowledge server calculates the first global relevance value based on Sue's IRC value. Subsequently, in step 10, the knowledge server initiates a batch cognate relevance recalculation for Harry, and so calculates Harry's first cognate relevance value for this electronic mail object, based on Sue's IRC value. In step 11, Sue replies to the electronic mail object. Then, in step 12, the knowledge server carries out the following processes: sends the replying electronic mail object; calculates the combination importance for each recipient for the replying electronic mail object (based on both Sue's importance and John's importance as the two authors) (it is noted that this replying electronic mail object may initiate a separate process thread); and updates Sue's IRC for the original electronic mail object and her IIC value for John. Thereafter, in step 13, the knowledge server recalculates

Harry's cognate relevance value for the original electronic mail object based on Sue's IRC value. In step 14, Harry accesses his inbox. Then, in step 15, the knowledge server calculates Harry's local relevance value (for his folder listing). In step 16, Harry reads the TransMail. Subsequently, in step 17, the knowledge server carries out the following processes: marks the electronic mail object as having been read by Harry; calculates Harry's IRC value for the electronic mail object; recalculates Harry's IIC value with respect to John; and recalculates Harry's local relevance value. Thereafter, in step 18, the knowledge server initiates a batch cognate relevance recalculation for Sue, and so recalculates Sue's cognate relevance value for the (original) electronic mail object, based on Harry's IRC value. In step 19, the knowledge server calculates the second global relevance value, based on the IRCs from Sue and Harry. Then, in step 20, Chris logs in or becomes active. Subsequently, in step 21, the knowledge server calculates Chris' cognate relevance value for the original electronic mail object for Chris based on the IRC value from Sue (Harry is not in Chris's cognate group). In step 22, the knowledge server continues to recalculate cognate relevance values and the global relevance value at specified, but, for example, increasing intervals. Then, in step 23, the knowledge server, during a period of low activity (e.g., in the evening), recalculates global importance, cognate importance, local importance, and combination importance values. A detailed visualization of how these different variables interact is exemplified in Figure 21.

[00151] As apparent from the description above in regard to a relevance analysis engine in accordance with one or more embodiments, the relevance analysis engine may continually update a set of inter-related values, based on user action, so that everyone's

actions affect everyone else. Thus, in view of this, each user/post may have a different individual set of importance and relevance criteria. Further, an electronic mail system of this kind in accordance with one or more embodiments may also require the input of user-set values for the relevance and importance criteria, which both correct the values for the user concerned and may also offer a check on the effectiveness of particular relevance mechanisms being used. Moreover, it is noted that for organizations with many posts attached to user teams, an electronic mail system of this kind may allow users and posts to be treated separately with varying levels of inter-correlation.

[00152] Now turning to a description of a core of a relevance analysis engine in accordance with one or more embodiments, it is assumed that (i) there exists a set of people a, b, c, . . . d involved in sending and receiving electronic mail objects; and (ii) senders {s} (plural because more than one may have been involved in forwarding it) send a piece of electronic mail x to the recipient r. Accordingly, an aim of the relevance analysis engine is to produce for recipient r a "good" value for the local relevance ${}^{x}R_{r}^{l}$ for that piece of electronic mail. Thus, such an aim may be expressed as follows: "if the recipient r were to open a set of incoming mails and consciously assign relevance scores and rankings, these would correlate highly with the ${}^{x}R_{r}^{l}$ values calculated by the system."

[00153] It may also be possible to define the relevance ranking of an incoming electronic mail x to recipient r before it is opened (its "before-reading" local relevance ${}^{x}R_{r}^{lb}$) and after it is opened and read (its "post-reading" local relevance ${}^{x}R_{r}^{lp}$). This may not be exactly the same as relevance of incoming and stored electronic mail object,

because some electronic mail objects may be stored without being opened. The icon in the user's view indicates that the electronic mail object has been read by an open letter symbol, so that it is clear which is being given as the local relevance value for a given content. Opening may be only one of the activities comprising the IRC for that recipient and electronic mail object (it could, for example, be deleted without opening it), but could be a key one in terms of ensuring that the actions done are based on full knowledge of the nature of the electronic mail object.

[00154] Further, there may also be a concept of search relevance ${}^{x}R_r^{S}$, which is a number assigned to the results of a particular electronic mail object search. These values may be computed using the local relevance values together with the search criteria and weights for them of the weighting slider icon (if utilized) given by the user to change the level of impact each action or entity has on the search request s.

[00155] For the Sth search, if ${}^{x}C_i^{s}$ is a dichotomous variable indicating the presence or absence of that search criterion in the electronic mail object (i.e., will have a value 0 or 1), and W_i^{s} is the sliding weight given it by the user for that search, then the search relevance may be calculated by:

$$ {}^{x}R_r^{S} = f\left({}^{x}R_r^{l}; \sum_{i=1}^{m} {}^{x}C_i^{s} W_i^{s}\right). $$

[00156] Search relevance values may be stored locally while the search results are being examined (unless explicitly stored by the user). It is noted an objective is for these to be allocated by the system to closely resemble the ranking which the user would assign were they to be able to look at the overall view and contents of their electronic mail.

[00157] Now turning to a description of factors used by a relevance analysis engine in accordance with one or more embodiments, a plurality of factors may make up the IRC. The first are indicator functions, ${}^{x}IRCD_{ri}$, which are dichotomous (i.e., are simply "on" or "off") depending on whether the action has happened or not. This includes attributes such as factors that are available only for past-reading local relevance: "the user opens the electronic mail object" (if so, then D=1, if not, then D=0); "the user clicks on a hyperlink in the electronic mail object" (if so, then D=1, if not, then D=0); and "the user replies to the electronic mail object" (if so, then D=1, if not, then D=0).

[00158] A second set of variables ${}^{x}IRCC_{rj}$ are values on cardinal scale (or ordinal scale transformed for the model to a cardinal scale): "how many extra times the user opens the electronic mail object"; and "to how many people the user forwards the electronic mail object." These may be placed into suitable functions $f({}^{x}C_{rj})$ that are between 0 and 1. Some of these factors may also "decay" over time. While it may be difficult to determine this without some indication from the user, there clearly may be some electronic mail objects connected with projects that, once completed, leave the user unlikely to wish to consult the electronic mail objects again. Some feedback may be useful connected with a particular job or project code. Further, there may be occasions when the relevance of an incoming electronic mail object is highly affected by the life cycle of a project. This means that it may be useful to include a time related factor of importance that has a discontinuity break when the project is completed. Moreover, this would mean that the relevance could be multiplied by a time-related factor ${}^{x}G_{r}(t)$. For example, ${}^{x}G_{r}(t)$ may reflect relevance of a project up to a deadline time, t_0, beyond which

the relevance begins to decay:

$$^{x}G_r(t) = \begin{cases} 1 & t \le t_0 \\ e^{-\lambda(t-t_0)} & t > t_0 \end{cases},$$

where λ is a decay constant (high for rapid decay, low for slow decay). In one or more embodiments, most stored electronic mail objects may have a time-decay-based element of relevance.

[00159] As described above, various mail data features may be considered that may affect relevance and that are inherent to the electronic mail object itself. For example, the electronic mail object may contain a flag for action from the sender. In another example, the electronic mail object may itself be a reply to an earlier electronic mail object. These factors $^{x}MDF_i$ enter the relevance calculations for the inherent or mail data electronic mail object component ^{x}MDC.

[00160] Another factor in relevance calculations is the importance of the initial and/or a subsequent sender (e.g., a forwarder), and other entities involved in the communication, e.g., job codes. In one or more embodiments, importance may be on a scale of numbers, and may be put into a function (e.g., $f(I_{sr}^{1})$, which is between 0 and 1). There may be an absolute global importance and also an importance to the particular recipient. For example, a recipient's manager may have low importance in the great scheme of things, but high importance to the recipient him/herself. Still further, as described above, the importance of the sender to the cognate or similar group within which a recipient is located may be considered. Accordingly, this means that there may be at least three factors for consideration as to importance:

1. I_s^g is the "global importance" of the sender s. This number may be the same for all recipients of all electronic mails from that sender at around that point in time, though clearly can change over time as the commercial scene changes. It may often depend, in particular, on the importance of the post as located in the organization chart of an organization.
2. I_{sr}^l is the "local importance" of the sender s to that individual recipient r. This may depend, for example, on where within the organizational chart the sender is relative to the receiver, or whether the receiver is working with the sender on some particular inter-company project.
3. I_{sr}^c is the "cognate importance" of the sender to a particular recipient, which is the sender's importance to the cognate or similar group within which the recipient is located. This may be thought of as a more focused element of communal importance than the global importance, which is universal.

[00161] There are two elements of both global and local importance: the "role importance" attaching to the post(s) held, and the importance that may attach to an individual per se. For example, suppose that the assistant to a director in one department moves to become the assistant a director in another department. Though the assistant may retain her electronic mail identity as an individual, much of both the global and local importance values may often attach to the posts held rather than the individual.

[00162] Further, there may also be importance factors involved in cases where the immediate sender *s* is forwarding mail from one or more previous senders, who also have their own importance values. This set is represented by {s}. This is why the input into the local relevance is actually a weighted average of the local importance values of all the senders, the combined importance ${}^xCI_{\{s\}r}^l$, which relates specifically to the combination of senders in this electronic mail object x as received by r. The local, global and cognate importance values, however, may relate to individual senders or entities in the system,

instead of to combinations.

[00163] Now turning to factors for consideration in importance determination, the factors labeled ${}^{x}D_{ri}$ and ${}^{x}C_{rj}$ are things that either happen or do not happen (e.g., "does the recipient reply?"). Their values may not be readjusted in the light of the success or otherwise of the prediction of relevance values for incoming electronic mail objects – only the weightings given to them are adjusted (using a model based on linear regression as described below).

[00164] The importance factors I_{sr}^{c} may be different, because they are not ascertainable variables but are (estimated) parameters constructed within the model itself. In this case, the values of these factors are affected by the electronic mail traffic that has occurred. For example, the importance of a user may be affected by the receipt of electronic mail from other users – his/her importance perturbs or is shared by the importance of the other users. This interactive process may be taken into account before the importance is fed into an importance determination mechanism.

[00165] If recipient i receives electronic mail from sender s, there may be some true local importance value ${}^{\Omega}I_{sr}{}^{1}$, which would be the importance r would give s with perfect information. In practice, this may not be static (importance values may constantly changing), but it may serve as a useful idealization. Initially, a starting value of ${}^{0}I_{sr}{}^{1}$ may be set globally, based on judgments of levels of responsibility within the organization. An example objective is that starting from ${}^{0}I_{sr}{}^{1}$, the system will converge over time to a value near to ${}^{\Omega}I_{sr}{}^{1}$.

[00166] The global importance value of a sender ${}^{\Omega}I_s{}^{g}$ is in some ways more simple because each sender has only one value, but it is also more complex insofar as it is arrived at as part of a large interconnecting matrix of importance values (so that, for example, a sender is more important if fewer but more important other users so regard him or her). The global importance may be an average of all the local importance values, but nonetheless may be a weighted average.

[00167] The cognate importance value of a sender ${}^{\Omega}I_{sr}{}^{c}$ to a recipient r is computed in run time, based on the individual importance components of those in the cognate group to this particular user. It may also be necessary to add in a factor that enables importance to be carried over from posts. For example, if user A moved from post S to take over post T, then user A's global importance will be a function of their previous importance while in post S and the importance the previous holder of post T had. Likewise, local importance may also be a function of post as well as individual.

[00168] Further, importance attaches to the sender, and may also attach to the job code and/or context, which are also (passive) entities within the system. The job code type carries an importance value alongside the sender. This added complexity means that the relevance determination mechanism may contain weightings of both types of importance – sender and job code type, among other factors.

[00169] In regard to computing the individual importance component, significant local action may be assessed. These are actions based on past receipts. These are weighted, based on a time-dependent function as described above, so that more recent

actions have greater weighting. For example, taken into consideration may be the percentage of times previous "unsolicited" electronic mail objects have been deleted or stored without opening. The following may be used to compute such a percentage, where n_s is the number received:

$$\frac{1}{n_s}\sum_{x=1}^{n_s} f^t(del;no).$$

Here, f^t is a time-based function for electronic mail object x, which is a function of whether the electronic mail object is deleted or stored unopened.

[00170] Further with respect to past received electronic mail, taken into consideration may be the "attention ratio" of t_x / L_x for electronic mail objects opened, which is the time spent reading the mail in relation to its length. The following may be used to compute an attention ration, where m_s is the number that have been opened:

$$\frac{1}{m_S}\sum_{x=1}^{m_s} f^t(t_x/L_x).$$

[00171] In addition, taken into consideration may be any past relevance scores given by the recipient to electronic mail from this sender (a weighted average if more than one has been graded). If n relevance scores have been given for past electronic mail, the significance of awarded rankings will decay over time according to the following:

$${}^{x}R_{rs}^{assigned} = \sum_{x=1}^{\nu} f^t(R(T_x)).$$

This may also be extended to user-assigned relevance values for particular job codes.

[00172] In regard to user-assigned importance scores, when an electronic mail object is opened, there is a slider showing the local importance of the sender as calculated by

the system (as described above with reference to Figure 8). The recipient is able to adjust this if they feel that it is inappropriately low or high. If this is the first time an electronic mail object has been received from this sender, then the recipient can select a setting that will flash to remind him or her that they have not previously received any electronic mail object from this source, and that readjustment of the calculated importance of the sender might therefore be particularly useful.

[00173] The effect of this action by the user may be very great when it is first set. Users would find it odd were they, for example, give a ranking of 5 and then immediately find that system assigns a local relevance of 1 based on their past actions. They may be in a better position to know the import of their past actions (if any) than the system.

[00174] Over time, however, if, for example, all the electronic mail from a sender assigned a high importance were in fact deleted without opening, the system would be expected to begin to adjust the local importance. In this case, an appropriate function, however, is $f^t(I_{rs}^{assigned})$. The assignment of importance may either be "locked" by the user (so that it does not change) or can be left for the effect of the assigned score to decay over time as just described above.

[00175] The individual importance component (IIC) may therefore be a weighted function of all these various elements of the individual recipient's actions towards sender s, as follows:

$$IIC_{sr} = w_1 \frac{1}{n_s} \sum_{x=1}^{n_s} f^t(del;no) + w_2 \frac{1}{m_S} \sum_{x=1}^{m_S} f^t(t_{x1}/L_{x1})$$

$$+ \quad w_3 \sum_{x=1}^{\nu} f^t(R(T_x) \quad + \quad w_4 f^t(I_{rs}^{assigned}) .$$

[00176] A factor that affects local relevance is a weighted combination of the individual local importance values of the set $\{s^x\}$ of all the senders (and other entities, such as job codes) involved in sending and transmitting the electronic mail object x (which may be effectively a kind of mail thread with those past senders recorded in the mail data).

[00177] Now turning to a description of computing global importance, global importance may not be updated at run time, but on a periodic review system. It may be a function of the elements now immediately described below. One element may relate to the weighted sum of individual importance components. The global importance value will be a weighted aggregate of all the individual importance components (IICs). It may be weighted because if, for example, 10 important people believe that John Doe is important, this is more indicative than if 100 unimportant ones find John Doe to be important. It is noted that this may imply a degree of circularity in the process, because global importance values are therefore mutually dependent. As described below, this requires a system of equations solved iteratively in what is, for example, essentially a Gauss-Seidel algorithm procedure until convergence to a sensible precision. In essence, however, this key element of global importance is:

$$f\left(\sum_{r=1}^{n} f\{IIC_{sr}, {}^{(k-1)}I_r^g\}\right),$$

where k-1 represents that global importance values in the previous period in this

calculation are being used).

[00178] Another element for computing global importance may relate to electronic mail objects received. Receipt of an electronic mail object from a more important sender increases the importance of a given recipient, dependent on how many others receive the same electronic mail object. "Shared importance" may therefore depend on I_s^g/N_x, where N_x is the number of recipients of the xth electronic mail object. The results may depend both on the number of electronic mail objects and the average of the shared importance values. The factor affecting the global importance at time k of a user may be given by:

$$f\left(\sum_{j=1}^{m}{}^{(k-1)}I_s^g/N_j;\frac{1}{m}\sum_{j=1}^{m}{}^{(k-1)}I_s^g/N_j\right),$$

where this represents a summation across the m senders of m electronic mail objects in time k-1 to k.

[00179] Another element for computing global importance may relate to directly assigned values. For example, in some cases within an organization, the human resources section may wish to directly intervene in the importance rankings. For convenience, this may be termed $f\ ({}^{o}HR^{t}_{s})$, where O represents the HR section of organization O, s represents the user (potential sender) concerned, and t represents the time at which the intervention was made (this may be locked).

[00180] Still another element for computing global importance may relate to transferred post importance. This may, for example, relate to human resources, and may involve any change in importance due to assuming another or upgraded post or role in the organization: $f({}^{o}HR^{P}_{s})$.

[00181] With respect to calculating global importance in accordance with one or more embodiments, a global importance determination mechanism may readjust the global importance in time k from that of k-1 using various functions, where value α indicates how fast the global importance should change over time:

$$
\begin{aligned}
{}^{k}I_s^g = \boldsymbol{\alpha}^{(k-1)} I_s^g + (1-\boldsymbol{\alpha}) \Big[& \mathrm{w}_1 f\left(\sum_{r=1}^{n} f\{IIC_{sr}; {}^{(k-1)}I_r^g\} \right) \\
& + \mathrm{w}_2 f\left(\sum_{j=1}^{m} {}^{(k-1)} I_s / N_j ; \frac{1}{m} \sum_{j=1}^{m} {}^{(k-1)} I_s / N_j \right) \\
& + \mathrm{w}_3 f({}^{o}HR^{t}_{s}) \\
& + \mathrm{w}_3 f({}^{o}HR^{P}_{s}) \Big].
\end{aligned}
$$

[00182] These global importance values may be recomputed by the system every period at intervals as determined by a system operator/administrator. They may be heavily inter-related and so this system of equations may be solved iteratively in what is essentially a Gauss-Seidel algorithm procedure until convergence to a sensible precision. Further, it is noted that as a given implementation is developed and customized, more powerful iterative systems may be applied.

[00183] Now turning to a description regarding computing cognate importance in accordance with one or more embodiments, an electronic mail system may store for each user, a set of *n* other users considered to be most similar to the user concerned – this is that user's "cognate group." The composition of this cognate group may be altered by a periodic review (a rapid change not being vital). The cognate importance for a particular sender is computed periodically using the individual importance components of each of

the cognate group. In some cases, there may be no individual importance components for a particular member of the cognate group. In this case, the value may be computed from those for which components do exist, with a decreased weighting in the final formula for local importance:

$$I_{sr}{}^{c} = \frac{1}{n_c}\sum_{i=1}^{n_c} f(IIC_i),$$

where n_c is the number in the cognate group with non zero IICs.

[00184] In regard to computing local importance in accordance with one or more embodiments, the local importance represents the local importance to the recipient of the sender of an incoming piece of mail. It may be a function of, for example, the following: the individual importance component (IIC) (based on the user's own actions); the cognate importance component (based on the IICs of the users in the group currently identified as cognate to the present recipient); and the global importance value (based on the global values assigned at the last periodic review made by the system). Thus, this may be expressed as:

$${}^{k}I_{sr}{}^{l} = f(IIC_{sr}\,;\,{}^{(k-1)}I_{sr}{}^{c}\,;\,{}^{(k-1)}I_{s}{}^{g}).$$

[00185] If this is the first time the recipient has received any communication from s, then there may be no value for $IIC_{sr}{}^{k}$ at all, in which case ${}^{0}I_{s}{}^{1}$ will be based purely on $I_{sr}{}^{c}$ (if this exists) and ${}^{(k-1)}I_{s}{}^{g}$. If the sender is a completely new user unknown to the system and having no importance value at all (not even one assigned by a human resources department), then the system may not have an obvious way to decide how important is

the sender, and so how relevant the mail. Because the default importance in such a case will be low, "newcomers" may be advised to encourage their human resources departments and/or potential recipients to set importance values for them, and in the case of, for example, a sales team, contacting a new customer they need to set the importance values for that customer accordingly. Each customer may form their own policy on how to assign initial global importance values, with correlation to rank or remuneration being most likely.

[00186] A well-established ${}^{k}IIC_{sr}$ may have a greater weighting over the ${}^{k}I_{s}^{g}$ value, and, as already described, a specific $f^{t}(I_{rs}^{assigned})$ gives high weighting within the ${}^{k}IIC_{sr}$ to any specific assignation of importance by the user. Further, if the individual user has specifically said that a particular sender (e.g., a spouse) is important, their lack of global importance or cognate will not be expected to alter this.

[00187] In regard to computing combined importance in accordance with one or more embodiments, it is noted that the combined importance may be a function of the local importance values of the set {s} of senders (and other entities, such as job codes) involved in electronic mail object x:

$$ {}^{x}CI_{\{s\}r}{}^{l} = f\left[\sum_{\{s\}} w_s I_{sr}{}^{l}\right]. $$

[00188] As described above, a sample may be collected by the system of the actual relevance scores that a user would have assigned, having looked at electronic mail, on a sliding scale that effectively works as a percentage. A "good" system would produce a

priori relevance weightings that turned out to be near to the ones assigned post-opening by the recipient. The formula described above is actually a linear combination of the various given values of the D, C and I's. It is therefore possible, given enough feedback data, to use linear regression to derive the weights which would minimize the error-squared terms in predicting the scores for relevance as given by the user. The database used may essentially be a very large matrix, with a large number of zeros and can often become ill-conditioned.

[00189] Such analysis enables a plurality of features. First, for example, different recipients who provide feedback may have their own individual weighting estimated. Further, if patterns of weightings emerge for different types or levels or importance scores of users, then global best estimates of weightings on a user category basis may be refined over time and these can be useful particularly in assigning initial weighting to a new user.

[00190] An example of interrelationships among at least some of the different types of values described above is shown in Figure 22. It is noted that the local importance and relevance values are what are shown to the user. Figure 22 also indicates the timings by which the different elements are calculated (further described in detail below).

[00191] Still referring to Figure 22, an individual user's actions on a particular piece of electronic mail may have at least two effects: (i) they contribute scores to that user's individual relevance components (IRCs) for that electronic mail object x; and (ii) they contribute scores to that user's individual importance components (IICs) for the sender(s) {s} of that electronic mail object. These may be stored locally to that user. In the

communal sphere: the user's IRCs then contribute to a global relevance score, and are available to contribute to any cognate relevance scores for other users; the user's IICs then contribute to a global importance score, and are available to contribute to any cognate importance for other users; global importance scores for senders are calculated periodically using the IIC's; and global relevance scores for each mail are calculated periodically using the IRCs (being revised more frequently in initial stages of an electronic mail). For each user, a cognate group of n users is identified, whose IICs correlate most closely with that user. As described above, this means that it is quite possible for John to be in Joan's cognate group but not vice versa. The identification of these n users does not have to change rapidly, and may be done on periodic review, with the identities of the n stored locally for user r. Further, for each user, a local importance value for each individual sender with whom a recipient r has interacted is calculated periodically and stored locally to r. This may utilize the recipients own IIC's for s, the global importance of s, and a value for cognate importance for s found from the combination of IICs amongst the current n identified as cognate to r. Still further, for each user, when an electronic mail object arrives, its mail data may include inputs from a set of senders {s} who have forwarded or contributed to the history of that mail. A combination importance for that electronic mail object x may be calculated when it arrives, using the mail data to identify senders {s} (as well as any other entities involved, such as job codes), and stored locally to r. If any key senders in {s} have not previously interacted with this recipient, there may be no stored value for local importance for them. In this case, a local importance figure is calculated for that sender when the mail arrives,

using just the global and cognate importance values because there are no IICs at that point.

[00192] In regard to finding local relevance in accordance with one or more embodiments, a local relevance value for recipient *r* for an electronic mail object *x* is calculated using the following, for example, as inputs: mail data (as incorporated in the electronic mail object itself); combination importance of senders {s} of electronic mail object x (as cached on arrival using periodically reviewed local importance values); global relevance of electronic mail object x (as stored on periodic review); recipient r's IRCs for electronic mail object x (i.e., any actions done on the mail which affect local relevance immediately); and cognate relevance for electronic mail object x (looking at the IRCs of the n in the cognate group).

[00193] Further, it is noted that the recipient r's IRCs may include actions done by him or her on this electronic mail object. The user's IICs may include both of these and of any past actions done on the electronic mail object from the same sender. These may be stored locally to the user.

[00194] It is additionally noted that the cognate group composition may be determined by correlating the IICs. The n other users with the most similar IICs to r will be the user's cognate group. This may be done on periodic review basis, as it does not need to change rapidly.

[00195] Moreover, it is noted that the sender s's global importance may be found from all the IICs (including that of r) on a periodic review basis. As described above,

because importance values are used to weight the IICs to determine importance values, this is circular, but it is solved to a given accuracy on this periodic review basis.

[00196] Further, it is noted that the cognate group may have at least two effects. One is through IICs of Cognate Group on these senders, to cognate importance values, to local importance values, to combined importance of senders, to local relevance, which reflects how the cognate group in general has rated the senders. Another effect is through the direct actions of the cognate group on this particular electronic mail object (e.g., IRCs of cognate group on this electronic mail, to cognate relevance, to local relevance).

[00197] Additionally, it is noted that an aim of one or more embodiments is to produce a "good" figure for local relevance, which is the relevance value seen by the recipient when they are browsing through the interface. The system offers a rapid effect of actions on the mail of (in, for example, decreasing order of importance and so rapidity of change): the actions of user r him/herself on electronic mail object x; the actions on the electronic mail object x of the group cognate to r; and the actions of all the other recipients on the electronic mail object.

[00198] Each of the different relevance and importance values may have different characteristics that help to determine how frequently the values must be updated and the mechanisms for doing so. One aim may be to provide as "up-to-date" a value as possible for local relevance scores for a given piece of electronic mail in a given user's area. To do this, there may be different frequencies at which changes have to be made to the values used. Local relevance may be based on, for example, the following: mail data factors; individual importance components; individual relevance components; global

importance values; global relevance values; cognate importance values; and cognate relevance values. One or more of these may be available in a browse mode. Whereas older historical mail may not need the local relevance to update so rapidly, it may be particularly important that the most recent relevance figure be available for incoming or recent electronic mail objects structured as described above with reference to Figure 1B. Further, it may be particularly useful to a given user to know what, for example, cognate users, have done with the electronic mail object soon after it arrives, as this will help him/her to assess priorities.

[00199] As to slowly changing values, the identification of a cognate group may be done on a periodic review basis. If a user is new to the system, it may be desirable to revise their cognate group more rapidly in the early stages, as opposed to for a well-established user. However, it is noted that may not be necessary that the identities of the cognate group be very recent for a relevance mechanism to be useful.

[00200] Further, global importance values may not need to change rapidly. They represent the overall importance of entities in the system. It is note that these values may need to change more rapidly for newer entities than for existing ones that already have the history. Moreover, updates to the global importance may be carried out on either a queue or periodic review basis.

[00201] As to moderately changing values, cognate importance may change faster than global importance, but perhaps not as fast as local importance. Cognate importance is based on purposefully biased samples, but still involves the views of a significant number of individuals rather than just one user.

[00202] In regard to local importance, the elements of local importance that relate to actions in the IIC may be used at run-time to update the value of local importance. An important attribute of local importance is that once a value has been assigned based on a reasonable data set, the local importance value may not need to change rapidly. New entities interacting with a given user have the ability for their importance value to change more quickly, as the data set is smaller. This is a property of increasing sample size on average in any case. Effects on local importance of the wider issues of global changes may be done by periodic review, as are those of cognate importance.

[00203] Still referring to moderately changing values, if global relevance values are the basis for the communal component of local relevance, then they may have to be kept up-to-date. If not, the value of the communal component in local relevance may be greatly reduced. For example, the impact of five other recipients deleting the electronic mail object before the user in question reads it will not affect his/her local relevance value until after he/she has dealt with the electronic mail object. As with local relevance, the rate of change in a global relevance value for a given piece of content should be greater the newer the content is (as the first users interact with it). In practice, it may not be dealt with in run-time, and thus may be queued and periodically reviewed. It is noted that the rapid reassessment in the early stages of the electronic mail object's history, may, however, be important.

[00204] As to rapidly changing values, cognate relevance values may be similar to global relevance values, in that they change rapidly when content is new, reflecting the first real user validation of the relevance predictors for the content. It is noted that the

number of calculations is potentially large. Examples of such scenarios are now described below based on the following assumptions: an electronic mail is sent to 200 people; and n=20 is the number in a cognate group. To find the global relevance requires data from 200 sources and gives one figure for global relevance of the mail. Each of the 200, however, may have a cognate group, and the calculation of cognate relevance scores for each one will require up to 200x20=4000 figures to be combined into 200 individual cognate relevance scores. Thus, the cognate relevance needs to be updated faster than the global, because it is what offers the best guide to the user as to whether to prioritize looking at the current electronic mail object.

[00205] In one scenario for calculating cognate relevance, cognate relevance may be recalculated whenever the user acted on electronic mail or refreshed the browse mode. This means that if, for example, there are 150 active mail items in the box, then each time the user acts or refreshes, there needs to be 150x20 = 3000 pieces of information combined into 150 separate figures. Refreshing many of these maybe unnecessary, if they have been around a long time. Changes are more likely in the early stages of their life cycle.

[00206] In another scenario for calculating cognate relevance, cognate relevance may be recalculated on a periodic basis, with a recycle period which starts short and gets longer during the mail's life cycle. This means that each time the review appears, if 200 received the mail, then there has to be up to 200x20 =4000 retrievals and 200 calculations. This may happen even if the user is not accessing or reading mail (e.g., if the user is on vacation). At least one advantage is that this will be frequent only in the

early stages of the mail's lifetime.

[00207] In still another scenario for calculating cognate relevance, cognate relevance may be generally calculated on a periodic review basis, with a shorter cycle in the earlier stages of the mail's life cycle. The actual period in these early stages, however, may depend on whether the user was active on his or her mail. When the mail arrives, it has some local time-flag indicating periodicity of review of cognate relevance, and this decreases if the user refreshed the browse-mail or did a mail action. This contrasts with the scenario described above in which there is only a single time-flag for any given electronic mail, and a single mathematical series for review of all recipient's cognate relevance for that mail simultaneously. Mathematically, it may involve a function with, for example, an exponentially increasing review period, but with its parameters also dependent on mail-action frequency.

[00208] In yet another scenario for calculating cognate relevance, a cognate relevance calculation may be triggered by recipient refresh or mail-action in its early stages, but thereafter, on a periodic review basis, with an increasing cycle length. Within a certain time of arrival (e.g., the first two hours), which has been termed "phase one," any refresh or action by the user on other mail would trigger the recalculation of the cognate relevance for this particular electronic mail object. After that cut-off period, i.e., during "phase two," recalculation may be done on a periodic review basis. This scenario may have the advantage of focusing a greater frequency of recalculation where it is most needed. It makes it also possible to build in a "minimum recalculation cycle" during phase one, so that it is not literally every mail-action that causes recalculation, but that

minimum-period reviews take place on this electronic mail object during times the mail browse is "active." In the critical early stages of the electronic mail object, review occurs when relevant (e.g., when the user is looking), but later in its life, its cognate relevance may not be triggered unnecessarily often.

[00209] In another scenario for calculating cognate relevance, cognate relevance calculation may take place on a periodic review system during the time that the user is active. Each review recalculates cognate relevance for any mail received during the last P minutes, where P depends on the time since that active user-session began. The effect of this is to review more recent mail more often, but only during an active session. This system may be combined with a general recalculation during the system's "quiet time," which adjusts older mail relevance scores.

[00210] In one or more embodiments, when the user logs in or becomes active, a time-line begins, with recalculations every T minutes. T may be a function of the global importance of the user r, and the time t since login or recommencement of activity:

$$T = f(\boldsymbol{I}_r^{g};\ t).$$

[00211] The system may allow more important users a more rapid period of recalculation, but the users themselves may not determine their own recalculation period pattern because everyone would otherwise opt for the shortest periods possible. It is noted that potentially an organization may choose to vary their recalculation frequency factors correlated to user type, e.g., seniority. The time P may itself be a function of t so that the cognate relevance of older mail is recomputed less often:

$$P = f(t).$$

When the user logs out or becomes inactive, the process is paused, waiting to recommence once the user logs back in or becomes active again.

[00212] The periodicity of recalculation and time periods involved may be varied on a per implementation basis depending on the computational resources and priorities of a given system. It may also be automated to modify itself automatically if the computational pool recalculating cognate relevance values reaches full capacity and begins building an extended queue. Such a system may have one or more advantages. For example, recalculation is done only when either the user is active or during computational quiet times. It may not be necessary to have up-to-date relevance values (requiring repeated recalculation) if the user is not looking at them anyway. As to another advantage, cognate relevance values of most recently arrived mail are recalculated more frequently, up-to-date information on these being the most useful to the user. As to a further advantage, the application may not need to consider each cognate relevance value to see whether it must be recalculated. Instead, it may run a single process, starting at the top of each user's inbox at the time correlated to their activity, and recalculate each cognate relevance value until it reaches mail that is older than the period currently being recalculated. At this point, it may halt, and does not need to evaluate any further electronic mail objects for cognate relevance recalculation. Another advantage is that the system may allow separate recalculation of, for example, the last month's worth of, cognate relevance values for each user on each weekday night ("quiet time"), and recalculation of the last years (or more) worth of cognate relevance values for each user

over the weekend (quiet time). This may ensure that the older mail values do not become anachronistic, by using space computational capacity in off-peak periods.

[00213] Accordingly, in one or more embodiments, an electronic mail system may ensure that users have up-to-date (including, for example, as many actions of other users as possible) cognate relevance values for recent content, while acting to minimize overall computational load, but still ensuring that cognate relevance values for historical content (which should change much more slowly) are recalculated periodically in computational "quiet time." As an example of this, a scenario is now described. A user becomes inactive or logs out at time t = m. Then, the user becomes active or logs in at time t = n. If n - m > 20, the system calculates initial cognate relevance values for electronic mail objects received between t = m and t = n. If n - m < 20, the system recalculates cognate relevance values for electronic mail objects received between t = n-20 and t = n. If the user is still active or has not logged out at time t = n+5, the system recalculates cognate relevance values for electronic mail objects received between t = n-10 and t = n+5. If the user is still active or has not logged out at time t = n+10, the system recalculates cognate relevance values for electronic mail objects received between t = n-5 and t = n+10. If the user is still active or has not logged out at time t = n+15, the system recalculates cognate relevance values for electronic mail objects received between t = n-45 and t = n+15. If the user is still active or has not logged out at time t = n+20, the system recalculates cognate relevance values for electronic mail objects received between t = n+5 and t = n+20. If the user is still active or has not logged out at time t = n+25, the system recalculates cognate relevance values for electronic mail objects received between t =

n+10 and t = n+25. If the user is still active or has not logged out at time t = n+30, the system recalculates cognate relevance values for electronic mail objects received between t = n-150 and t = n+30. If the user is still active or has not logged out at time t = n+35, the system recalculates cognate relevance values for electronic mail objects received between t = n+20 and t = n+35. If the user is still active or has not logged out at time t = n+40, the system recalculates cognate relevance values for electronic mail objects received between t = n+25 and t = n+40. If the user is still active or has not logged out at time t = n+45, the system recalculates cognate relevance values for electronic mail objects received between t = n-15 and t = n+45. If the user is still active or has not logged out at time t = n+50, the system recalculates cognate relevance values for electronic mail objects received between t = n+35 and t = n+50. If the user is still active or has not logged out at time t = n+55, the system recalculates cognate relevance values for electronic mail objects received between t = n+40 and t = n+55. If the user is still active or has not logged out at time t = n+60, the system recalculates cognate relevance values for electronic mail objects received between t = n-300 and t = n+60. If the user is still active or has not logged out at time t = n+65, the system recalculates cognate relevance values for electronic mail objects received between t = n+50 and t = n+65. If the user is still active or has not logged out at time t = n+70, the system recalculates cognate relevance values for electronic mail objects received between t = n+55 and t = n+70. If the user is still active or has not logged out at time t = n+75, the system recalculates cognate relevance values for electronic mail objects received between t = n+15 and t = n+75. If the user is still active or has not logged out at time t = n+80, the

system recalculates cognate relevance values for electronic mail objects received between t = n+65 and t = n+80. If the user is still active or has not logged out at time t = n+85, the system recalculates cognate relevance values for electronic mail objects received between t = n+70 and t = n+85. If the user is still active or has not logged out at time t = n+90, the system recalculates cognate relevance values for electronic mail objects received between t = n-90 and t = n+90. If the user is still active or has not logged out at time t = n+95, the system recalculates cognate relevance values for electronic mail objects received between t = n+80 and t = n+95. If the user is still active or has not logged out at time t = n+100, the system recalculates cognate relevance values for e-mal objects received between t = n+85 and t = n+100. If the user is still active or has not logged out at time t = n+105, the system recalculates cognate relevance values for electronic mail objects received between t = n+45 and t = n+105. If the user is still active or has not logged out at time t = n+110, the system recalculates cognate relevance values for electronic mail objects received between t = n+95 and t = n+110. If the user is still active or has not logged out at time t = n+115, the system recalculates cognate relevance values for electronic mail objects received between t = n+100 and t = n+115. If the user is still active or has not logged out at time t = n+120, the system recalculates cognate relevance values for electronic mail objects received between t = n+240 and t = n+120. Thus, at 5, 10, 20, 25, 35, 40, 50 and 55 minutes, the system recalculates the last 15 minutes worth of electronic mail cognate relevance values. At 15 and 45 minutes, the system recalculates the last 30 minutes worth of electronic mail cognate relevance values. At 30 minutes, the system recalculates the last 3 hours of electronic mail cognate relevance values. At 60 minutes,

the system recalculates the last 6 hours of electronic mail cognate relevance values.

[00214] When the user logs out or becomes inactive, the process is paused, waiting to recommence once the user logs back in or becomes active again. It is noted that the times described above are just examples. In practice, the periodicity of recalculation and time periods involved may depend on the global importance of the user, and may be also varied on a per implementation basis depending on the computational resources and priorities of a given system.

[00215] For organizations involved, for example, in forensic analysis, investigation, or intelligence, a greater level of content analysis may be appropriate. A relevance analysis engine in accordance with one or more embodiments may have the capability to go to greater levels of granularity than submessages, for example, by resolving paragraphs of text or individual words. This may involve the system itself using spiders to identify terms within the content of any electronic mail object that statistically increase the likelihood that it is relevant to the recipient or person performing discovery.

[00216] Keywords of high relevance in a community of users may be automatically discovered based on statistical techniques. The frequencies of words in a set of mail content may be compared to regular (average) values, to discover the words that are used more than average in the volume of electronic mail. The more frequent words may then be correlated to content relevance, to highlight more frequent words (compared to average values) that are used in the more relevant content.

[00217] Further, such techniques may allow for "dashboarding" and visualization of

sets of content (corresponding to, for example, communities or sub-communities), to provide insight into the nature of the community for an analyst or investigator. This may be particularly useful when very large amounts of mail communications are being analyzed, and content must be semi-automatically sampled for further investigation.

[00218] In certain cases, users may seek to find ways to increase their own global importance. Thus, for example, two friends on similar grades may arrange to send each other large numbers of electronic mail objects that they would leave open for a while – each therefore increasing the other's importance. Each can monitor the other's actions over time, and large numbers of read electronic mail objects may increase both their global importance values. At least one advantage of this to them is that both may then get their electronic mail objects read faster when sending to others. In another scenario, when the content analysis is advanced, senders may deliberately introduce phrases and words to get their electronic mail objects read. Accordingly, one or more embodiments may incorporate detection devices identifying such behavior, and to penalize, mitigate, and/or halt the behavior where and as appropriate. In addition, this type of behavior may be flagged to administrators inside an organization.

[00219] To further describe an electronic mail system in accordance with one or more embodiments, a series of stages are now described to illustrate a software implementation. In a first stage, local relevance of content may be based on some factors of the mail data (e.g., features inherent in or attached to an electronic mail object) and each individual user's actions on content in their own folders (effectively recording what each user does with each mail, and treating every mail separately). Analysis may be

based on the current submessage, and not retrospectively applied to historical submessages. Incoming mail relevance may be based on mail data contained within the electronic mail object itself (e.g., a flag for follow up or urgency flag).

[00220] In a next stage, in addition to local relevance based on IRC on this electronic mail object, each entity that a user deals with is given a local importance value derived from that user's actions – i.e., using the IIC. The input to local relevance is through a combined local importance value, considering all the senders involved in this particular electronic mail object. At this stage, there may be no communal aspects that would estimate importance using other user actions; the importance values of senders to a recipient are based on the past actions of that recipient. Analysis may still be based on entities in each electronic mail object's respective current submessage, and not changing importance values of entities in the history portion.

[00221] In a third stage, user opinions are sampled, to confirm that the relevance and importance values assigned are accurate reflections of each user's real opinions. Also, there may be a facility for optional feedback via the sliders into the algorithm (as opposed to the sliders being for information presentation only).

[00222] In a next stage, relevance values of historical, and implicitly "future," submessages are changed based on each user's actions on a current submessage. Then, in a next stage, changes are made to the local importance values of entities involved in historical (and future) submessages based on each user's actions on a current submessage. Subsequently, relevance and importance are integrated with search, each again on a single-recipient basis (not taking any communal actions or values of other

users into the implementation other than those directly implied in the mail data itself). In a next stage, relevance and importance values are decayed effectively, so that older content loses its weight over time unless it is re-accessed by the user. Thereafter, users are allowed to vary their own settings, including the impact different actions have on relevance and importance.

[00223] In a next stage, global importance values are calculated and periodically updated for each entity, based mainly on a combination of each user's actions (IIC), which indicate importance of the sender. This may be the first step in communal importance. There may be human resources input also to the global importance values. Incoming mail relevance may now be based also on global importance values to give meaningful global (or communal) relevance.

[00224] In a next stage, global relevance values are calculated for each piece of content, based on the overall result of each user's local relevance values. Initial relevance for content can then include input from the global values (as well as, for example, local importance), and global relevance can still form a component of each user's local relevance even after they have read the content. This may be the first step in communal relevance. Incoming mail relevance can now be based also on global relevance scores, which are derived from a weighted aggregate of local relevance scores.

[00225] In a next stage, collaborative search takes place, allowing users to search other users' content, according to the rules set by a compliance policy. In a subsequent stage, there may be integration with human resources to assist in assigning similar users, to allow an indication of when a user changes roles. Also, in another stage, correlation of

groups, domains, and other aliases with users is done, so that the system can imply a degree of change on users' other identities when an action causes one of their identities to change. In a next stage, there is integration with enterprise naming systems, such as job codes, so that similar types and categories can be used in calculating importance values for related entities.

[00226] In a next stage, the system identifies a cognate group of n other users most similar to a given user/recipient. This is done, directly or indirectly, based on past actions. Calculation of each user's local importance values for other entities is based on their own actions, and also actions of those in their cognate group. An individual importance component value (IIC) or individual value inputting into the cognate importance component (I_{sr}^{c}) may be assigned when a user has interacted with an entity.

[00227] In a next stage, a cognate relevance value is now input into the final figure for local relevance. This is based on the actions of those in the group cognate to the recipient on the particular electronic mail object. In one or more embodiments, this may operate at run-time, but, in practice, it may have to be on a periodic review that initially has a more rapid review period.

[00228] In a next stage, communal weighting adjustment (of the impacts of different actions as described above) is allowed in a feedback loop, inside, for example, a single organization. Further, in another stage, smaller fragments are analyzed, such as paragraphs and words, as subsets of the overall electronic mail, to determine importance for these entities as well. In a next stage, federation of action weighting and other system constants is facilitated, based on other organizations' data (possibly anonymously) to

improve the accuracy of one or more of the mechanisms described herein.

[00229] As described above, a cognate group may be an important aspect of determining mail relevance in accordance with one or more embodiments. In some cases, a single global value for relevance of a given piece of content may not be the most appropriate measure of its relevance to a given community. For example, an electronic mail object regarding human resource policies might be most relevant to the human resources department, and of less relevance to other users. To improve the accuracy of the algorithm, it may be better to compare a user to a set of similar or cognate users rather than to the global population. In regard to how such similarity or identification of the cognate group is determined, one or more of the following approaches may be used: role or group based; collaborative filtering; fingerprinting; cluster models; search-based methods; frequency analysis; and importance value correlation. Each of these different approaches, which may be used singly or in any combination, will now be described in turn.

[00230] In regard to the role or group based approach, determining similarity may be dealt with in part by the role-based component in the effective local relevance value for each end user. Components may also be included for groups, domains, and other sets of users (or other entities). Users in the same groups or roles may be assumed to be similar. For example, if a number of users in a role receive an electronic mail object, and other users in that role have already viewed it and deleted it, then it is likely to be of low relevance to another user in that role. Further, users within the same group or role may have their historical behaviors correlated, to see which users within each group do, in

fact, behave in a similar manner. This method compares historical relevance values for content that users in the group have received, with those of the user in question (for the same content). This technique for extending the basic mechanism is essentially communal filtering (further described below). It is important to properly recognize the group (and other) local relevance and importance values used for determining relevance for content sent to those identities, with their role in ascribing similarity between users. A resulting statement of similarity from role or group methods might be, for example, "other users who also work in the development team found this mail to be of high relevance."

[00231] As to communal filtering, this mechanism may use the behavior of other recipients of a given piece of content to determine the content's relevance to the user in question – communal relevance. However, rather than just using the global relevance value for the content, the application may correlate the past behavior of other users to the user in question to improve the relevance predictor. A resulting statement of similarity from communal filtering might be, for example, "other users whose relevance values typically correlate to the user in question (based on comparison for historical content) found this mail to be of high relevance."

[00232] In regard to fingerprinting, it adopts a historical comparison method similar to that of communal filtering, but reduces the sparseness of the matrices by focusing on a sample of content with large numbers of recipients. Fingerprinting may rely on analyzing users' relevance values for a set of data that has been sent to very large numbers of users. This then provides relevance values for a common set of data,

allowing a "fingerprint" of each user's relevance values to be calculated, and then compared to that of other users. User fingerprint correlation may then be used as a basis for predicting a given user's relevance values for a new piece of content, based on other similar user's relevance values for the same piece of content. Thus, as more users read a new piece of mail, the initial relevance values for that content for the remaining recipients should be predicted more accurately. The correlation between users' behavior for mails with few recipients and large numbers of recipients may vary from one community to another. However, the feedback mechanisms in the relevance algorithm allow the strength of this correlation to be tested, and the suitability of fingerprinting for use in predicting behavior for all mail content to be evaluated. It is noted that for mail content sent with very large numbers of recipients, fingerprinting may be a reasonably accurate method for determining similarity. While this description has focused on users and content, other entities may also be subject to fingerprinting. The same matrix with content in one dimension may also be applied to groups and domains. A resulting statement of similarity from fingerprinting might be, for example, "other users whose relevance values typically correlate to the user in question (based on comparison for a non-representative sample of historical content) found this mail to be of high relevance."

[00233] As to cluster models, they work by segmenting users (and other entities) into categories based on their actions or attributes. In some ways, this approach may be similar to (and partly contains) role and group based similarity, but it may not assume separate relevance and importance values are stored for each cluster. Examples include, but are not limited to, the following: users who reply frequently, who forward frequently,

who never delete mails, who send mails to large groups, who receive certain mail volumes, who belong to particular groups, who work in particular departments, etc.; job codes, which have a particular job code parent or type, which are at a certain point in the domain hierarchy, which have a particular retention period, which result in particular external actions, which have certain allowed readers (access rights), etc.; and content, which has a large chain length (number of history submessages), which is of a certain length, which has attachments of certain size or type, which has a large number of recipients, which contains certain keywords, which is linked to a particular job code, which has a particular sensitivity rating, which interacts with certain external systems, etc. Further, it is noted that cluster models may potentially be applied to both entities and content in determining similarity and using it as a predictor for user relevance. A resulting statement of similarity from cluster models might be, for example, "other users who also forward mails regularly found this mail to be of high relevance."

[00234] In regard to search-based methods, they may operate with respect to content, or as a filter to then perform correlative analysis of users' historical relevance values. Search-based methods with respect to content may treat the similarity problem as a search for similar content in the user's historical content store. They then compare the relevance values from that user for similar historical content to predict the relevance of the new content. This essentially moves the similarity question to being a function of third party applications, but still relies on the user's own actions to determine relevance. In another approach, using search-based methods as a filter for comparing other users' historical behavior, the application finds similar content to that in question and then

inspects the relevance values given to it by other users. The approach then uses these relevance values from other users for similar content as an input to determine the initial relevance of the given content for the user in question.

[00235] As to frequency analysis, this may be another mechanism for reducing data size by communal filtering determining cognate groups. In this method, each user may have a set of other users associated with them based not on similarity, but on frequency. The method may work by finding the users who have the most content in common with the user in question (e.g., the most frequent to:, cc: and potentially bcc: recipients). Further, this method may not imply similarity among, for example, 100 users, who have most content in common with the user in question. Rather, it may provide a rich (not sparse) matrix of content on which to search for correlations (and anti-correlations) in user relevance values. On a periodic basis, such as each month, the ten most infrequent users in common with a given user may be removed from the matrix, and the ten most frequent users in common (not already identified in the matrix) may be added. This acts to keep the matrix rich with common values. From an importance perspective, this mechanism may be used to compare a user's own importance values given to entities (e.g., job codes) to those of other users. These correlations may then be used to provide more accurate estimates of initial importance for when a user interacts with that job code for the first time (as opposed to being forced to rely on the global value).

[00236] To further illustrate frequency analysis, consider, for example, a user, A, and four other users, B, C, D and E, with whom A has a significant volume of content in common. The table below lists the relevance values ascribed to historical content,

electronic mail objects A through T, that user A has in common with most or all of the other users.

	User				
Content	User A	User B	User C	User D	User E
TransMail T	5	9	9	4	1
TransMail S	6	2	3	7	4
TransMail R	2	5	7		5
TransMail Q	8		4	6	6
TransMail P	4	7		2	
TransMail O	2	6	9	4	
TransMail N	6	9	1	5	8
TransMail M	9	6	3	8	2
TransMail L	6	3	2	5	5
TransMail K	4	1	4	1	6
TransMail J	7	5		5	6
TransMail I	2	2	3	2	
TransMail H	4	8	6	3	9
TransMail G	3		7		8
TransMail F	1	4	6	3	4
TransMail E	8	7	8	7	2
TransMail D	5	8		7	
TransMail C	7	2	6	6	5
TransMail B	3	9	5	4	8
TransMail A	2	6	8		4

The list of relevance values for historical content allows each user's historical behavior to be correlated with each other user. The resulting linear correlation values are presented in the table below.

Correlations					
	User A	User B	User C	User D	User E
User A	1	0.042675	-0.35891	0.754378	-0.28248
User B	0.042675	1	0.301382	0.154122	0.122467
User C	-0.35891	0.301382	1	-0.0957	-0.31789
User D	0.754378	0.154122	-0.0957	1	-0.43545
User E	-0.28248	0.122467	-0.31789	-0.43545	1

Correlation may be a statistical function that indicates the extent of the similarity

between two data sets. From the table above, it can be seen that user A behaves very differently to user B, often has opposite relevance values to user B, and ascribes very similar relevance values to the same content as user D. Thus, the behavior (and resulting relevance value) of user D on a new piece of content sent to both users A and D would be a good indicator of the likely relevance of that content to user A.

[00237] User behavior may evolve over time, so the correlation formula may be weighted towards the newer content (a non-linear distribution of the square of the error terms in the regression). In addition, there is no requirement that the relationship be linear; thus non-linear correlation techniques may also be appropriate. In a system of very high computational power, the regression formula for each similar pairing could be used to "forecast" a suitable value for the communal component.

[00238] Another way to determine cognate users relates to correlating importance values. An identification may be to find the n users whose matrices of importance values correlate most highly with those of the given user r. This approach assumes that the effects of other factors (e.g., user actions) have fed through into the importance figures. In one or more embodiments, a single mechanism for determining the identities in cognate groups may rely primarily on the correlation of importance values, and these may be reconsidered during computational quiet periods as described above.

[00239] As described above, approaches for determining cognate groups may be combined. For example, cluster models may be added as another dimension to frequency analysis. Further, it is noted that for one or more of the cognate group determination approaches described above, the contribution of more recent content to the similarity

function may be greater than that of older content, reflecting the changing nature of the user population as the organization and their roles within it evolve. As described above, an exponential function may be applied to these contributions to decay them over time. Further, older data may be removed as new data is added, to ensure that the similarity structures may be maintained at a given size. The frequency of updating various relevance and importance values may also be determined on a per organization basis, depending on, for example, the business requirements and computational power available.

[00240] As apparent from the description herein of an electronic mail system in accordance with one or more embodiments, various advantages may be achieved with the electronic mail system. In one aspect, the electronic mail system "watches" how users interact with content, as well as implicitly other users and entities in the system, and takes each user's behavior as the primary input into a relevance analysis engine of the electronic mail system. An attraction of this approach might be that it collects vast amounts of statistical input data to the engine, but does not require additional user time. Further, the electronic mail system may be applied at a single user level only, based on a user's own actions. It may also be applied across an entire organization in a manner looking communally at other users' actions, which greatly increases its accuracy by providing more contextual data. In another aspect, the electronic mail system may be integrated with traditional email systems. Further, the electronic mail relevance system may also be applied to historical content, providing "dashboard" summaries and visual representations of communication communities. In a further aspect, the electronic mail

relevance system may enhance an investigative process, improving sampling, and ease of analysis.

[00241] While the invention has been described with respect to a limited number of embodiments, those skilled in the art, having benefit of the above description, will appreciate that other embodiments may be devised which do not depart from the scope of the present invention as described herein. Accordingly, the scope of the present invention should be limited only by the appended claims.

Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	DETERMINING RELEVANCE OF ELECTRONIC CONTENT
First Named Inventor/Applicant Name:	Justin Marston
Filer:	Brian M. Hoffman
Attorney Docket Number:	23682-12381

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	2	25	50
Independent claims in excess of 3	2201	3	100	300
Miscellaneous-Filing:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**775**

Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	DETERMINING RELEVANCE OF ELECTRONIC CONTENT
First Named Inventor/Applicant Name:	Justin Marston
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Independent claims in excess of 3	2201	3	100	300
Miscellaneous-Filing:				

Adjustment date: 02/09/2007 MNGUYEN
01/17/2007 INTEFSW 00000948 192555 11623653
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PTO/SB/06 (12-04)
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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

11/623,653

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY FEE ($)		OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))				75			
SEARCH FEE (37 CFR 1.16(k), (i), or (m))				250			
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))				100			
TOTAL CLAIMS (37 CFR 1.16(i))	22 minus 20 =	2	X$25=	50	OR	X$50	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3 minus 3 =		X$100=			X$200=	
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						
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))			N/A			N/A	
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	475		TOTAL	

APPLICATION AS AMENDED – PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	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))					N/A		OR	N/A	
						TOTAL ADD'T FEE		OR	TOTAL ADD'T FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)	OR	RATE ($)	ADDITIONAL FEE ($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	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))					N/A		OR	N/A	
						TOTAL ADD'T FEE		OR	TOTAL ADD'T 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.**

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	DRAWINGS	TOT CLAIMS	IND CLAIMS
11/623,653	01/16/2007	2161	475	23682-12381	22	22	3

CONFIRMATION NO. 5243

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

FILING RECEIPT

Date Mailed: 02/13/2007

Receipt is acknowledged of this regular Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please mail to the Commissioner for Patents P.O. Box 1450 Alexandria Va 22313-1450. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).**

Applicant(s)

Justin Marston, Austin, TX;
Paul Marston, Lancashire, UNITED KINGDOM;

Assignment For Published Patent Application

BlueSpace Software Corporation, Austin, TX

Power of Attorney: None

Domestic Priority data as claimed by applicant

This appln claims benefit of 60/758,828 01/13/2006

Foreign Applications

If Required, Foreign Filing License Granted: 02/12/2007

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US11/623,653**

Projected Publication Date: To Be Determined - pending completion of Missing Parts

Non-Publication Request: No

Early Publication Request: No

** SMALL ENTITY **

Title

Preliminary Class

707

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Title 37, Code of Federal Regulations, 5.11 & 5.15

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APPLICATION NUMBER	FILING OR 371 (c) DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NUMBER
11/623,653	01/16/2007	Justin Marston	23682-12381

CONFIRMATION NO. 5243

FORMALITIES LETTER

758
FENWICK & WEST LLP
SILICON VALLEY CENTER
801 CALIFORNIA STREET
MOUNTAIN VIEW, CA 94041

Date Mailed: 02/13/2007

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.

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

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

Electronic Acknowledgement Receipt

EFS ID:	1672228
Application Number:	11623653
International Application Number:	
Confirmation Number:	5243
Title of Invention:	DETERMINING RELEVANCE OF ELECTRONIC CONTENT
First Named Inventor/Applicant Name:	Justin Marston
Customer Number:	758
Filer:	Brian M. Hoffman
Filer Authorized By:	
Attorney Docket Number:	23682-12381
Receipt Date:	11-APR-2007
Filing Date:	16-JAN-2007
Time Stamp:	16:53:12
Application Type:	Utility

Payment information:

Submitted with Payment	yes
Payment was successfully received in RAM	$65
RAM confirmation Number	627
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 /.zip	Pages (if appl.)
1	Applicant Response to Pre-Exam Formalities Notice	12381_Response_to_Notice_of_Missing_Parts.pdf	95528	no	4
Warnings:					
Information:					
2	Oath or Declaration filed	12381_Declaration.pdf	87228	no	2
Warnings:					
Information:					
3		12381_POA.pdf	78866	yes	2

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Power of Attorney	1	1
	Assignee showing of ownership per 37 CFR 3.73(b).	2	2

Warnings:					
Information:					
4	Fee Worksheet (PTO-06)	fee-info.pdf	8151	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	269773	

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.

New Applications Under 35 U.S.C. 111
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.

National Stage of an International Application under 35 U.S.C. 371
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.

New International Application Filed with the USPTO as a Receiving Office
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.

DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION (37 CFR 1.63)		
☐ Declaration Submitted With Initial Filing OR ☒ Declaration Submitted after initial Filing (surcharge (37 CFR 1.16 (e)) required)	Attorney Docket Number	23682-12381
	First Named Inventor	Justin Marston
	COMPLETE IF KNOWN	
	Application Number	11/623,653
	Filing Date	January 16, 2007
	Art Unit	2161
	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:

DETERMINING RELEVANCE OF ELECTRONIC CONTENT

(Title of the Application)

the specification of which

☐ is attached hereto

OR

☒ was filed on (MM/DD/YYYY) 01/16/2007 as United States Application Number or PCT International Application Number 11/623,653 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])	Family Name or Surname
Justin	Marston

Inventor's Signature: Justin Marston Date: 5 April 07

Residence: City	State	Country	Citizenship
Austin	TX	US	UK

Mailing Address: P.O. Box 30570

City	State	ZIP	Country
Austin	TX	78755	US

NAME OF SECOND INVENTOR: ☐ A petition has been filed for this unsigned inventor

Given Name (first and middle [if any])	Family Name or Surname
Paul	Marston

Inventor's Signature: Paul Marston Date: 4 April 07

Residence: City	State	Country	Citizenship
Lancashire		UK	UK

Mailing Address: 143 Longmeanygate, Midge Hall

City	State	ZIP	Country
Lancashire		PR26 6TD	UK

☐ Additional inventors or a legal representative are being named on additional sheet(s)

23682/12381/SF/5193175.1

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/96 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		
Signature	Justin Marston	Date	9/9/6
Title	President and CEO	Telephone	(512) 386-3940

IN THE UNITED STATES

PATENT AND TRADEMARK OFFICE

APPLICANT(S):	Justin Marston et al.
APPLICATION NO.:	11/623,653
FILING DATE:	January 16, 2007
TITLE:	Determining Relevance of Electronic Content
EXAMINER:	Not Yet Known
GROUP ART UNIT:	2161
ATTY. DKT. NO.:	23682-12381

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 February 13, 2007, 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

☒ 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: April 11, 2007

By:/Brian Hoffman/

Brian Hoffman, 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

UNITED STATES PATENT AND TRADEMARK OFFICE

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United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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Alexandria, Virginia 22313-1450
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APPLICATION NUMBER	FILING OR 371 (c) DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NUMBER
11/623,653	01/16/2007	Justin Marston	23682-12381

CONFIRMATION NO. 5243
FORMALITIES LETTER

758
FENWICK & WEST LLP
SILICON VALLEY CENTER
801 CALIFORNIA STREET
MOUNTAIN VIEW, CA 94041

Date Mailed: 02/13/2007

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

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https://sportal.uspto.gov/authenticate/AuthenticateUserLocalEPF.html

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

STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: Justin Marston et al.

Application No./Patent No.: 11/623,653 Filed/Issue Date: January 16, 2007

Entitled: Determining Relevance of Electronic Content

BlueSpace Software Corporation, a Corporation
(Name of Assignee) (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. [X] 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 019142, Frame 0251, 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.

April 11, 2007
Date

Brian M. Hoffman
Typed or printed name

(415) 875-2484
Telephone number

/Brian Hoffman/
Signature

Attorney for Assignee
Title

Electronic Patent Application Fee Transmittal

Application Number:	11623653
Filing Date:	16-Jan-2007
Title of Invention:	DETERMINING RELEVANCE OF ELECTRONIC CONTENT
First Named Inventor/Applicant Name:	Justin Marston
Filer:	Brian M. Hoffman
Attorney Docket Number:	23682-12381

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 for 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**

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
11/623,653	01/16/2007	2161	540	23682-12381	22	3

CONFIRMATION NO. 5243

UPDATED FILING RECEIPT

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

Date Mailed: 04/24/2007

Receipt is acknowledged of this regular Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please mail to the Commissioner for Patents P.O. Box 1450 Alexandria Va 22313-1450. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).**

Applicant(s)

Justin Marston, Austin, TX;
Paul Marston, Lancashire, UNITED KINGDOM;

Assignment For Published Patent Application

BlueSpace Software Corporation, Austin, TX

Power of Attorney: The patent practitioners associated with Customer Number 758

Domestic Priority data as claimed by applicant

This appln claims benefit of 60/758,828 01/13/2006

Foreign Applications

If Required, Foreign Filing License Granted: 02/12/2007

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US11/623,653**

Projected Publication Date: 08/02/2007

Non-Publication Request: No

Early Publication Request: No

** SMALL ENTITY **

Title

Preliminary Class

707

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4158).

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Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

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NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(c) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/623,653	01/16/2007	Justin Marston	23682-12381

CONFIRMATION NO. 5243

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

Title: DETERMINING RELEVANCE OF ELECTRONIC CONTENT

Publication No. US-2007-0179945-A1
Publication Date: 08/02/2007

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.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Pre-Grant Publication Division, 703-605-4283

(19) 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

(30) Priority: 20.09.1999 US 399417

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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.

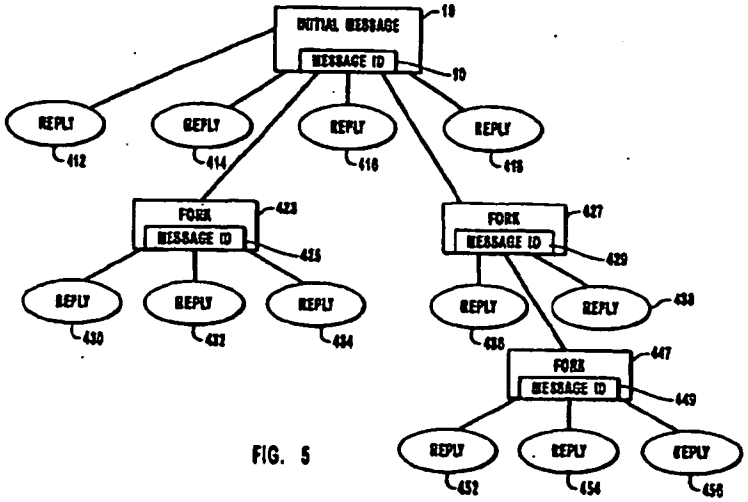


FIG. 5

EP 1 085 444 A2

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 elements 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 message 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 14, 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 provides 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 intersperse 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 number 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 message, 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 message; 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 electronic 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 electronic 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 a recited in claim 13 wherein the originating 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 unsupported host system using another electronic messaging protocol compatible with the unsupported host system.

21. In a messaging system that provides clients with electronic messaging services, a method for organizing 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 created 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 subsequent 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 subsequent replies are second-level branches depending from the first-level branch.

26. A method as recited in claim 21 wherein the method includes steps for distributing the electronic message 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 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.

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

assigning a unique list identifier to the distribution 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 available 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

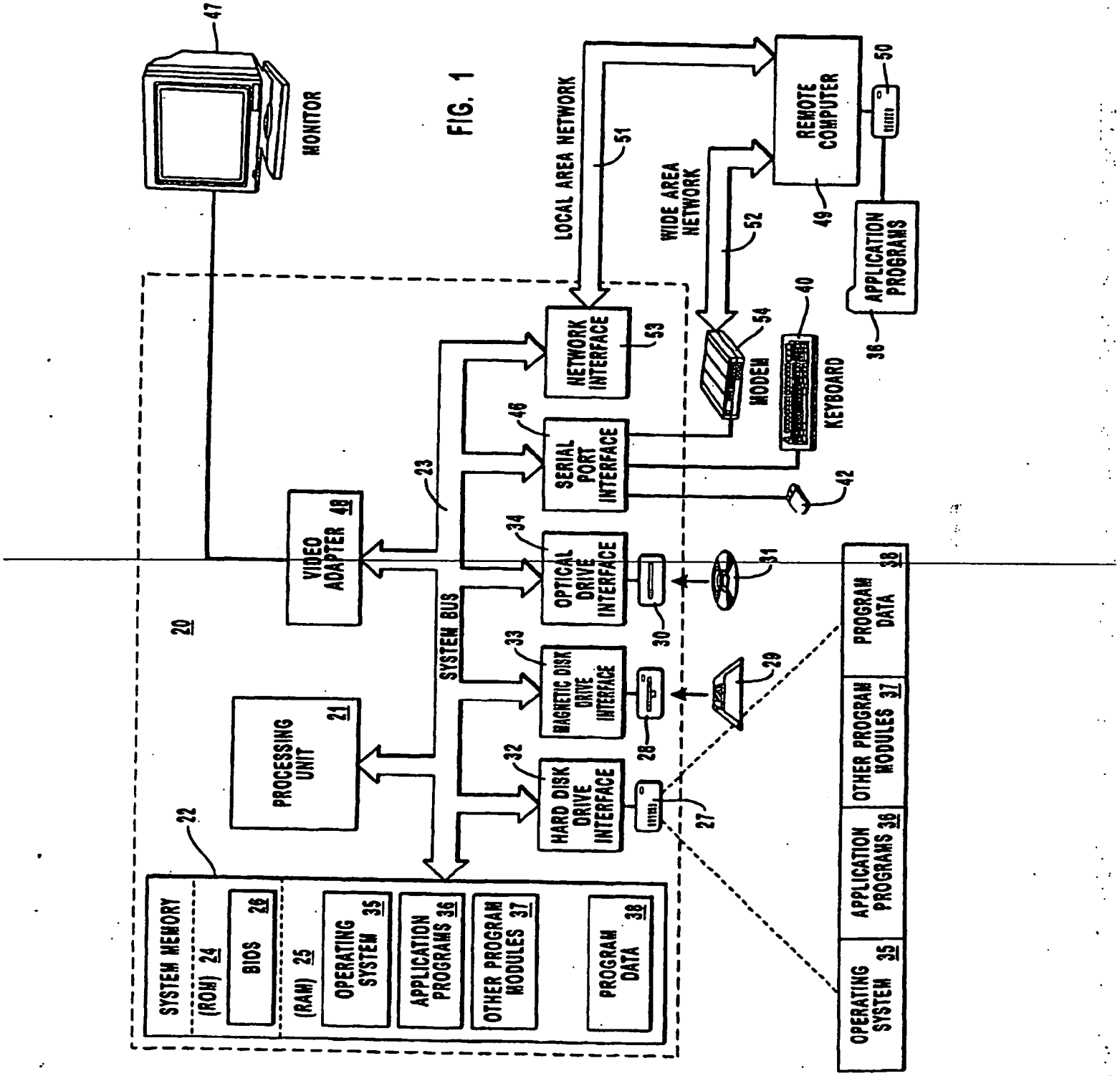
program code means for using the one or more distribution lists to notify each client of the host system who is a recipient of the electronic message, such that the at least one copy of the electronic message is made available to each notified client.

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.


47
MONITOR
FIG. 1
LOCAL AREA NETWORK
51
WIDE AREA NETWORK
52
REMOTE COMPUTER
49
50
APPLICATION PROGRAMS
36
40
KEYBOARD
54
MODEM
NETWORK INTERFACE
53
46
SERIAL PORT INTERFACE
42
23
VIDEO ADAPTER 48
34
OPTICAL DRIVE INTERFACE
31
30
SYSTEM BUS
20
33
MAGNETIC DISK DRIVE INTERFACE
29
28
PROCESSING UNIT
21
32
HARD DISK DRIVE INTERFACE
27
22
SYSTEM MEMORY
(ROM) 24
BIOS 26
(RAM) 25
OPERATING SYSTEM 35
APPLICATION PROGRAMS 36
OTHER PROGRAM MODULES 37
PROGRAM DATA 38
PROGRAM DATA 38
OTHER PROGRAM MODULES 37
APPLICATION PROGRAMS 36
OPERATING SYSTEM 35

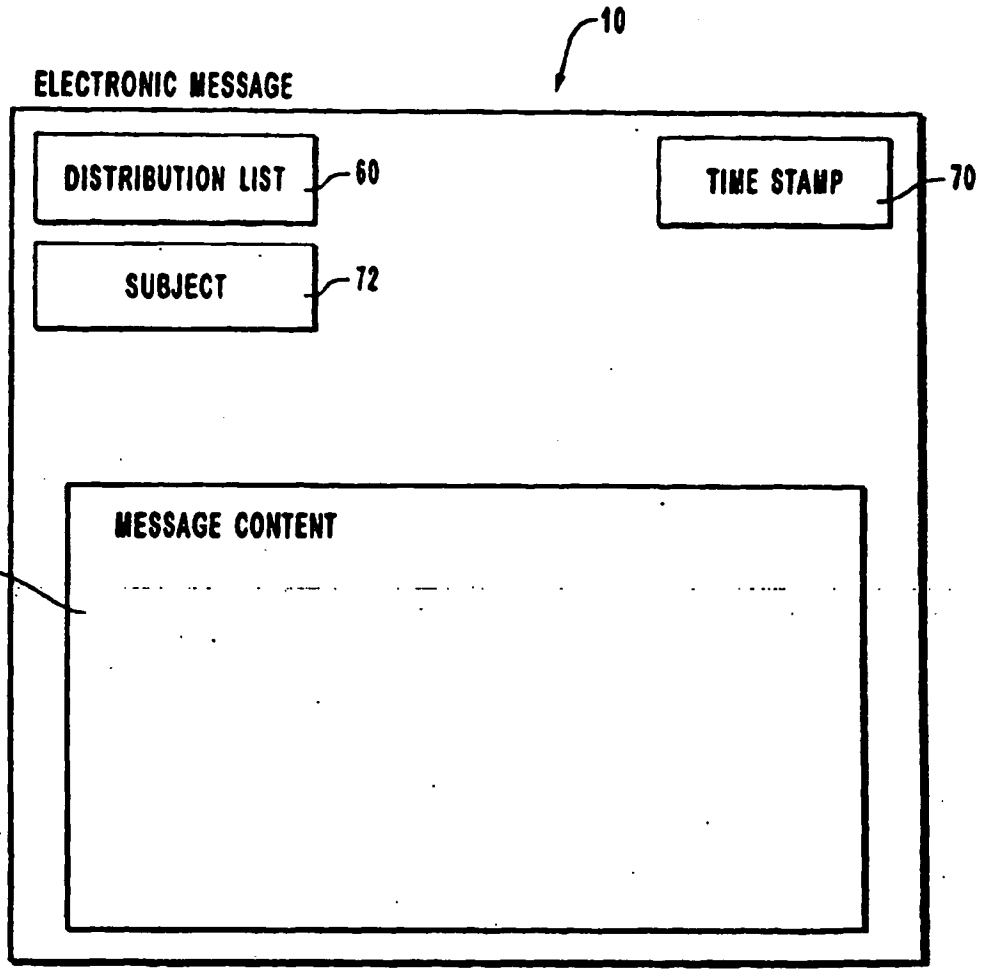

10
ELECTRONIC MESSAGE
DISTRIBUTION LIST
60
TIME STAMP
70
SUBJECT
72
MESSAGE CONTENT
80

FIG. 2

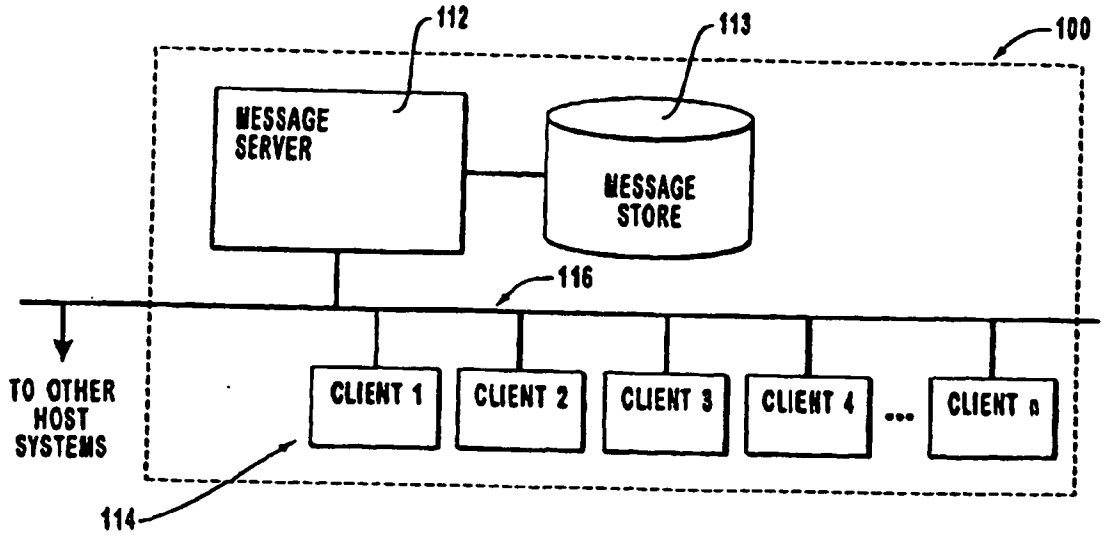

112
113
100
MESSAGE SERVER
MESSAGE STORE
116
TO OTHER HOST SYSTEMS
CLIENT 1
CLIENT 2
CLIENT 3
CLIENT 4
...
CLIENT n
114

FIG. 3

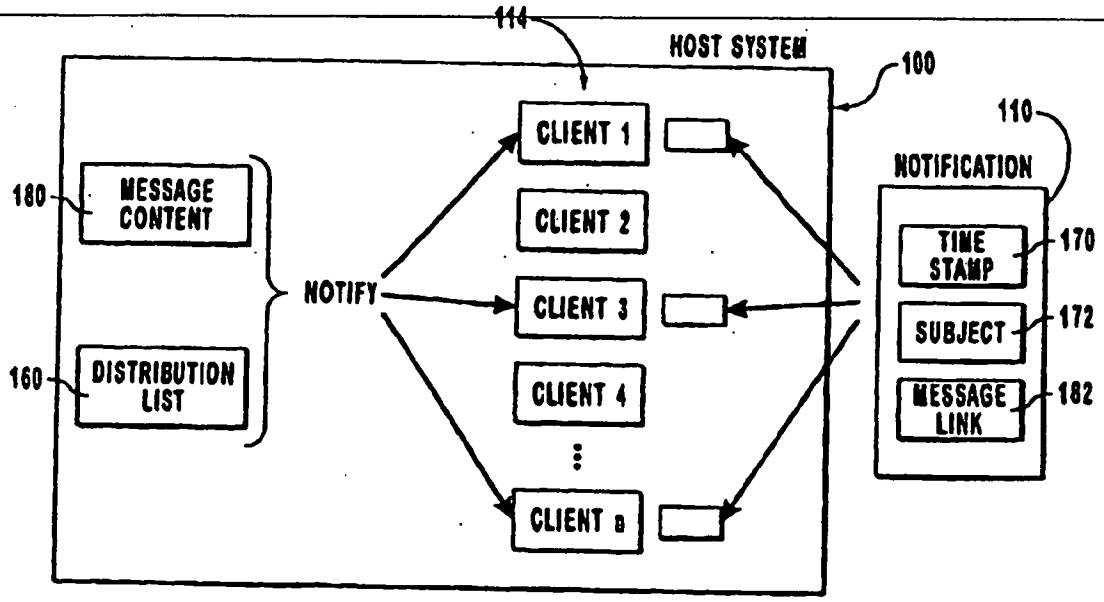

114
HOST SYSTEM
100
110
NOTIFICATION
180
MESSAGE CONTENT
160
DISTRIBUTION LIST
NOTIFY
CLIENT 1
CLIENT 2
CLIENT 3
CLIENT 4
CLIENT n
TIME STAMP
170
SUBJECT
172
MESSAGE LINK
182

FIG. 4

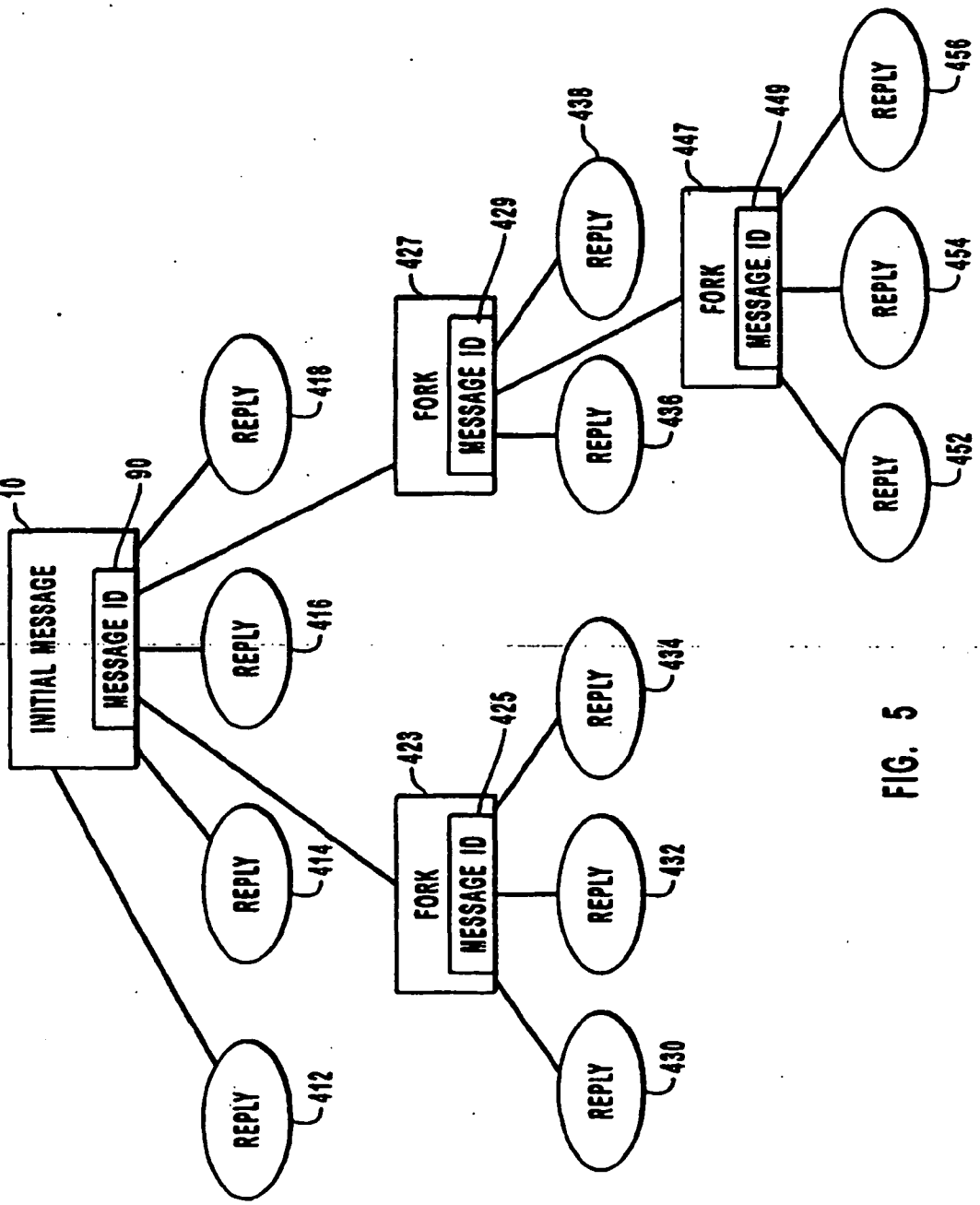

INITIAL MESSAGE
MESSAGE ID
10
90
REPLY
412
REPLY
414
REPLY
416
REPLY
418
FORK
MESSAGE ID
423
425
REPLY
430
REPLY
432
REPLY
434
FORK
MESSAGE ID
427
429
REPLY
436
REPLY
438
FORK
MESSAGE ID
447
449
REPLY
452
REPLY
454
REPLY
456

FIG. 5

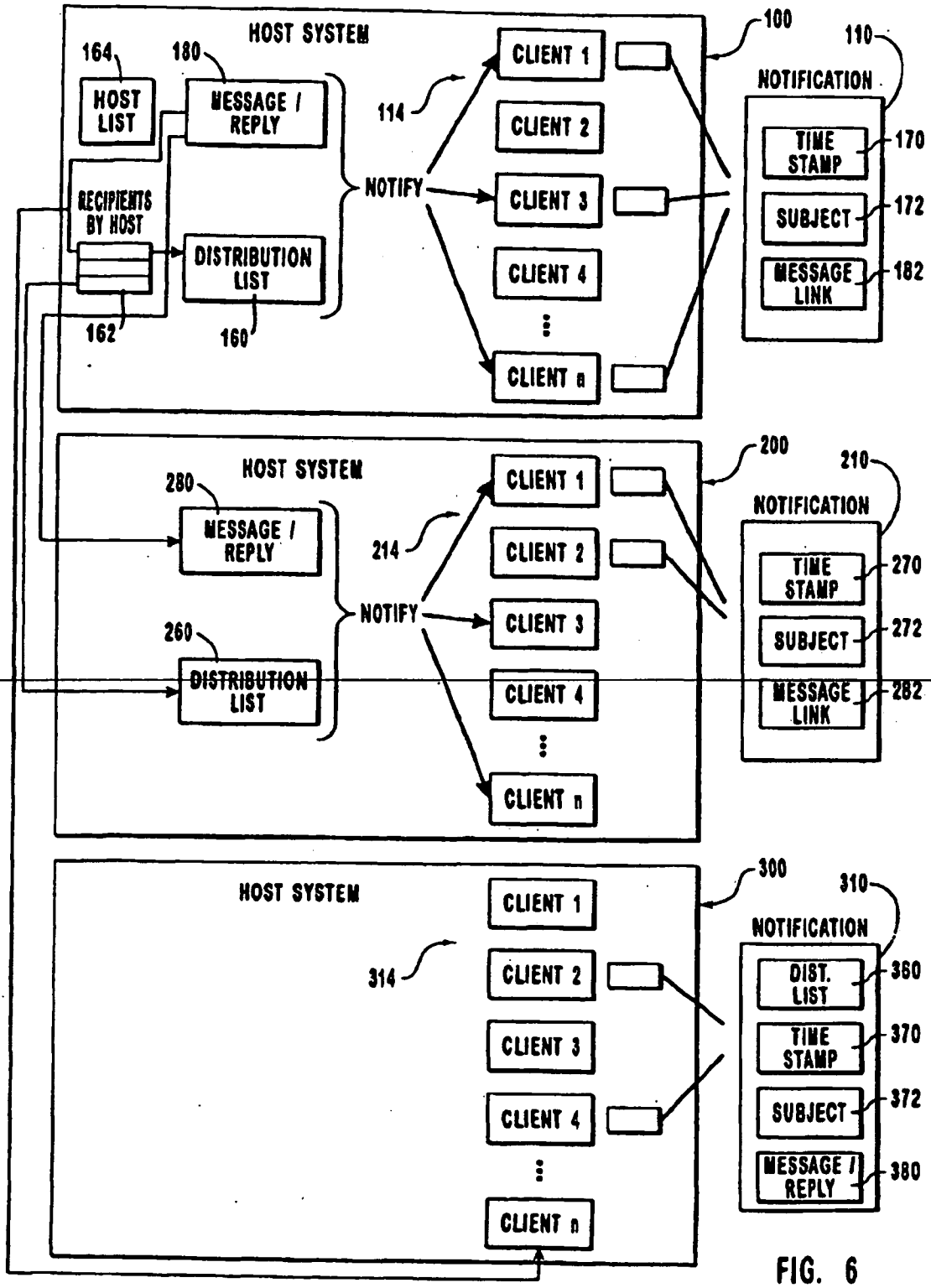

HOST SYSTEM
164
HOST LIST
180
MESSAGE / REPLY
RECIPIENTS BY HOST
162
DISTRIBUTION LIST
160
114
NOTIFY
CLIENT 1
CLIENT 2
CLIENT 3
CLIENT 4
CLIENT n
100
110
NOTIFICATION
TIME STAMP
170
SUBJECT
172
MESSAGE LINK
182
HOST SYSTEM
280
MESSAGE / REPLY
260
DISTRIBUTION LIST
214
NOTIFY
CLIENT 1
CLIENT 2
CLIENT 3
CLIENT 4
CLIENT n
200
210
NOTIFICATION
TIME STAMP
270
SUBJECT
272
MESSAGE LINK
282
HOST SYSTEM
314
CLIENT 1
CLIENT 2
CLIENT 3
CLIENT 4
CLIENT n
300
310
NOTIFICATION
DIST. LIST
360
TIME STAMP
370
SUBJECT
372
MESSAGE / REPLY
380

FIG. 6

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(11) EP 1 085 444 A3

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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.

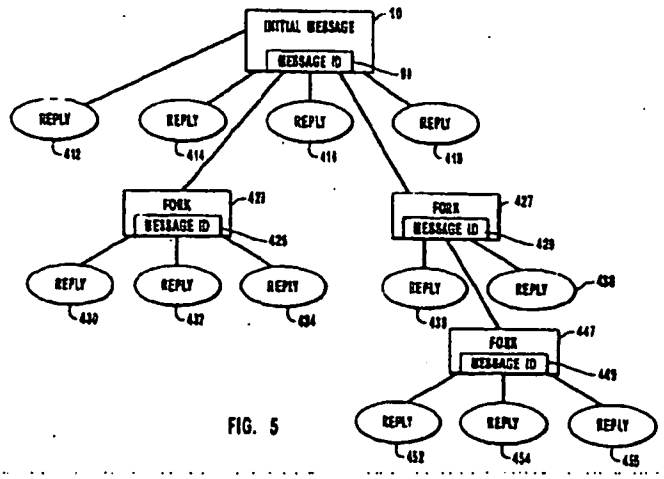


FIG. 5

EP 1 085 444 A3

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 00 30 8239

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	1-3,7, 10,12, 29-31, 42-44	G06F17/60
A	* the whole document *	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) H04L G06F
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	
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	Date of completion of the search	Examiner
MUNICH	3 December 2002	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 document

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

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

European Patent Office

Application Number
EP 00 30 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

European Patent Office

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.

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. The members are as contained in the European Patent Office EDP file on
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03-12-2002

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
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			JP	9233197 A	05-09-1997

EPO FORM P0459

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

Substitute for form 1449A/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application No.**	11/623,653
				Filing Date	January 16, 2007
				First Named Inventor	Justin Marston
				Art Unit	2165
				Examiner Name	Jeffrey A. Gaffin
Sheet	1	of	1	Attorney Docket Number	23682-12381

U.S. PATENT DOCUMENTS				
		Document No.		
Examiner Initials*	Cite No.[1]	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					
		Foreign Patent Document			
Examiner Initials*	Cite No.[1]	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]
	B1	EP 1 085 444 A2	03-21-2001	Microsoft Corporation	
	B2	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]
	C1	International Search Report and Written Opinion, PCT/US06/24859, April 26, 2007, 7 pages.	
	C2	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	

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

Electronic Acknowledgement Receipt

EFS ID:	2527196
Application Number:	11623653
International Application Number:	
Confirmation Number:	5243
Title of Invention:	DETERMINING RELEVANCE OF ELECTRONIC CONTENT
First Named Inventor/Applicant Name:	Justin Marston
Customer Number:	758
Filer:	Brian M. Hoffman
Filer Authorized By:	
Attorney Docket Number:	23682-12381
Receipt Date:	29-NOV-2007
Filing Date:	16-JAN-2007
Time Stamp:	19:03:02
Application Type:	Utility under 35 USC 111(a)

Payment information:

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Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement Letter	12381_US_IDS.pdf	122937 bb19316af3e939a54c7abd067df71e1cdb94dce8	no	3

Warnings:	
Information:	

2	Information Disclosure Statement (IDS) Filed	12381_US_Form_8A.pdf	111567 66dd8627dcb2e89e6db431b95a1acb62b41f765a	no	1
Warnings:					
Information:					
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3	Foreign Reference	EP1085444A2.pdf	1107918 c9ec261836d84a9f42b9e014c7fe4db1b0f0dc95	no	17
Warnings:					
Information:					
4	Foreign Reference	EP1085444A3.pdf	163975 fc403db2539727b29d4af6f892f4ce396a31c139	no	5
Warnings:					
Information:					
5	NPL Documents	11745_PCT_ISR_WO.pdf	371998 4f86cc4918901badfac4d8d522f7b2baef797222	no	7
Warnings:					
Information:					
6	NPL Documents	Edwards.pdf	3494867 b4bb28f76032dd59e4d368cc5fbb625c28cc3090	no	11
Warnings:					
Information:					
			Total Files Size (in bytes):	5373262	

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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.:	11/623,653
FILING DATE:	January 16, 2007
TITLE:	DETERMINING RELEVANCE OF ELECTRONIC CONTENT
EXAMINER:	Jeffrey A. Gaffin
GROUP ART UNIT:	2165
ATTY. DKT. NO.:	23682-12381

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: _____ By: _____

Brian M. Hoffman, Reg. No. 39,713

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 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:
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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

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☐ 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: November 29, 2007

By: /Brian Hoffman/
Brian M. Hoffman, Reg. No. 39,713
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Tel.: (415) 875-2484
Fax: (415) 281-1350

Substitute for form 1449A/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application No.**	11/623,653
				Filing Date	January 16, 2007
				First Named Inventor	Justin P. Marston
				Art Unit	2165
				Examiner Name	Jeffrey A. Gaffin
Sheet	1	of	1	Attorney Docket Number	23682-12381

U.S. PATENT DOCUMENTS				
		Document No.		
Examiner Initials*	Cite No.[1]	Number – Kind Code[2] (if known)	Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
	A1	US-2004/0078447 A1	04-22-2004	Malik et al.
		US-		
		US-		

FOREIGN PATENT DOCUMENTS					
		Foreign Patent Document			
Examiner Initials*	Cite No.[1]	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	

*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.

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

Electronic Acknowledgement Receipt

EFS ID:	3468558
Application Number:	11623653
International Application Number:	
Confirmation Number:	5243
Title of Invention:	DETERMINING RELEVANCE OF ELECTRONIC CONTENT
First Named Inventor/Applicant Name:	Justin Marston
Customer Number:	758
Filer:	Brian M. Hoffman
Filer Authorized By:	
Attorney Docket Number:	23682-12381
Receipt Date:	18-JUN-2008
Filing Date:	16-JAN-2007
Time Stamp:	18:21:36
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement Letter	12381IDS.pdf	122709 f58a87147f6100d21c6ed171ae1ce1051fc625fb	no	3

Warnings:	
Information:	

2	Information Disclosure Statement (IDS) Filed	12381Form8A.pdf	110031 fba190f0ffd517d7008e1ef6a3d68075f991589d	no	1
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
3	NPL Documents	12381PCT-PCT-US07-60587-ISR-WO.pdf	513104 63999379a37a7f9fcacaa2665e482bf91ccca635	no	8
Warnings:					
Information:					
		Total Files Size (in bytes):	745844		

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.

New Applications Under 35 U.S.C. 111
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.

National Stage of an International Application under 35 U.S.C. 371
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.

New International Application Filed with the USPTO as a Receiving Office
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.:	11/623,653
FILING DATE:	January 16, 2007
TITLE:	Determining Relevance of Electronic Content
EXAMINER:	Jeffrey A. Gaffin
GROUP ART UNIT:	2165
ATTY. DKT. NO.:	23682-12381

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: _____ By: _____

Briam M. Hoffman, Reg. No. 39,713

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.

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☐ 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 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;

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

☐ 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).

☐ 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).

Respectfully submitted,
JUSTIN P. MARSTON ET AL.

Dated: June 16, 2008

By: /Brian Hoffman/
Brian M. Hoffman, Reg. No.: 39,713
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Fax.: (650) 938-5200

Substitute for form 1449A/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application No.**	11/623,653
				Filing Date	January 16, 2007
				First Named Inventor	Justin P. Marston
				Art Unit	2165
				Examiner Name	Jeffrey A. Gaffin
Sheet	1	of	1	Attorney Docket Number	23682-12381

U.S. PATENT DOCUMENTS				
		Document No.		
Examiner Initials*	Cite No.[1]	Number – Kind Code[2] (if known)	Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
	A1	US-2007/0288575 A1	12-13-2007	Gillum et al.
	A2	US-2005/0203929 A1	09-15-2005	Hazarika et al.
	A3	US-2005/0204009 A1	09-15-2005	Hazarika et al.

FOREIGN PATENT DOCUMENTS					
		Foreign Patent Document			
Examiner Initials*	Cite No.[1]	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]

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609.
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[1]Applicant's unique citation designation number (optional). [2]See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3]Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4]For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5]Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. [6]Applicant is to place a check mark here if English language Translation is attached.

Electronic Acknowledgement Receipt

EFS ID:	3659317
Application Number:	11623653
International Application Number:	
Confirmation Number:	5243
Title of Invention:	DETERMINING RELEVANCE OF ELECTRONIC CONTENT
First Named Inventor/Applicant Name:	Justin Marston
Customer Number:	758
Filer:	Brian M. Hoffman/meera yang
Filer Authorized By:	Brian M. Hoffman
Attorney Docket Number:	23682-12381
Receipt Date:	22-JUL-2008
Filing Date:	16-JAN-2007
Time Stamp:	17:35:03
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1		12381_US_SIDS.pdf	332928 ddaeb337ab584b942aadccb987f440be91ecf646	yes	4

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Information Disclosure Statement Letter	1	3
	Information Disclosure Statement (IDS) Filed	4	4
Warnings:			
Information:			
	Total Files Size (in bytes):	332928	

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.

New Applications Under 35 U.S.C. 111
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New International Application Filed with the USPTO as a Receiving Office
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS:	Justin P. Marston et al.
APPLICATION NO.:	11/623,653
FILING DATE:	January 16, 2007
TITLE:	Determining Relevance of Electronic Content
EXAMINER:	Jeffrey A. Gaffin
GROUP ART UNIT:	2165
ATTY. DKT. NO.:	23682-12381

CERTIFICATE OF ELECTRONIC (EFS-WEB) TRANSMISSION

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Dated: _____ By: _____

Briam M. Hoffman, Reg. No. 39,713

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:

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☐ 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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Respectfully submitted,
JUSTIN P. MARSTON ET AL.

Dated: July 22, 2008

By: /Brian Hoffman/
Brian M. Hoffman, Reg. No.: 39,713
Fenwick & West LLP
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Notice of References Cited	Application/Control No. 11/623,653	Applicant(s)/Patent Under Reexamination MARSTON ET AL.	
	Examiner JOHN P. HOCKER	Art Unit 2169	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2004/0078447 A1	04-2004	Malik 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.

Substitute for form 1449A/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application No.**	11/623,653
				Filing Date	January 16, 2007
				First Named Inventor	Justin P. Marston
				Art Unit	2165
				Examiner Name	Jeffrey A. Gaffin
Sheet	1	of	1	Attorney Docket Number	23682-12381

U.S. PATENT DOCUMENTS				
		Document No.		
Examiner Initials*	Cite No.[1]	Number – Kind Code[2] (if known)	Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
	A1	US-2004/0078447 A1	04-22-2004	Malik et al.
		US-		
		US-		

FOREIGN PATENT DOCUMENTS					
		Foreign Patent Document			
Examiner Initials*	Cite No.[1]	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	/John Hocker/	Date Considered	11/09/2008

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609.
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[1]Applicant's unique citation designation number (optional). [2]See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3]Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4]For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5]Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. [6]Applicant is to place a check mark here if English language Translation is attached.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /J.H./

Substitute for form 1449A/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application No.**	11/623,653
				Filing Date	January 16, 2007
				First Named Inventor	Justin P. Marston
				Art Unit	2165
				Examiner Name	Jeffrey A. Gaffin
Sheet	1	of	1	Attorney Docket Number	23682-12381

U.S. PATENT DOCUMENTS				
		Document No.		
Examiner Initials*	Cite No.[1]	Number – Kind Code[2] (if known)	Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
	A1	US-2007/0288575 A1	12-13-2007	Gillum et al.
	A2	US-2005/0203929 A1	09-15-2005	Hazarika et al.
	A3	US-2005/0204009 A1	09-15-2005	Hazarika et al.

FOREIGN PATENT DOCUMENTS					
		Foreign Patent Document			
Examiner Initials*	Cite No.[1]	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]

Examiner Signature	/John Hocker/	Date Considered	11/09/2008

*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.

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

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /J.H./

Substitute for form 1449A/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application No.**	11/623,653
				Filing Date	January 16, 2007
				First Named Inventor	Justin Marston
				Art Unit	2165
				Examiner Name	Jeffrey A. Gaffin
Sheet	1	of	1	Attorney Docket Number	23682-12381

U.S. PATENT DOCUMENTS				
		Document No.		
Examiner Initials*	Cite No.[1]	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					
		Foreign Patent Document			
Examiner Initials*	Cite No.[1]	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]
	B1	EP 1 085 444 A2	03-21-2001	Microsoft Corporation	
	B2	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]
	C1	International Search Report and Written Opinion, PCT/US06/24859, April 26, 2007, 7 pages.	
	C2	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	/John Hocker/	Date Considered	11/09/2008

*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.

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

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BIB DATA SHEET

CONFIRMATION NO. 5243

SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
11/623,653	01/16/2007	707	2169	23682-12381

APPLICANTS

Justin Marston, Austin, TX;
Paul Marston, Lancashire, UNITED KINGDOM;

**** CONTINUING DATA ***************************

This appln claims benefit of 60/758,828 01/13/2006

**** FOREIGN APPLICATIONS ***************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED **** ** SMALL ENTITY **
02/12/2007

Foreign Priority claimed ☐ Yes ☑ No 35 USC 119(a-d) conditions met ☐ Yes ☑ No Verified and Acknowledged /JOHN P HOCKER/ Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		TX	22	22	3

ADDRESS

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

TITLE

DETERMINING RELEVANCE OF ELECTRONIC CONTENT

FILING FEE RECEIVED	FEES: Authority has been given in Paper	
540	No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

BIB (Rev. 05/07).

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/623,653	01/16/2007	Justin Marston	23682-12381	5243

758 7590 11/14/2008

FENWICK & WEST LLP
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801 CALIFORNIA STREET
MOUNTAIN VIEW, CA 94041

EXAMINER	
HOCKER, JOHN P	
ART UNIT	**PAPER NUMBER**
2169	
MAIL DATE	**DELIVERY MODE**
11/14/2008	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.	Applicant(s)	
	11/623,653	MARSTON ET AL.	
	Examiner	Art Unit	
	JOHN P. HOCKER	2169	

-- 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 *16 January 2007*.

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) *1-22* 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) *1-22* 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 *11/29/2007, 06/18/2008 and 07/22/2008* .
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1 – 22 have been examined and are pending.

2. Claims 1 – 22 have been rejected (Non-Final Rejection).

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 11/29/2007, 06/18/2008 and 07/22/2008 were received by examiner. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Related Cases

This case is related to copending application no. 11/426118.

This case is related to PCT Written Opinion and Search Reports No. PCT/US06/24859 and No. PCT/US06/60587.

Identical claims 1 – 22 were submitted in a PCT application. Examiner finds no reason to disagree with the written opinion in the PCT International Search Report. (PCT/US07/60587) (February 14, 2008, 8 pages).

The PCT International Search Report and Written Opinion found the claims lacked novelty as anticipated by the Malik Reference

Claim Rejections - 35 USC § 102 and § 35 USC 103

Examiner's Note: The requirements for patentability are that a claimed invention must at a minimum meet the requirements of utility (35 USC 101), novelty (35 USC 102) and non-obviousness (35 USC 103). The claims are rejected under 102 as they seemingly are anticipated by the prior art. Alternatively, the claims are rejected under 103 as they are obvious in view of the prior art of record and the common sense of one of ordinary skill.

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.

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 negatived by the manner in which the invention was made.**

Claims 1 - 22 rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Malik (US Publication No. 2004/0078447)

The specification describes the exemplary embodiment of the claimed system to be what is known as an email system (Specification, pg. 1). The claim's allegedly novel and non-obvious feature is the determination of user relevance for the email (i.e. electronic content). (Specification pgs 1 – 2) This argument is unpersuasive though as shown in Malik. In the same fashioon, the email system of Malik utilizes user profiles to determine user relevance of electronic content.

As per claims 1 and 11, Malik discloses a system and program (see fig 1,2A and 2B), comprising:

(i) a monitoring module configured to track actions by a plurality of users associated with an application for managing electronic content (see para [0035] and [0045]),

(ii) a relevance analysis module coupled to the monitoring module and configured to determine a relevance to a user of a received piece of electronic content (user(s) profile, see abstract and para [0013], [0014], [0040]-[0046], [0072-0074] and [0079 – 0080]),

(iii) the relevance being determined dependent on: a measure of a relevance of the piece of electronic content as determined dependent on one or more actions of the user on the piece of electronic content (see para [0013], [0014], [0040]-[0046], [0072-0074] and [0079] - 0080),

and (iv) a measure of a relevance of the piece of electronic content as determined dependent on one or more actions of at least one other of the plurality of users that is a recipient of the piece of electronic content (see para [0013], [0014], [0040]-[0046], [0072-0074] and [0079 - 0080]).

As per claims 2, 12 and 18, Malik further discloses the system of claim 1, wherein the relevance is further determined dependent on a measure of local importance describing an importance of the sender to the user (see para [0013], [0014], [0040]-[0046], [0072-0074] and [0079])

As per claims 3, 13 and 19, Malik further discloses the system of claim 1, wherein the relevance is further determined dependent on a measure of global importance describing an

importance of the sender within an organization with which the plurality of users are associated (see para [0013], [0014], [0040]-[0046], [0072-0074] and [0079]).

As per claims 4, 14 and 20, Malik further discloses the system of claim 1, wherein the relevance analysis module is further configured to identify at least one other of the plurality of users that is a recipient of the piece of electronic content and is cognate to the user and wherein the relevance analysis module is further configured to determine the relevance to the user of the piece of electronic content dependent upon one or more actions of the at least one cognate recipient with respect to the piece of electronic content (see para [0013], [0014], [0040]-[0046], [0072-0074] and [0079]).

As per claims 5, 15 and 21, Malik further discloses the system of claim 1, wherein the relevance analysis module is further configured to determine the relevance to the user of the piece of electronic content responsive to contents of the piece of electronic content (see para [0013], [0014], [0040]-[0046], [0072-0074] and [0079]).

As per claims 6, 16 and 22, Malik further discloses the system of claim 1, wherein the relevance analysis module is further configured to determine the relevance to the user of the piece of electronic content responsive to one or more measures from the set consisting of: a ocal importance describing an importance of the sender to the user (see para [0013], [0014], [0040]-[0046], [0072-0074] and [0079]), a i g obal mportance describing an importance of the sender within an organization with which the plurality of users are associated (see para [0010]), a

content relevance determined responsive to contents of the piece of electronic content (see para [0013], [0014], [0040]-[0046], [0072-0074] and [0079]) and one or more actions with respect to the piece of electronic content of one or more of the plurality of users determined to be cognate to the user (see para [0010]).

As per claim 7, Malik further discloses the system of claim 1, further comprising: a content presentation module configured to present the piece of electronic content to the user in accordance with the determined relevance and to present to the user a value describing the determined relevance (see para [0013], [0014], [0040]-[0046], [0072-0074] and [0079]).

As per claim 8, Malik further discloses the system of claim 1, further comprising: a search module configured to search the electronic content in accordance with the determined relevance (see para [0013], [0014], [0040]-[0046], [0072-0074] and [0079]).

As per claim 9, Malik further discloses the system of claim 1, wherein the piece of electronic content comprises an electronic mail object in a relational mail system (see para [0072], [0074], [0076], [0079] and [0080]).

As per claim 10, Malik further discloses the system of claim 1, wherein the electronic content comprises at least one of an email, a document, an instant message, and an SMS message (at least one of an email, see para [0072], [0074], [0076], [0079] and [0080]).

As per claim 17, Malik discloses a method, comprising: tracking actions by a plurality of users associated with an application for managing electronic content (see para [0035] and [0045]), determining a relevance to a user of a piece of electronic content sent from a sender to the user (user(s) profile, see para [0013], [0014], [0040]-[0046], [0072-0074] and [0079]), the relevance being determined dependent on: a measure of a relevance of the piece of electronic content as determined dependent on one or more actions of the user on the piece of electronic content (see para [0013], [0014], [0040]-[0046], [0072-0074] and [0079]), and a measure of a relevance of the piece of electronic content as determined dependent on one or more actions of at least one other of the plurality of users that is a recipient of the piece of electronic content (see para [0013], [0014], [0040]-[0046], [0072-0074] and [0079]).

Examiner's note: Although seemingly every claim limitation is taught by the prior art of record, it is arguable that each and every word is not verbatim 102 anticipated by the prior art. Examiner asserts that nonetheless, the claimed invention is properly rejected under 103 if the differences are insubstantial and the concept as a whole would be obvious to one of ordinary skill in the art with common sense which includes well known techniques and known substitutes. Examiner asserts the claim mappings above show the state of the prior art.

Examiner's note: In evaluating applicant's claims to patentability, Examiner was not persuaded by applicant's description of the prior art. Specifically, applicant argues that the prior art teaches ""unintelligent mechanisms" for storage and sorting of email (Specification [0004]. Examiner could not disagree more, the "intelligent" features applicant claims are the determination of relevance for a user. In the same respect, the email system of Malik determines

relevance of the content based on a user profile (i.e. based on a user). Thus applicant's claimed Background and Summary is a mischaracterization of the state of the prior art and the argument for patentability relies on this mischaracterization. The fact is that the prior art Malik teaches this intelligent mechanism for email storage and sorting. Specifically, the intelligent mechanism is for presenting the email based on user relevance (i.e. only pertinent to certain user profiles). Applicant has not named a credible improvement over the prior art.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John P. Hocker whose telephone number is 5712705004. The examiner can normally be reached on Mon - Thu 11:00 - 4:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ali can be reached on 5712724105. 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.

/John P. Hocker/ Art Unit 2169

/Etienne P LeRoux/
Primary Examiner, Art Unit 2161

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11623653	MARSTON ET AL.
	Examiner	**Art Unit**
	JOHN P HOCKER	2169

✓	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	11/09/2008								
	1	✓								
	2	✓								
	3	✓								
	4	✓								
	5	✓								
	6	✓								
	7	✓								
	8	✓								
	9	✓								
	10	✓								
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	12	✓								
	13	✓								
	14	✓								
	15	✓								
	16	✓								
	17	✓								
	18	✓								
	19	✓								
	20	✓								
	21	✓								
	22	✓								

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11623653	MARSTON ET AL.
	Examiner	Art Unit
	JOHN P HOCKER	2169

SEARCHED

Class	Subclass	Date	Examiner
707	1-3	11/09/2008	JPH

SEARCH NOTES

Search Notes	Date	Examiner
Inventive concept: " User Profiles for electronic content viewing (e.g. email)"	11/09/2008	JPH
1: IDS Reviewed for Prior Art.	11/09/2008	JPH
2: Examiner performed inventor name search.	11/09/2008	JPH
3: Examiner searched 'Computer Technology' NPL (e.g. IEEE (Institute of Electrical and Electronics Engineers), Association for Computing Machinery, Wikipedia and/or Google Scholar)	11/09/2008	JPH
4: Examiner searched International Technical & Patent Databases(US-PGPUB, USPAT, USOCR, FPRS, EPO, JPO, DERWENT and IBM_TDB).	11/09/2008	JPH
During Patent Searches, Examiner searched class/subclasses (as listed above) combined with text of the inventive concept. Please see East Search History for text searched.	11/09/2008	JPH

INTERFERENCE SEARCH

Class	Subclass	Date	Examiner

EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	19391	(707/1-3).ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/11/09 15:27
L2	3609	1 and (email or (electronic adj3 mail))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/11/09 15:28
L3	1159	2 and (profile)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/11/09 15:28
L4	1151	3 and user	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/11/09 15:29
L5	757	4 and (user near5 profile)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/11/09 15:29
L6	656	5 and (search)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/11/09 15:29
L7	404	6 and (track or tracking)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/09 15:30

L8	8	("20020122543" | "20020136279" | "20030191806" | "20040133645").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/09 15:31
S1	0	("20040078447").PN.	USPAT; USOCR	OR	OFF	2008/11/09 11:58
S2	2	"20040078447"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/11/09 11:58

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/623,653	01/16/2007	Justin Marston	23682-12381	5243

758 7590 12/15/2008

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EXAMINER	
HOCKER, JOHN P	
ART UNIT	**PAPER NUMBER**
2169	
MAIL DATE	**DELIVERY MODE**
12/15/2008	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.

Interview Summary	Application No.	Applicant(s)	
	11/623,653	MARSTON ET AL.	
	Examiner	Art Unit	
	JOHN P. HOCKER	2169	

All participants (applicant, applicant's representative, PTO personnel):

(1) *JOHN P. HOCKER*. (3)_____.

(2) *Chris King*. (4)_____.

Date of Interview: *10 December 2008*.

Type: a)☒ Telephonic b)☐ Video Conference
c)☐ Personal [copy given to: 1)☐ applicant 2)☐ applicant's representative]

Exhibit shown or demonstration conducted: d)☐ Yes e)☐ No.
If Yes, brief description: _____.

Claim(s) discussed: *1*.

Identification of prior art discussed: *Malik (See Non-Final Rejection mailed 11/14/2008)*.

Agreement with respect to the claims f)☐ was reached. g)☒ was not reached. h)☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: *Applicant attempted to distinguish claimed invention over prior art of record. Arguments hinged around Claim 1, Limitation (iii) and (iv). Basically, Applicant argued that Malik did not determine relevance based on user actions "on a piece of electronic content". No agreement was reached as to the allowability of the claims.*.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

J.P.H	/Mohammad Ali/ Supervisory Patent Examiner, Art Unit 2169

IN THE UNITED STATES

PATENT AND TRADEMARK OFFICE

APPLICANT:	Justin Marston et al
APPLICATION NO.:	11/623,653
FILING DATE:	January 16, 2007
TITLE:	Determining Relevance of Electronic Content
EXAMINER:	John P. Hocker
GROUP ART UNIT:	2169
ATTY. DKT. NO.:	20423-12381

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: January 5, 2009 By: /Christopher King/
Christopher P. King, Reg. No. 60,985

RESPONSE A

Sir:

In response to the Non-Final Office Action mailed November 14, 2008, please consider the following remarks.

IN THE CLAIMS

No claims are amended, added, or canceled. 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. (Original) A system, comprising:

a monitoring module configured to track actions by a plurality of users associated with an application for managing electronic content;

a relevance analysis module coupled to the monitoring module and configured to determine a relevance to a user of a piece of electronic content sent from a sender to the user, the relevance being determined dependent on:

a measure of a relevance of the piece of electronic content as determined dependent on one or more actions of the user on the piece of electronic content, and

a measure of a relevance of the piece of electronic content as determined dependent on one or more actions of at least one other of the plurality of users that is a recipient of the piece of electronic content.

2. (Original) The system of claim 1, wherein the relevance is further determined dependent on a measure of local importance describing an importance of the sender to the user.

3. (Original) The system of claim 1, wherein the relevance is further determined dependent on a measure of global importance describing an importance of the sender within an organization with which the plurality of users are associated.

4. (Original) The system of claim 1, wherein the relevance analysis module is further configured to identify at least one other of the plurality of users that is a recipient of the piece of electronic content and is cognate to the user and wherein the relevance analysis module is further configured to determine the relevance to the user of the piece of electronic content

dependent upon one or more actions of the at least one cognate recipient with respect to the piece of electronic content.

5. (Original) The system of claim 1, wherein the relevance analysis module is further configured to determine the relevance to the user of the piece of electronic content responsive to contents of the piece of electronic content.

6. (Original) The system of claim 1, wherein the relevance analysis module is further configured to determine the relevance to the user of the piece of electronic content responsive to one or more measures from the set consisting of:

a local importance describing an importance of the sender to the user;

a global importance describing an importance of the sender within an organization with which the plurality of users are associated;

a content relevance determined responsive to contents of the piece of electronic content; and

one or more actions with respect to the piece of electronic content of one or more of the plurality of users determined to be cognate to the user.

7. (Original) The system of claim 1, further comprising:

a content presentation module configured to present the piece of electronic content to the user in accordance with the determined relevance and to present to the user a value describing the determined relevance.

8. (Original) The system of claim 1, further comprising:

a search module configured to search the electronic content in accordance with the determined relevance.

9. (Original) The system of claim 1, wherein the piece of electronic content comprises an electronic mail object in a relational mail system.

10. (Original) The system of claim 1, wherein the electronic content comprises at least one of an email, a document, an instant message, and an SMS message.

11. (Original) A computer program product having a computer-readable medium having computer program instructions encoded thereon comprising:

a monitoring module configured to track actions by a plurality of users associated with an application for managing electronic content;

a relevance analysis module coupled to the monitoring module and configured to determine a relevance to a user of a piece of electronic content sent from a sender to the user, the relevance being determined dependent on:

a measure of a relevance of the piece of electronic content as determined dependent on one or more actions of the user on the piece of electronic content, and

a measure of a relevance of the piece of electronic content as determined dependent on one or more actions of at least one other of the plurality of users that is a recipient of the piece of electronic content.

12. (Original) The computer program product of claim 11, wherein the relevance is further determined dependent on a measure of local importance describing an importance of the sender to the user.

13. (Original) The computer program product of claim 11, wherein the relevance is further determined dependent on a measure of global importance describing an importance of the sender within an organization with which the plurality of users are associated.

14. (Original) The computer program product of claim 11, wherein the relevance analysis module is further configured to identify at least one other of the plurality of users that is a recipient of the piece of electronic content and is cognate to the user and wherein the relevance analysis module is further configured to determine the relevance to the user of the piece of electronic content dependent upon one or more actions of the at least one cognate recipient with respect to the piece of electronic content.

15. (Original) The computer program product of claim 11, wherein the relevance analysis module is further configured to determine the relevance to the user of the piece of electronic content responsive to contents of the piece of electronic content.

16. (Original) The computer program product of claim 11, wherein the relevance analysis module is further configured to determine the relevance to the user of the piece of electronic content responsive to one or more measures from the set consisting of:

a local importance describing an importance of the sender to the user;

a global importance describing an importance of the sender within an organization with which the plurality of users are associated;

a content relevance determined responsive to contents of the piece of electronic content; and

one or more actions with respect to the piece of electronic content of one or more of the plurality of users determined to be cognate to the user.

17. (Original) A method, comprising:

tracking actions by a plurality of users associated with an application for managing electronic content;

determining a relevance to a user of a piece of electronic content sent from a sender to the user, the relevance being determined dependent on:

a measure of a relevance of the piece of electronic content as determined dependent on one or more actions of the user on the piece of electronic content, and

a measure of a relevance of the piece of electronic content as determined dependent on one or more actions of at least one other of the plurality of users that is a recipient of the piece of electronic content.

18. (Original) The method of claim 17, wherein the relevance is further determined dependent on a measure of local importance describing an importance of the sender to the user.

19. (Original) The method of claim 17, wherein the relevance is further determined dependent on a measure of global importance describing an importance of the sender within an organization with which the plurality of users are associated.

20. (Original) The method of claim 17, wherein determining the relevance to the user further comprises:

identifying at least one other of the plurality of users that is a recipient of the piece of electronic content and is cognate to the user; and

determining the relevance to the user of the piece of electronic content dependent upon one or more actions of the at least one cognate recipient with respect to the piece of electronic content.

21. (Original) The method of claim 17, wherein the relevance is further dependent on contents of the piece of electronic content.

22. (Original) The method of claim 17, wherein the relevance is further dependent on one or more measures from the set consisting of:

a local importance describing an importance of the sender to the user;

a global importance describing an importance of the sender within an organization with which the plurality of users are associated;

a content relevance determined responsive to contents of the piece of electronic content; and

one or more actions with respect to the piece of electronic content of one or more of the plurality of users determined to be cognate to the user.

Electronic Acknowledgement Receipt

EFS ID:	4553063
Application Number:	11623653
International Application Number:	
Confirmation Number:	5243
Title of Invention:	DETERMINING RELEVANCE OF ELECTRONIC CONTENT
First Named Inventor/Applicant Name:	Justin Marston
Customer Number:	00758
Filer:	Christopher-Charles P. King
Filer Authorized By:	
Attorney Docket Number:	23682-12381
Receipt Date:	05-JAN-2009
Filing Date:	16-JAN-2007
Time Stamp:	17:08:22
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		12381_Response_A.pdf	91082 526c4a8b7136b0076753e228d68b2676cded86bd	yes	10

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
	Claims	2	6
	Applicant Arguments/Remarks Made in an Amendment	7	10
Warnings:			
Information:			
	Total Files Size (in bytes):	91082	

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New Applications Under 35 U.S.C. 111
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.

National Stage of an International Application under 35 U.S.C. 371
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.

New International Application Filed with the USPTO as a Receiving Office
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.

REMARKS

Claims 1-22 are pending. In an Office Action dated November 14, 2008, claims 1-22 were rejected. Applicants thank the Examiner for examination of the claims pending in this application and address the Examiner's comments below.

Applicants' representative conducted a telephonic interview with Examiner Hocker on December 10, 2008, during which the rejection of claim 1 was discussed. No agreement was reached. A summary of the interview is incorporated into these Remarks.

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

Response to Rejections Under §§ 102 and 103

Claims 1-22 stand rejected under 35 U.S.C. § 102(b) or, in the alternative, under 35 U.S.C. § 103(a), as allegedly being unpatentable over Malik, U.S. Patent Application No. 2004/0078447. These rejections are traversed.

Independent claim 1 specifically recites:

> a monitoring module configured to track actions by a plurality of users associated with an application for managing electronic content;
> a relevance analysis module coupled to the monitoring module and configured to determine a relevance to a user of a piece of electronic content sent from a sender to the user, the relevance being determined dependent on:
> a measure of a relevance of the piece of electronic content as determined dependent on one or more actions of the user **on the piece of electronic content**, and
> a measure of a relevance of the piece of electronic content as determined dependent on one or more actions of at least one other of the plurality of users that is a recipient of the piece of electronic content.

Thus, the claimed invention recites determining relevance to a user of a piece of electronic content (e.g., an email). The relevance is determined dependent on a measure of a relevance of

the piece of electronic content as determined dependent on one or more **actions of the user** (and of at least one other of the plurality of users that is a recipient of the piece of electronic content) **on the piece of electronic content**. Examples of actions of the user and others on the piece of electronic content include forwarding, deleting, or printing an electronic email object. (Specification, paragraph 0069).

Malik does not disclose or suggest such features. Malik generally discloses a mailbox system, which differentiates between user and group mailboxes. A user profile can be associated with a user email folder and an instant messaging (IM) account, and this association facilitates defining properties of the user email folder and the user IM account using the user profile. (Malik, Abstract). The user profiles are a collection of settings, such as a listing of a user's email mailboxes and folders, IM accounts, usernames and passwords, address books, and the like. (Malik, paragraphs 0041-0044).

The Examiner cites Malik paragraphs 0013, 0014, 0040-0046, 0072-0074, and 0079-0080 as allegedly disclosing "a measure of relevance of the piece of electronic content as determined dependent one or more actions [of the user, and of at least one other of the plurality of users that is a recipient of the piece of electronic content] on the piece of electronic content." However, all of these portions fail to disclose or suggest that the measure of relevance is determined dependent on actions on **user actions on the piece of electronic content**, as claimed. Cited paragraphs 0013 and 0014 merely disclose that a user profile may be used and that such a profile has a collection of properties related to a user email folder and IM account. Cited paragraphs 0040-0046 disclose what the profile contains, such as usernames and passwords. Cited paragraphs 0072-0074 disclose that a single database used for both email and IM information can facilitate integration of email and IM systems. Cited paragraph 0079 again discloses that email

and IM information can be stored in a single database. Cited paragraph 0080 discloses email options that may be set using a GUI. However, none of these cited paragraphs show determining a measure of relevance of a piece of electronic content dependent on user actions on the piece of electronic content, and so are not relevant to the claimed elements in question.

In the interview of December 10, 2008, the Examiner noted, with respect to the first element ("a monitoring module configured to track actions by a plurality of users associated with an application for managing electronic content"), that Malik paragraph 0035 states that in some server embodiments, server processes are configured to track email access by individual users. However, such a general statement in no way discloses or suggests the specific elements recited by the claim—that is, the mere statement that a server may track email access does not show **determining a measure of relevance of a piece of electronic content** based on user actions on the piece of electronic content. Thus, Malik neither anticipates the claimed invention nor renders it obvious.

Independent claims 11 and 17 recite, for example, "a measure of a relevance of the piece of electronic content as determined dependent on one or more actions of the user on the piece of electronic content" and are allowable for at least the same reasons discussed above with respect to independent claim 1.

The remaining claims depend, directly or indirectly, from one of independent claims 1, 11, 17, and recite additional patentably distinguishable features and limitations. Thus, they are allowable for at least the same reasons discussed above with regard to their respective independent claims.

Based on the above amendment and the remarks, Applicants respectfully submit that for at least these reasons claims 1-22 are patentably distinguishable over the applied reference.

Therefore, Applicants respectfully request that the Examiner reconsider the rejections, and withdraw them.

Note that Applicants have not substantively amended independent claims 1, 11, or 17. Thus, any subsequent Office Action rejecting claims 1, 11, or 17 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 he believes it will help expedite furtherance of this application.

Respectfully submitted,

Dated: January 5, 2009

By: /Christopher King/

Christopher P. King, Reg. No. 60,985
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PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
11/623,653	01/16/2007	

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY ☒ RATE ($)	SMALL ENTITY ☒ FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
☐ 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), (i), 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(i))	minus 20 =	*	X $ =		OR	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

AMENDMENT 01/05/2009	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 22	Minus	** 22	= 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))									
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	

AMENDMENT	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))									
☐ 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.

Legal Instrument Examiner:
/VANESSA BARBER/

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.

Substitute for form 1449A/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application No.**	11/623,653
				Filing Date	January 16, 2007
				First Named Inventor	Justin P. Marston
				Art Unit	2169
				Examiner Name	John P. Hocker
Sheet	1	of	1	Attorney Docket Number	23682-12381

U.S. PATENT DOCUMENTS				
		Document No.		
Examiner Initials*	Cite No.[1]	Number – Kind Code[2] (if known)	Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
	A1	US-2004/0054744 A1	03-18-2004	Karamchedu et al.
	A2	US-6,249,807 B1	06-19-2001	Shaw et al.

FOREIGN PATENT DOCUMENTS					
		Foreign Patent Document			
Examiner Initials*	Cite No.[1]	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]

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.

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

Electronic Acknowledgement Receipt

EFS ID:	4956440
Application Number:	11623653
International Application Number:	
Confirmation Number:	5243
Title of Invention:	DETERMINING RELEVANCE OF ELECTRONIC CONTENT
First Named Inventor/Applicant Name:	Justin Marston
Customer Number:	00758
Filer:	Christopher-Charles P. King
Filer Authorized By:	
Attorney Docket Number:	23682-12381
Receipt Date:	12-MAR-2009
Filing Date:	16-JAN-2007
Time Stamp:	16:00:25
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$180
RAM confirmation Number	1458
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		12381_US_SIDS.pdf	176976 781bba98594c3e881a1d90054f2574059ef768d8	yes	4

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Information Disclosure Statement Letter	1	3
	Information Disclosure Statement (IDS) Filed (SB/08)	4	4

Warnings:

Information:

2	Fee Worksheet (PTO-06)	fee-info.pdf	30248 214483669a667e09346a2ea52ac48de92679f7aa	no	2

Warnings:

Information:

Total Files Size (in bytes):	207224

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New Applications Under 35 U.S.C. 111

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.

National Stage of an International Application under 35 U.S.C. 371

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.

New International Application Filed with the USPTO as a Receiving Office

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.:	11/623,653
FILING DATE:	January 16, 2007
TITLE:	Determining Relevance of Electronic Content
EXAMINER:	John P. Hocker
GROUP ART UNIT:	2169
ATTY. DKT. NO.:	23682-12381

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 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 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.

☐ 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).

☐ 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).

Respectfully submitted,
JUSTIN P. MARSTON ET AL.

Dated: March 12, 2009

By: /Christopher King/
Christopher P. King, Reg. No. 60,985
Attorney for Applicant
Fenwick & West LLP
801 California Street
Mountain View, CA 94041
Tel.: (650) 335-7633
Fax: (650) 938-5200

Electronic Patent Application Fee Transmittal

Application Number:	11623653
Filing Date:	16-Jan-2007
Title of Invention:	DETERMINING RELEVANCE OF ELECTRONIC CONTENT
First Named Inventor/Applicant Name:	Justin Marston
Filer:	Christopher-Charles P. King/meera yang
Attorney Docket Number:	23682-12381

Filed as Large 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:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	180	180
		Total in USD ($)		**180**

Notice of References Cited	Application/Control No. 11/623,653	Applicant(s)/Patent Under Reexamination MARSTON ET AL.	
	Examiner JOHN P. HOCKER	Art Unit 2158	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2004/0078447 A1	04-2004	Malik 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.

Substitute for form 1449A/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application No.**	11/623,653
				Filing Date	January 16, 2007
				First Named Inventor	Justin P. Marston
				Art Unit	2169
				Examiner Name	John P. Hocker
Sheet	1	of	1	Attorney Docket Number	23682-12381

U.S. PATENT DOCUMENTS				
		Document No.		
Examiner Initials*	Cite No.[1]	Number – Kind Code[2] (if known)	Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
	A1	US-2004/0054744 A1	03-18-2004	Karamchedu et al.
	A2	US-6,249,807 B1	06-19-2001	Shaw et al.

FOREIGN PATENT DOCUMENTS					
		Foreign Patent Document			
Examiner Initials*	Cite No.[1]	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]

Examiner Signature	/John Hocker/	Date Considered	04/15/2009

*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.

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

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /J.H./

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.
11/623,653	01/16/2007	Justin Marston	23682-12381	5243

758 7590 05/12/2009

FENWICK & WEST LLP
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MOUNTAIN VIEW, CA 94041

EXAMINER	
HOCKER, JOHN P	

ART UNIT	PAPER NUMBER
2158	

MAIL DATE	DELIVERY MODE
05/12/2009	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.	Applicant(s)	
	11/623,653	MARSTON ET AL.	
	Examiner	Art Unit	
	JOHN P. HOCKER	2158	

-- 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 *05 January 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) _____ 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) *1-22* 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 *03/12/2009*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1 – 22 have been examined.

2. Claims 1 – 22 have been rejected (**Final Rejection**).

Examiner Interview

After further search and consideration, and after speaking with Mohammad Ali, the invention as claimed does not overcome 102/103 tests for novelty/non-obviousness. Examiner thanks applicant for interview to hone in precise arguments about allegedly novel technical features. Examiner also asked if there were any new arguments for allowability. At the present time, no new arguments were raised. The interview occurred on May 7th, 2009 with Chris King.

Information Disclosure Statement

The information disclosure statement (IDS) submitted 03/12/2009 has been considered by examiner. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Related Cases

This case is related to copending application no. 11/426118.

This case is related to PCT Written Opinion and Search Reports No. PCT/US06/24859 and No. PCT/US06/60587.

Identical claims 1 – 22 were submitted in a PCT application. Examiner finds no reason to disagree with the written opinion in the PCT International Search Report. (PCT/US07/60587) (February 14, 2008, 8 pages).

The PCT International Search Report and Written Opinion found the claims lacked novelty as anticipated by the Malik Reference

Response to Arguments

By Interview and Written Correspondence, Applicant has raised a primary argument that the Malik Reference does not teach that "relevance" is based on a user's actions (Applicant's Remarks, filed: 01/05/2009, pgs. 1 - 4). This is language from Claim 1, Limitation iv.

Examiner reminds applicant that a reference is good for all it teaches, and as shown in the Non-Final rejection the Malik reference cited paragraphs (see para [0013], [0014], [0040]-[0046], [0072-0074] and [0079 - 0080]) for Claim 1, Limitation iv.

Clearly, [0044] which mentions the profiles of Malik may be based on "email rules by which (email messages) are sorted, forwarded, deleted, etc." would in fact meet this language. The language is stating relevance is based on user actions. The relevance of Malik is based on the profile, which in 0044 is based on user actions (e.g.sorting, forwarding, deleting). Thus the argument that Malik does not teach relevance based on user actions is unpersuasive. If applicant has any questions or concerns please do not hesitate to phone examiner at contact info below.

Claim Rejections - 35 USC § 102 and § 35 USC 103

Examiner's Note: The requirements for patentability are that a claimed invention must at a minimum meet the requirements of utility (35 USC 101), novelty (35 USC 102) and non-obviousness (35 USC 103). The claims are rejected under 102 as they seemingly are anticipated by the prior art. Alternatively, the claims are rejected under 103 as they are obvious in view of the prior art of record and the common sense of one of ordinary skill.

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.

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 negatived by the manner in which the invention was made.**

Claims 1 - 22 rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Malik (US Publication No. 2004/0078447)

The specification describes the exemplary embodiment of the claimed system to be what is known as an email system (Specification, pg. 1). The claim's allegedly novel and non-obvious feature is the determination of user relevance for the email (i.e. electronic content). (Specification pgs 1 – 2) This argument is unpersuasive though as shown in Malik. In the same fashion, the email system of Malik utilizes user profiles to determine user relevance of electronic content.

As per claims 1 and 11, Malik discloses a system and program (see fig 1,2A and 2B), comprising:

(i) a monitoring module configured to track actions by a plurality of users associated with an application for managing electronic content (see para [0035] and [0045]),

(ii) a relevance analysis module coupled to the monitoring module and configured to determine a relevance to a user of a received piece of electronic content (user(s) profile, see abstract and para [0013], [0014], [0040]-[0046], [0072-0074] and [0079 – 0080]),

(iii) the relevance being determined dependent on: a measure of a relevance of the piece of electronic content as determined dependent on one or more actions of the user on the piece of electronic content (see para [0013], [0014], [0040]-[0046], [0072-0074] and [0079] - 0080),

and (iv) a measure of a relevance of the piece of electronic content as determined dependent on one or more actions of at least one other of the plurality of users that is a recipient of the piece of electronic content (see para [0013], [0014], [0040]-[0046], [0072-0074] and [0079 - 0080]).

As per claims 2, 12 and 18, Malik further discloses the system of claim 1, wherein the relevance is further determined dependent on a measure of local importance describing an importance of the sender to the user (see para [0013], [0014], [0040]-[0046], [0072-0074] and [0079])

As per claims 3, 13 and 19, Malik further discloses the system of claim 1, wherein the relevance is further determined dependent on a measure of global importance describing an

importance of the sender within an organization with which the plurality of users are associated (see para [0013], [0014], [0040]-[0046], [0072-0074] and [0079]).

As per claims 4, 14 and 20, Malik further discloses the system of claim 1, wherein the relevance analysis module is further configured to identify at least one other of the plurality of users that is a recipient of the piece of electronic content and is cognate to the user and wherein the relevance analysis module is further configured to determine the relevance to the user of the piece of electronic content dependent upon one or more actions of the at least one cognate recipient with respect to the piece of electronic content (see para [0013], [0014], [0040]-[0046], [0072-0074] and [0079]).

As per claims 5, 15 and 21, Malik further discloses the system of claim 1, wherein the relevance analysis module is further configured to determine the relevance to the user of the piece of electronic content responsive to contents of the piece of electronic content (see para [0013], [0014], [0040]-[0046], [0072-0074] and [0079]).

As per claims 6, 16 and 22, Malik further discloses the system of claim 1, wherein the relevance analysis module is further configured to determine the relevance to the user of the piece of electronic content responsive to one or more measures from the set consisting of: a ocal importance describing an importance of the sender to the user (see para [0013], [0014], [0040]-[0046], [0072-0074] and [0079]), a i g obal mportance describing an importance of the sender within an organization with which the plurality of users are associated (see para [0010]), a

content relevance determined responsive to contents of the piece of electronic content (see para [0013], [0014], [0040]-[0046], [0072-0074] and [0079]) and one or more actions with respect to the piece of electronic content of one or more of the plurality of users determined to be cognate to the user (see para [0010]).

As per claim 7, Malik further discloses the system of claim 1, further comprising: a content presentation module configured to present the piece of electronic content to the user in accordance with the determined relevance and to present to the user a value describing the determined relevance (see para [0013], [0014], [0040]-[0046], [0072-0074] and [0079]).

As per claim 8, Malik further discloses the system of claim 1, further comprising: a search module configured to search the electronic content in accordance with the determined relevance (see para [0013], [0014], [0040]-[0046], [0072-0074] and [0079]).

As per claim 9, Malik further discloses the system of claim 1, wherein the piece of electronic content comprises an electronic mail object in a relational mail system (see para [0072], [0074], [0076], [0079] and [0080]).

As per claim 10, Malik further discloses the system of claim 1, wherein the electronic content comprises at least one of an email, a document, an instant message, and an SMS message (at least one of an email, see para [0072], [0074], [0076], [0079] and [0080]).

As per claim 17, Malik discloses a method, comprising: tracking actions by a plurality of users associated with an application for managing electronic content (see para [0035] and [0045]), determining a relevance to a user of a piece of electronic content sent from a sender to the user (user(s) profile, see para [0013], [0014], [0040]-[0046], [0072-0074] and [0079]), the relevance being determined dependent on: a measure of a relevance of the piece of electronic content as determined dependent on one or more actions of the user on the piece of electronic content (see para [0013], [0014], [0040]-[0046], [0072-0074] and [0079]), and a measure of a relevance of the piece of electronic content as determined dependent on one or more actions of at least one other of the plurality of users that is a recipient of the piece of electronic content (see para [0013], [0014], [0040]-[0046], [0072-0074] and [0079]).

Examiner's note: Although seemingly every claim limitation is taught by the prior art of record, it is arguable that each and every word is not verbatim 102 anticipated by the prior art. Examiner asserts that nonetheless, the claimed invention is properly rejected under 103 if the differences are insubstantial and the concept as a whole would be obvious to one of ordinary skill in the art with common sense which includes well known techniques and known substitutes. Examiner asserts the claim mappings above show the state of the prior art.

Examiner's note: In evaluating applicant's claims to patentability, Examiner was not persuaded by applicant's description of the prior art. Specifically, applicant argues that the prior art teaches ""unintelligent mechanisms" for storage and sorting of email (Specification [0004]. Examiner could not disagree more, the "intelligent" features applicant claims are the **determination of relevance for a user.** In the same respect, the email system of Malik

determines relevance of the content based on a user profile (i.e. based on a user). Thus applicant's claimed Background and Summary is a mischaracterization of the state of the prior art and the argument for patentability relies on this mischaracterization. The fact is that the prior art Malik teaches this intelligent mechanism for email storage and sorting. Specifically, the intelligent mechanism is for presenting the email based on user relevance (i.e. only pertinent to certain user profiles). Applicant has not named a credible improvement over the prior art.

Conclusion

THIS ACTION IS MADE FINAL. 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 mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John P. Hocker whose telephone number is 5712705004. The examiner can normally be reached on Mon - Thu 11:00 - 4:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ali can be reached on 5712724105. 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.

/John P. Hocker/ Art Unit 2158

/Mohammad Ali/
Supervisory Patent Examiner, Art Unit 2158

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11623653	MARSTON ET AL.
	Examiner	Art Unit
	JOHN P HOCKER	2169

✓	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	11/09/2008	05/07/2009							
	1	✓	✓							
	2	✓	✓							
	3	✓	✓							
	4	✓	✓							
	5	✓	✓							
	6	✓	✓							
	7	✓	✓							
	8	✓	✓							
	9	✓	✓							
	10	✓	✓							
	11	✓	✓							
	12	✓	✓							
	13	✓	✓							
	14	✓	✓							
	15	✓	✓							
	16	✓	✓							
	17	✓	✓							
	18	✓	✓							
	19	✓	✓							
	20	✓	✓							
	21	✓	✓							
	22	✓	✓							

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11623653	MARSTON ET AL.
	Examiner	Art Unit
	JOHN P HOCKER	2169

SEARCHED

Class	Subclass	Date	Examiner
707	1-3	11/09/2008	JPH

SEARCH NOTES

Search Notes	Date	Examiner
Inventive concept: " User Profiles for electronic content viewing (e.g. email)"	11/09/2008	JPH
1: IDS Reviewed for Prior Art.	11/09/2008	JPH
2: Examiner performed inventor name search.	11/09/2008	JPH
3: Examiner searched 'Computer Technology' NPL (e.g. IEEE (Institute of Electrical and Electronics Engineers), Association for Computing Machinery, Wikipedia and/or Google Scholar)	11/09/2008	JPH
4: Examiner searched International Technical & Patent Databases(US-PGPUB, USPAT, USOCR, FPRS, EPO, JPO, DERWENT and IBM_TDB).	11/09/2008	JPH
During Patent Searches, Examiner searched class/subclasses (as listed above) combined with text of the inventive concept. Please see East Search History for text searched.	11/09/2008	JPH

INTERFERENCE SEARCH

Class	Subclass	Date	Examiner

IN THE

UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT:	Justin Marston et al
SERIAL NO.:	11/623,653
FILING DATE:	January 16, 2007
TITLE:	Determining Relevance of Electronic Content
EXAMINER:	John P. Hocker
GROUP ART UNIT:	2169
ATTY. DKT. NO.:	23682-12381

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: August 11, 2009 By: /Christopher King/
Christopher P. King, Reg. No. 60,985

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

STATEMENT OF SUBSTANCE OF INTERVIEW

Sir:

Applicants thank Examiners Hocker and Leroux for their time in conducting a telephone interview on August 10, 2009. During the telephone interview, Applicants' representative Chris King and the Examiners discussed the rejection of claims 1 and 7 in light of the Malik reference (U.S. Patent Publication No. 2004/0078447). Examiner Hocker agreed that Malik does not disclose or suggest that the measure of relevance of the piece of electronic content is determined dependent on one or more actions on the piece of electronic content of at least one other of the plurality of users that is a recipient of the piece of

electronic content, and that if claim 1 were amended to include this limitation, then claim 1 would be distinguished from Malik.

Respectfully Submitted,
Justin Marston et al

Date: August 11, 2009

By: /Christopher King/
Christopher P. King, Reg. No.: 60,985
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801 California Street
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Fax.: (650) 938-5200

Electronic Acknowledgement Receipt

EFS ID:	5870138
Application Number:	11623653
International Application Number:	
Confirmation Number:	5243
Title of Invention:	DETERMINING RELEVANCE OF ELECTRONIC CONTENT
First Named Inventor/Applicant Name:	Justin Marston
Customer Number:	00758
Filer:	Christopher-Charles P. King
Filer Authorized By:	
Attorney Docket Number:	23682-12381
Receipt Date:	11-AUG-2009
Filing Date:	16-JAN-2007
Time Stamp:	19:39:24
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Applicant summary of interview with examiner	12381_interview_summary.pdf	66294 84d1ad5aeaada5d7cb9306196114072d04a0e736	no	2

Warnings:	
Information:	

Total Files Size (in bytes):	66294

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.

New Applications Under 35 U.S.C. 111
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.

National Stage of an International Application under 35 U.S.C. 371
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.

New International Application Filed with the USPTO as a Receiving Office
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.

PRE-APPEAL BRIEF REQUEST FOR REVIEW

Docket Number
23682-12381

Pursuant to 240 OG 45 and the *Legal Framework For EFS-Web*, I hereby certify that this follow-on correspondence is being officially submitted through the USPTO EFS-Web system from the Pacific Time Zone of the United States on the local date shown below.

on August 12, 2009

Signature /Christopher King/

Typed or printed name Christopher-Charles P. King

Application Number	Filed
11/623,653	January 16, 2007

First Named Inventor
Justin Marston

Art Unit	Examiner
2158	John P. Hocker

This request is being filed with a notice of appeal.

I am the

☐ applicant/inventor.

☐ assignee of record of the entire interest.
See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed.

☒ attorney or agent of record.
Registration number 60,985.

☐ attorney or agent acting under 37 CFR 1.34.
Registration number if acting under 37 CFR 1.34 _____

/Christopher King/
Signature

Christopher-Charles P. King
Typed or printed name

(650) 335-7633
Telephone number

August 12, 2009
Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☒ *Total of 1 of 1 form is submitted.

ATTACHMENT TO THE PRE-APPEAL BRIEF REQUEST FOR REVIEW

Pre-appeal review is requested because the rejections in the Final Office Action of May 12, 2009, are improper and without factual or legal basis. Applicants respectfully request that the Panel indicate that at least claims 4, 6, 7, 14, 16, 20, 22 recite allowable subject matter.

I. Status of the Claims

Claims 1-22 are pending in this application and stand rejected under § 102—or alternatively, § 103—based on Malik, U.S. Patent Publication No. 2004/0078447.

II. Rejections of claims 1-22 as unpatentable over Malik

To render a claim unpatentable under 35 U.S.C. § 103, the prior art must disclose or suggest each and every limitation in the claim. *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988) (reversing § 103 rejection because examiner ignored material claimed limitation that was absent from reference); *In re Royka*, 490 F.2d 981 (CCPA 1974).

Independent claim 1, from which claim 4 depends, recites a method comprising:

> a monitoring module configured to track actions by a plurality of users associated with an application for managing electronic content;
> **a relevance analysis module** coupled to the monitoring module and configured to determine a relevance to a user of a piece of electronic content sent from a sender to the user, the relevance being determined dependent on:
> a measure of a relevance of the piece of electronic content as determined dependent on **one or more actions of the user** on the piece of electronic content, and
> a measure of a relevance of the piece of electronic content as determined dependent **on one or more actions of at least one other of the plurality of users that is a recipient** of the piece of electronic content.

Thus, claim 1 recites that the determined relevance to the user of the piece of electronic content is determined dependent on one or more actions of the user on the piece of electronic content,

and on one or more actions of at least one other of the plurality of users that is a recipient of the piece of electronic content. As noted to the Examiner during a telephone interview on August 10, 2009, examples of actions of the user and other recipients on the piece of electronic content include forwarding, deleting, or printing an electronic email object. (*See, e.g.,* Figure 6, item 86; paragraph 0069). The determined relevance can be displayed graphically to the user as a value associated with the a piece of electronic content such as an email, e.g., as in item 118 of Figure 8, which shows a relevance slider control graphically expressing the relevance value of an email submessage.

Claim 4 depends from claim 1 and further recites:

> wherein the relevance analysis module is further configured to identify at least one other of the plurality of users that is a recipient of the piece of electronic content and is cognate to the user and wherein the relevance analysis module is further configured to determine the relevance to the user of the piece of electronic content dependent upon one or more actions of the at least one cognate recipient with respect to the piece of electronic content.

Thus, claim 4 further determines the relevance to the user of the piece of electronic content dependent upon one or more actions of at least one cognate recipient with respect to the piece of electronic content, where the cognate recipient is a recipient of the piece of electronic content as in the last element of claim 1. Thus, the relevance is determined in part *dependent on one or more actions* ***with respect to the piece of electronic content*** *of at least one other of the plurality of users that is a recipient*, i.e., the cognate recipient.

Malik does not disclose or suggest the features of claim 4. Malik generally discloses a mailbox system that differentiates between user and group mailboxes. A user profile can be associated with a user email folder and an instant messaging (IM) account, and this association facilitates defining properties of the user email folder and the user IM account using the user profile. (Malik, Abstract). The user profiles are a collection of settings, such as a listing of a

user's email mailboxes and folders, IM accounts, usernames and passwords, address books, and the like. (Malik, paragraphs 0041-0044).

During the interview, the Examiner agreed that Malik does not disclose or suggest that the measure of relevance of the piece of electronic content is determined dependent on one or more actions ***on the piece of electronic content*** of at least one other of the plurality of users that is a recipient of the piece of electronic content. The Examiner further agreed that if claim 1 were amended to include this feature, then claim 1 would be distinguished from Malik. Applicants note that, as described above, claim 4 as filed **does** in fact include the feature in question, since it recites that the relevance analysis module is further configured to identify at least one other of the plurality of users that is a recipient of the piece of electronic content and is cognate to the user—i.e., a cognate recipient is one of the plurality of users that is a recipient of the piece of electronic content, as recited in claim 1—and further recites that the relevance to the user of the piece of electronic content is determined dependent upon one or more actions of this cognate recipient **with respect to the piece of electronic content**. Thus, claim 4 is patentable over Malik for at least the same reasons agreed to during the interview.

Indeed, the portions of Malik cited with respect to claim 4 do not disclose or suggest this claimed feature, i.e., that "the relevance analysis module is further configured to determine the relevance to the user of the piece of electronic content dependent upon one or more actions of the at least one cognate recipient with respect to the piece of electronic content." As with the rejections of the other claims, the Examiner cites Malik's paragraphs 0013-0014, 0040-0046, 0072-0074, and 0079-0080. Paragraphs 0013-0014 mention a user profile that has a collection of properties related to both email and instant messaging. Paragraphs 0040-0046 further describe the user profiles, listing examples of what a profile includes, such as a user's email mailboxes

and folders, IM accounts, usernames and passwords, address books, and the like. Paragraphs 0072-0074 and 0079-0080 mention various user interfaces for storing profile information related to instant messaging and to email, respectively. None of these paragraphs, or any other portion of Malik not cited, disclose or suggest that the determination of relevance of a piece of electronic content to a particular user includes actions of **other** recipients (such as cognate recipients) **with respect to the piece of electronic content**.

Claim 6 recites that the relevance analysis module is further configured to determine the relevance to the user of the piece of electronic content responsive to one or more measures from the set consisting of "… one or more actions **with respect to the piece of electronic content** of one or more of the plurality of users determined to be cognate to the user." Claims 14 and 16, and 20 and 22, recite limitations similar to those of claims 4 and 6. Thus, claims 6, 14, 16, 20, and 22 are patentably distinguishable from Malik for at least the same reasons discussed above with respect to claim 4.

Claim 7 recites a content presentation module configured to present the piece of electronic content to the user in accordance with the determined relevance and to present to the user **a value describing the determined relevance**. For example, as noted during the interview, relevance slider 118 of Figure 8 graphically depicts a relevance value of a particular email submessage. As with the other claims, the Examiner cites paragraphs 0013-0014, 0040-0046, 0072-0074, and 0079, but none of these paragraphs disclose or suggest the presentation of a value describing the determined relevance.

III. Summary

Based on the foregoing, Applicant respectfully submits that the pending rejections suffer

from clear deficiencies. Accordingly, Applicant requests that the rejections of independent claims 4, 6, 7, 14, 16, 20, and 22 be withdrawn.

Respectfully Submitted,

Date: August 12, 2009

By: /Christopher King/

Christopher P. King, Reg. No. 60,985
Attorney for Applicants
FENWICK & WEST LLP
801 California Street
Mountain View, CA 94041
Phone: (650) 335-7633
Fax: (650) 938-5200

Electronic Acknowledgement Receipt

EFS ID:	5875235
Application Number:	11623653
International Application Number:	
Confirmation Number:	5243
Title of Invention:	DETERMINING RELEVANCE OF ELECTRONIC CONTENT
First Named Inventor/Applicant Name:	Justin Marston
Customer Number:	00758
Filer:	Christopher-Charles P. King
Filer Authorized By:	
Attorney Docket Number:	23682-12381
Receipt Date:	12-AUG-2009
Filing Date:	16-JAN-2007
Time Stamp:	15:56:15
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$270
RAM confirmation Number	1785
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	Notice of Appeal Filed	12381_Notice_of_Appeal.pdf	70009 ac3a51eb1e32b7cb6f37b6ed55e27e4ed5081808	no	1
Warnings:					
Information:					
2	Pre-Brief Conference request	12381_Pre-Appeal_Brief.pdf	155033 112a56fcde6758ec2a15d3ccedc2bb5c4585d3d7	no	6
Warnings:					
Information:					
3	Fee Worksheet (PTO-875)	fee-info.pdf	30300 8b3bc9be7d4d8253ad75879f85cb79676fb235c7	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	255342		

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.

New Applications Under 35 U.S.C. 111

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.

National Stage of an International Application under 35 U.S.C. 371

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.

New International Application Filed with the USPTO as a Receiving Office

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.

Electronic Patent Application Fee Transmittal

Application Number:	11623653
Filing Date:	16-Jan-2007
Title of Invention:	DETERMINING RELEVANCE OF ELECTRONIC CONTENT
First Named Inventor/Applicant Name:	Justin Marston
Filer:	Christopher-Charles P. King/Larisa Burshteyn
Attorney Docket Number:	23682-12381

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:				
Notice of appeal	2401	1	270	270
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
			Total in USD ($)	**270**

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Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/623,653	01/16/2007	Justin Marston	23682-12381	5243

758 7590 08/25/2009

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

EXAMINER	
HOCKER, JOHN P	

ART UNIT	PAPER NUMBER
2158	

MAIL DATE	DELIVERY MODE
08/25/2009	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.

Interview Summary	Application No.	Applicant(s)	
	11/623,653	MARSTON ET AL.	
	Examiner	Art Unit	
	JOHN P. HOCKER	2158	

All participants (applicant, applicant's representative, PTO personnel):

(1) *JOHN P. HOCKER*. (3)*Etienne Leroux*.

(2) *Chris King*. (4)_____.

Date of Interview: *11 August 2009*.

Type: a)☒ Telephonic b)☐ Video Conference
c)☐ Personal [copy given to: 1)☐ applicant 2)☐ applicant's representative]

Exhibit shown or demonstration conducted: d)☐ Yes e)☐ No.
If Yes, brief description: _____.

Claim(s) discussed: *1-3 and 7*.

Identification of prior art discussed: *Malik*.

Agreement with respect to the claims f)☐ was reached. g)☒ was not reached. h)☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: *Applicant and Examiner primarily discussed the differences between the disclosed invention (See Figs. 6 & 8, including "Relevance" bar) and the prior art Malik (an email storage system utilizing user profiles, and group profiles). The arguably novel feature is that the claimed invention bases the 'Relevance' on the actions of another user "ON The Piece of Content". In other words, not just any general actions of another (i.e. group administrator adjusting values for group (properties/preferences). Examiner's interpretation was that the claim 1, limitation read on these general actions. Applicant seemed to indicate an amendment further clarifying the Actions on the content in limitation (iv) was forth coming. Examiner stated further search would be needed but that the interview was helpful in clarifying the distinguishment over Malik. Examiner stated Malik alone does not seem to teach the Fig. 6 and Fig. 8 inventions. Applicant seemed to agree to amend to further specify the 'actions' in the last limitation were based on 'others' (i.e. another person forwards it, another person deletes it). No agreement was reached as to allowability as an Updated Search and Further Consideration in view of the prior art is necessary.*.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

/Etienne P LeRoux/ Primary Examiner, Art Unit 2161	

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record
A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews
Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.
All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

———

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:
- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

1) A brief description of the nature of any exhibit shown or any demonstration conducted,
2) an identification of the claims discussed,
3) an identification of the specific prior art discussed,
4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
5) a brief identification of the general thrust of the principal arguments presented to the examiner,
   (The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
6) a general indication of any other pertinent matters discussed, and
7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

.

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UNITED STATES DEPARTMENT OF COMMERCE
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Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/623,653	01/16/2007	Justin Marston	23682-12381	5243

758 7590 12/15/2009

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

EXAMINER	
HOCKER, JOHN P	
ART UNIT	PAPER NUMBER
2158	
MAIL DATE	DELIVERY MODE
12/15/2009	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.

Notice of Panel Decision from Pre-Appeal Brief Review	Application/Control No.	Applicant(s)/Patent under Reexamination
	11/623,653	MARSTON ET AL.
	MOHAMMAD ALI	Art Unit: 2158

This is in response to the Pre-Appeal Brief Request for Review filed 12 August 2009.

1. ☐ **Improper Request** – The Request is improper and a conference will not be held for the following reason(s):

☐ The Notice of Appeal has not been filed concurrent with the Pre-Appeal Brief Request.
☐ The request does not include reasons why a review is appropriate.
☐ A proposed amendment is included with the Pre-Appeal Brief request.
☐ Other: .

The time period for filing a response continues to run from the receipt date of the Notice of Appeal or from the mail date of the last Office communication, if no Notice of Appeal has been received.

2. ☒ **Proceed to Board of Patent Appeals and Interferences** – A Pre-Appeal Brief conference has been held. The application remains under appeal because there is at least one actual issue for appeal. Applicant is required to submit an appeal brief in accordance with 37 CFR 41.37. The time period for filing an appeal brief will be reset to be one month from mailing this decision, or the balance of the two-month time period running from the receipt of the notice of appeal, whichever is greater. Further, the time period for filing of the appeal brief is extendible under 37 CFR 1.136 based upon the mail date of this decision or the receipt date of the notice of appeal, as applicable.

☐ The panel has determined the status of the claim(s) is as follows:
Claim(s) allowed: _____.
Claim(s) objected to: _____.
Claim(s) rejected: _____.
Claim(s) withdrawn from consideration: _____.

3. ☐ **Allowable application** – A conference has been held. The rejection is withdrawn and a Notice of Allowance will be mailed. Prosecution on the merits remains closed. No further action is required by applicant at this time.

4. ☐ **Reopen Prosecution** – A conference has been held. The rejection is withdrawn and a new Office action will be mailed. No further action is required by applicant at this time.

All participants:

(1) *MOHAMMAD ALI*.

(2) *Hosain Alam*.

(3)*John Hocker*.

(4)_____.

/Mohammad Ali/
Supervisory Patent Examiner, Art Unit 2158

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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Alexandria, Virginia 22313-1450
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/623,653	01/16/2007	Justin Marston	23682-12381	5243

758 7590 01/11/2010

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

EXAMINER	
HOCKER, JOHN P	

ART UNIT	PAPER NUMBER
2158	

MAIL DATE	DELIVERY MODE
01/11/2010	PAPER

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Interview Summary	Application No.	Applicant(s)	
	11/623,653	MARSTON ET AL.	
	Examiner	Art Unit	
	JOHN P. HOCKER	2158	

All participants (applicant, applicant's representative, PTO personnel):

(1) *JOHN P. HOCKER*. (3)_____.

(2) *Chris King*. (4)_____.

Date of Interview: *04 January 2009*.

Type: a)☒ Telephonic b)☐ Video Conference
c)☐ Personal [copy given to: 1)☐ applicant 2)☐ applicant's representative]

Exhibit shown or demonstration conducted: d)☐ Yes e)☐ No.
If Yes, brief description: _____.

Claim(s) discussed: *1-22*.

Identification of prior art discussed: *Malik*.

Agreement with respect to the claims f)☐ was reached. g)☒ was not reached. h)☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: *See Continuation Sheet*.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

/JPH/ (Art Unit: 2158)	/Mohammad Ali/ Supervisory Patent Examiner, Art Unit 2158

Summary of Record of Interview Requirements

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Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.
All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

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The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:
- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

1) A brief description of the nature of any exhibit shown or any demonstration conducted,
2) an identification of the claims discussed,
3) an identification of the specific prior art discussed,
4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
5) a brief identification of the general thrust of the principal arguments presented to the examiner,
   (The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
6) a general indication of any other pertinent matters discussed, and
7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

Continuation of Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Applicant called to ask about the PreAppeal Decision to send to the Board of Patent Appeals and Interferences. Examiner cited paragraphs dealing with a user that is able to affect others in the group (i.e. actions of another on a piece of electronic content). Examiner spoke with Supervisory Patent Examiner Mohammad Ali about suggestions for allowance. The only suggestion was to expand the independent claims to further distinguish over the prior art. No agreement was reached as to the allowability of the claims. .

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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44*bis*)

Applicant's or agent's file reference GOS838	**FOR FURTHER ACTION**	See item 4 below
International application No. PCT/GB2005/001845	International filing date *(day/month/year)* 12 May 2005 (12.05.2005)	Priority date *(day/month/year)* 12 May 2004 (12.05.2004)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant BLUESPACE GROUP LTD		

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 *bis*.1(a).

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

   In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

☒	Box No. I	Basis of the report
☒	Box No. II	Priority
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☐	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☐	Box No. VII	Certain defects in the international application
☐	Box No. VIII	Certain observations on the international application

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44*bis*.3(c) and 93*bis*.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44*bis* .2).

	Date of issuance of this report 14 November 2006 (14.11.2006)
The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. +41 22 338 82 70	Authorized officer Dorothée Mülhausen e-mail: pt01@wipo.int

Form PCT/IB/373 (January 2004)

PATENT COOPERATION TREATY

REC'D 23 AUG 2005
WIPO PCT

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43*bis*.1)

	Date of mailing *(day/month/year)* see form PCT/ISA/210 (second sheet)
Applicant's or agent's file reference see form PCT/ISA/220	**FOR FURTHER ACTION** See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/GB2005/001845	12.05.2005	28.10.2004

International Patent Classification (IPC) or both national classification and IPC
H04L12/58, H04L29/06

Applicant
BLUESPACE GROUP LTD.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notifed the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:	Authorized Officer
European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Poppe, F Telephone No. +31 70 340-4378

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

   ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

   a. type of material:

   ☐ a sequence listing

   ☐ table(s) related to the sequence listing

   b. format of material:

   ☐ in written format

   ☐ in computer readable form

   c. time of filing/furnishing:

   ☐ contained in the international application as filed.

   ☐ filed together with the international application in computer readable form.

   ☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

Box No. II Priority

1. ☒ The validity of the priority claim has not been considered because the International Searching Authority does not have in its possession a copy of the earlier application whose priority has been claimed or, where required, a translation of that earlier application. This opinion has nevertheless been established on the assumption that the relevant date (Rules 43*bis*.1 and 64.1) is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	
	No:	Claims	1-26
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-26
Industrial applicability (IA)	Yes:	Claims	1-26
	No:	Claims	

2. Citations and explanations

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following documents:

D1: EP 1 085 444 A
D2: EP 0 739 115 A

1. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of **claims 1, 7 and 13** is not new in the sense of **Article 33(2) PCT**.

1.1. The document D1 discloses (the references in parentheses applying to this document):

a computerized messaging server in an electronic messaging system, comprising:

- a messaging module (par. 36) adapted to control a message database ("message store 130") storing messages exchanged in the messaging system, each message (par. 45) comprising one or more message components ("initial message 10 for context along with the text of replies 412, 414, 416 and 418"); and
- a governance module (par. 42) adapted to control a governance policy database storing a compliancy policy describing rules applicable to the message components ("rules for governing access to message 180"), the governance module further adapted to apply the rules described by the compliance policy to the message components ("control access").

The subject-matter of claim 1 is therefore not new.

1.2. The same reasoning applies, mutatis mutandis, to the subject-matter of the corresponding independent claims 7 and 13, which therefore is also considered not new.

2. Dependent claims 2-6, 8-12 and 14-26 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step, see documents D1 and D2 and the corresponding passages cited in the search report.

INTERNATIONAL SEARCH REPORT

ational Application No
PCT/GB2005/001845

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04L12/58 H04L29/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H04L G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, INSPEC, COMPENDEX

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 085 444 A (MICROSOFT CORP) 21 March 2001 (2001-03-21) abstract paragraph '0036! paragraph '0041! - paragraph '0045! figure 4 figure 5	1-26
X	EP 0 739 115 A (AT&T IPM CORP) 23 October 1996 (1996-10-23)	1,7,13
A	column 5, line 51 - column 6, line 54 figure 3A figure 3B	2-6, 8-12, 14-26

-/--

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
11 August 2005	24/08/2005

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Poppe, F

Form PCT/ISA/210 (second sheet) (January 2004)

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EDWARDS W K: "The design and implementation of the Montage multimedia mail system" COMMUNICATIONS FOR DISTRIBUTED APPLICATIONS AND SYSTEMS. CHAPEL HILL, APR. 18 - 19, 1991, PROCEEDINGS OF THE CONFERENCE ON COMMUNICATIONS SOFTWARE. (TRICOMM), NEW YORK, IEEE, US, vol. CONF. 4, 18 April 1991 (1991-04-18), pages 47-57, XP010039767 ISBN: 0-87942-649-7 abstract page 51, right-hand column, line 48 - page 52, left-hand column, line 2	1-26

INTERNATIONAL SEARCH REPORT

Information on patent family members

tional Application No
PCT/GB2005/001845

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1085444 A	21-03-2001	US 6704772 B1	09-03-2004
		EP 1085444 A2	21-03-2001
		US 2004148359 A1	29-07-2004
EP 0739115 A	23-10-1996	CA 2172746 A1	21-10-1996
		EP 0739115 A2	23-10-1996
		JP 3470846 B2	25-11-2003
		JP 8307452 A	22-11-1996
		SG 93792 A1	21-01-2003
		US 5941946 A	24-08-1999

Form PCT/ISA/210 (patent family annex) (January 2004)

PATENT COOPERATION TREATY

REC'D 23 AUG 2005
WIPO PCT

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43*bis*.1)

	Date of mailing *(day/month/year)* see form PCT/ISA/210 (second sheet)
Applicant's or agent's file reference see form PCT/ISA/220	**FOR FURTHER ACTION** See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/GB2005/001845	12.05.2005	28.10.2004

International Patent Classification (IPC) or both national classification and IPC
H04L12/58, H04L29/06

Applicant
BLUESPACE GROUP LTD.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notifed the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:	Authorized Officer
European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Poppe, F Telephone No. +31 70 340-4378

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

   ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

   a. type of material:

   ☐ a sequence listing

   ☐ table(s) related to the sequence listing

   b. format of material:

   ☐ in written format

   ☐ in computer readable form

   c. time of filing/furnishing:

   ☐ contained in the international application as filed.

   ☐ filed together with the international application in computer readable form.

   ☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

Box No. II Priority

1. ☒ The validity of the priority claim has not been considered because the International Searching Authority does not have in its possession a copy of the earlier application whose priority has been claimed or, where required, a translation of that earlier application. This opinion has nevertheless been established on the assumption that the relevant date (Rules 43*bis*.1 and 64.1) is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	
	No:	Claims	1-26
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-26
Industrial applicability (IA)	Yes:	Claims	1-26
	No:	Claims	

2. Citations and explanations

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following documents:

D1: EP 1 085 444 A
D2: EP 0 739 115 A

1. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of **claims 1, 7 and 13** is not new in the sense of **Article 33(2) PCT**.

1.1. The document D1 discloses (the references in parentheses applying to this document):

a computerized messaging server in an electronic messaging system, comprising:

- a messaging module (par. 36) adapted to control a message database ("message store 130") storing messages exchanged in the messaging system, each message (par. 45) comprising one or more message components ("initial message 10 for context along with the text of replies 412, 414, 416 and 418"); and
- a governance module (par. 42) adapted to control a governance policy database storing a compliancy policy describing rules applicable to the message components ("rules for governing access to message 180"), the governance module further adapted to apply the rules described by the compliance policy to the message components ("control access").

The subject-matter of claim 1 is therefore not new.

1.2. The same reasoning applies, mutatis mutandis, to the subject-matter of the corresponding independent claims 7 and 13, which therefore is also considered not new.

2. Dependent claims 2-6, 8-12 and 14-26 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step, see documents D1 and D2 and the corresponding passages cited in the search report.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB2004/004609

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04L12/58 G06F17/60 H04L29/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H04L G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, INSPEC, COMPENDEX

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 03/036492 A (IDETIC, INC; STIERS, TODD) 1 May 2003 (2003-05-01) abstract page 2, line 20 - page 3, line 10 page 4, line 10 - page 6, line 22 figure 1	1-35
A	EP 1 085 444 A (MICROSOFT CORP) 21 March 2001 (2001-03-21) abstract figure 5 paragraph '0012! paragraph '0015! - paragraph '0016! paragraph '0041! paragraph '0043! paragraph '0045!	1-35

-/--

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
15 February 2005	22/02/2005

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016	Poppe, F

Form PCT/ISA/210 (second sheet) (January 2004)

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EDWARDS W K: "The design and implementation of the Montage multimedia mail system" COMMUNICATIONS FOR DISTRIBUTED APPLICATIONS AND SYSTEMS. CHAPEL HILL, APR. 18 - 19, 1991, PROCEEDINGS OF THE CONFERENCE ON COMMUNICATIONS SOFTWARE. (TRICOMM), NEW YORK, IEEE, US, vol. CONF. 4, 18 April 1991 (1991-04-18), pages 47-57, XP010039767 ISBN: 0-87942-649-7 abstract page 51, right-hand column, line 48 - page 52, left-hand column, line 2	1-35

INTERNATIONAL SEARCH REPORT

formation on patent family members

Int ɔnal Application No
PCT/GB2004/004609

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 03036492 A	01-05-2003	WO 03036492 A1	01-05-2003
		US 2003055907 A1	20-03-2003
EP 1085444 A	21-03-2001	US 6704772 B1	09-03-2004
		EP 1085444 A2	21-03-2001
		US 2004148359 A1	29-07-2004

Form PCT/ISA/210 (patent family annex) (January 2004)

PATENT COOPERATION TREATY

REC'D 18 FEB 2005
WIPO PCT

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)* see form PCT/ISA/210 (second sheet)	
Applicant's or agent's file reference see form PCT/ISA/220	**FOR FURTHER ACTION** See paragraph 2 below
International application No. PCT/GB2004/004609	International filing date *(day/month/year)* 01.11.2004
Priority date *(day/month/year)* 31.10.2003	
International Patent Classification (IPC) or both national classification and IPC H04L12/58, G06F17/60, H04L29/06	
Applicant BLUESPACE GROUP LIMITED	

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notifed the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:

European Patent Office - P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk - Pays Bas
Tel. +31 70 340 - 2040 Tx: 31 651 epo nl
Fax: +31 70 340 - 3016

Authorized Officer

Poppe, F

Telephone No. +31 70 340-4378

Form (PCT/ISA/237) (Cover Sheet) (January 2004)

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

   ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

   a. type of material:

   ☐ a sequence listing

   ☐ table(s) related to the sequence listing

   b. format of material:

   ☐ in written format

   ☐ in computer readable form

   c. time of filing/furnishing:

   ☐ contained in the international application as filed.

   ☐ filed together with the international application in computer readable form.

   ☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	4,11,15,22,26,33
	No:	Claims	1-3,5-10,12-14,16-21,23-25,27-32,34,35
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-35
Industrial applicability (IA)	Yes:	Claims	1-35
	No:	Claims	

2. Citations and explanations

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following documents:

D1: WO 03/036492 A
D2: EP 1 085 444 A

1. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of **claims 1, 9, 14, 20, 25 and 31** is not new in the sense of **Article 33(2) PCT**.

1.1. Document D1 discloses (the references in parentheses applying to this document):

a computer-implemented method of delivering electronic messages, comprising:

- providing a messaging client with information identifying electronic messages available to the messaging client (p. 2, l. 20-26; p. 4, l. 10-16: "The end user receives the non-attachment portions of an email message (...).");
- caching copies of the electronic messages close to the messaging client (p. 5, l. 28-32: "The proxy server 100 stores end users' email messages in its cache 104."); and
- responsive to a request from the messaging client for the identified electronic messages, providing the cached copies of the electronic messages to the messaging client (p. 2, l. 20-26; p. 6, l. 19-22).

The subject-matter of claim 1 is therefore not new.

1.2. Furthermore document D1 discloses (the references in parentheses applying to this document):

a computer system adapted to be used in a messaging system (fig. 1), comprising:

- a cache management module adapted to manage a cache (fig. 1: "e-mail cache"), the cache storing messages exchanged by the messaging system (p. 5, l. 28-32); and

- an interface module adapted to interface with a messaging client (fig. 1: "e-mail client 202") and a messaging server (fig. 1: "source e-mail box 400"), the interface module adapted to receive messages from the server (p. 5, l. 16-22; p. 6, l. 1-6) and provide messages to the client (p. 6, l. 19-22), wherein messages received from the server are stored in the cache (p. 5, l. 28-32) and messages provided to the client are provided from the cache (p. 6, l. 19-22).

The subject-matter of claim 9 is therefore not new.

1.3. The same reasoning applies, mutatis mutandis, to the subject-matter of the corresponding independent computer program product claim 20, which therefore is also considered not new.

1.4. Furthermore document D1 discloses (the references in parentheses applying to this document):

a messaging server in a relational messaging system, comprising:

- a messaging module adapted to control a message database (p. 6, l. 1-6; fig. 1: "source e-mail box 400") storing messages exchanged in the relational messaging system, each message comprising one or more submessages (p. 6, l. 7-11: "MIME attachments");
- a security module adapted to control a security database storing security information for the submessages in the message database (implicit in p. 5, l. 10-15); and
- an interface module adapted to interact with a messaging client and a proxy server, the interface module adapted to provide the security information to the messaging client (p. 6, l. 12-16) and the submessages to the proxy server (p. 6, l. 1-6),

wherein the proxy server is adapted to cache the submessages (p. 5, l. 28-32) and, wherein the messaging client is adapted to retrieve the cached submessages from the proxy server and access the submessages using the security information (p. 6, l. 12-22).

The subject-matter of claim 14 is therefore not new.

1.5. The same reasoning applies, mutatis mutandis, to the subject-matter of the corresponding independent computer program product claim 25, which therefore is also considered not new.

1.6. Furthermore document D1 discloses (the references in parentheses applying to this document):

a relational messaging system adapted to exchange messages with a messaging client, comprising:

- a messaging server adapted to store messages exchanged in the relational messaging system (p. 6, l. 1-6; fig. 1: "source e-mail box 400"), each message comprising a container having links to one or more submessages and further adapted to provide the container to the messaging client (p. 2, l. 20-26; p. 6, l. 7-16); and
- a proxy server adapted to cache submessages received from the messaging server (p. 5, l. 28-32) and further adapted to provide the cached submessages to the messaging client (p. 2, l. 20-26; p. 6, l. 7-16).

The subject-matter of claim 31 is therefore not new.

2. Dependent claims 2-8, 10-13, 15-19, 21-24, 26-30 and 32-35 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step, see documents D1 and D2 and the corresponding passages cited in the search report.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB2004/000805

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04L12/58 G06F17/60

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H04L G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, INSPEC, COMPENDEX

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 085 444 A (MICROSOFT CORP) 21 March 2001 (2001-03-21) abstract figure 5 paragraph '0012! paragraph '0015! - paragraph '0016! paragraph '0043! paragraph '0045! --- -/--	1-23

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
26 May 2004	04/06/2004

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016	Poppe, F

Form PCT/ISA/210 (second sheet) (January 2004)

INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB2004/000805

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EDWARDS W K: "The design and implementation of the Montage multimedia mail system" COMMUNICATIONS FOR DISTRIBUTED APPLICATIONS AND SYSTEMS. CHAPEL HILL, APR. 18 - 19, 1991, PROCEEDINGS OF THE CONFERENCE ON COMMUNICATIONS SOFTWARE. (TRICOMM), NEW YORK, IEEE, US, vol. CONF. 4, 18 April 1991 (1991-04-18), pages 47-57, XP010039767 ISBN: 0-87942-649-7 abstract page 51, right-hand column, line 48 -page 52, left-hand column, line 2 -----	1,2,7,8, 10,11, 16,17, 19,22,23

Form PCT/ISA/210 (continuation of second sheet) (January 2004)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/GB2004/000805

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1085444 A	21-03-2001	US 6704772 B1	09-03-2004
		EP 1085444 A2	21-03-2001

PATENT COOPERATION TREATY

REC'D 0 3 JUN 2004
WIPO PCT

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43*bis*.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/GB2004/000805	27.02.2004	28.02.2003

International Patent Classification (IPC) or both national classification and IPC
H04L12/58, G06F17/60

Applicant
BLUESPACE GROUP LTD

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notifed the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:

European Patent Office - P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk - Pays Bas
Tel. +31 70 340 - 2040 Tx: 31 651 epo nl
Fax: +31 70 340 - 3016

Authorized Officer

Poppe, F

Telephone No. +31 70 340-4378

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

   ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

   a. type of material:

   ☐ a sequence listing

   ☐ table(s) related to the sequence listing

   b. format of material:

   ☐ in written format

   ☐ in computer readable form

   c. time of filing/furnishing:

   ☐ contained in the international application as filed.

   ☐ filed together with the international application in computer readable form.

   ☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

Box No. II Priority

1. ☒ The following document has not been furnished:

   ☒ copy of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(a)).

   ☐ translation of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(b)).

   Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	
	No:	Claims	1-23
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-23
Industrial applicability (IA)	Yes:	Claims	1-23
	No:	Claims	

2. Citations and explanations

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

The examination is being carried out on the **following application documents**:

Description, pages:

1-38 as originally filed

Claims, No.:

1-23 as originally filed

Drawings, No.:

1-5 as originally filed

Reference is made to the following documents:
D1: EP-A-1085444
D2: W. K. Edwards, "The Design and Implementation of the MONTAGE Multimedia Mail System", in Proc. of TRICOMM 1991, pp. 47-57

1. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of **claims 1, 10 and 19** is not new in the sense of **Article 33(2) PCT**.

1.1. The document D1 discloses (the references in parentheses applying to this document):

> a messaging system for providing messaging to end-users, the system comprising a data store module (113) arranged to store messages sent among the end-users, wherein each message includes one or more submessages (initial message 10, reply 412; par. 45 states that these can be presented to a recipient in one display, that is, as one message) and wherein the data store module is arranged to store the

messages and submessages in a relational manner (par. 15; fig. 5: storage of replies in association with the initial message).

The subject-matter of claim 1 is therefore not new.

1.2. Furthermore it is noted that the subject-matter of claim 1 is also not new over the disclosure of D2 (p. 51, right-hand col., l. 48 - p. 52, left-hand col., l. 2).

1.3. The same reasoning applies, mutatis mutandis, to the subject-matter of the corresponding independent computer program product claim 10 and computer-implemented method claim 19, which therefore are also considered not new.

2. Dependent claims 2-9, 11-18 and 20-23 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty, the reasons being as follows.

2.1. Referring to claims 2 and 11, a contents module adapted to store submessages of the messages sent among the end-users, wherein a message sent by a sender to a recipient includes one or more references to submessages in the content module is known from D1 (par. 15; fig. 5).

2.2. Referring to claims 3 and 12, certain ones of the submessages being created by different end-users at different times is known from D1 (reply 412 to initial message 10 is clearly created at a different time than initial message 10, and by a different end-user).

2.3. Referring to claims 4 and 13, storing only a single version of each message and/or submessage is known from D1 (implicit in the hierarchical tree model and the use of message IDs for referencing shown in fig. 5; see also par. 45).

2.4. Referring to claims 5, 6, 14, 15, 20 and 21, storing an attribute of the messages and/or submessages in the data store module, where this attribute is a length of time that a message and/or a submessage is valid is known from D1 (implicit in par. 43, which specifies the application of a rule based on this attribute).

2.5. Referring to claims 7, 8, 16, 17, 22 and 23, holding data describing relationships

among the messages and submessages, this data describing submessages within a message is known from D1 (fig. 5). Moreover this is also known from D2 (p. 51, right-hand col., l. 48 - p. 52, left-hand col., l. 2: the table of contents can be seen as data describing submessages (chapters) within a message).

2.6. Referring to claims 9 and 18, having a client interface module for interfacing with client applications utilized by the end-users to access the messaging system is known from D1 (par. 45: displaying the messages implies the presence of a client interface module).

INTERNATIONAL SEARCH REPORT

Inter nal Application No
PCT/GB2005/001868

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04L12/58 H04L29/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H04L G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, INSPEC, COMPENDEX

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 03/073711 A (RPOST INTERNATIONAL LIMITED) 4 September 2003 (2003-09-04) abstract page 12, line 3 - page 15, line 20 page 33, line 23 - page 35, line 4 page 44, line 2 - page 45, line 7 page 42, line 11 - page 43, line 28 figure 1 figure 2A figure 6 figure 7A figure 7B	1-21

-/--

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
8 August 2005	19/08/2005

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Poppe, F

Form PCT/ISA/210 (second sheet) (January 2004)

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2004/012415 A (SECURITY AND STANDARDS LIMITED; POPE, NICHOLAS, HENRY; ROSS, JOHN, GOR) 5 February 2004 (2004-02-05) abstract page 6, line 10 - page 10, line 14 figure 1 figure 2a figure 2b	1,9,17
A	EP 1 085 444 A (MICROSOFT CORP) 21 March 2001 (2001-03-21) abstract figure 5 paragraph '0012! paragraph '0015! - paragraph '0016! paragraph '0041! paragraph '0043! paragraph '0045!	1-21
A	WO 03/036492 A (IDETIC, INC; STIERS, TODD) 1 May 2003 (2003-05-01) abstract page 2, line 20 - page 3, line 10 page 4, line 10 - page 6, line 22 figure 1	1-21
A	EDWARDS W K: "The design and implementation of the Montage multimedia mail system" COMMUNICATIONS FOR DISTRIBUTED APPLICATIONS AND SYSTEMS. CHAPEL HILL, APR. 18 - 19, 1991, PROCEEDINGS OF THE CONFERENCE ON COMMUNICATIONS SOFTWARE. (TRICOMM), NEW YORK, IEEE, US, vol. CONF. 4, 18 April 1991 (1991-04-18), pages 47-57, XP010039767 ISBN: 0-87942-649-7 abstract page 51, right-hand column, line 48 - page 52, left-hand column, line 2	1-21

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No
PCT/GB2005/001868

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 03073711 A	04-09-2003	US 2002144154 A1	03-10-2002
		AU 2003224616 A1	09-09-2003
		CA 2476176 A1	04-09-2003
		EP 1476995 A2	17-11-2004
		JP 2005518763 T	23-06-2005
		WO 03073711 A2	04-09-2003
WO 2004012415 A	05-02-2004	AU 2003248959 A1	16-02-2004
		WO 2004012415 A1	05-02-2004
		GB 2391438 A	04-02-2004
		EP 1387551 A1	04-02-2004
EP 1085444 A	21-03-2001	US 6704772 B1	09-03-2004
		EP 1085444 A2	21-03-2001
		US 2004148359 A1	29-07-2004
WO 03036492 A	01-05-2003	WO 03036492 A1	01-05-2003
		US 2003055907 A1	20-03-2003

Form PCT/ISA/210 (patent family annex) (January 2004)

PATENT COOPERATION TREATY

FRED

REC'D 16 AUG 2005
WIPO PCT

PCT 17/11

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43*bis*.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/GB2005/001868	12.05.2005	

International Patent Classification (IPC) or both national classification and IPC
H04L12/58, H04L29/06

Applicant
BLUESPACE GROUP LTD

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notifed the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:

European Patent Office - P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk - Pays Bas
Tel. +31 70 340 - 2040 Tx: 31 651 epo nl
Fax: +31 70 340 - 3016

Authorized Officer

Poppe, F

Telephone No. +31 70 340-4378

Form (PCT/ISA/237) (Cover Sheet) (January 2004)

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

   ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

   a. type of material:

   ☐ a sequence listing

   ☐ table(s) related to the sequence listing

   b. format of material:

   ☐ in written format

   ☐ in computer readable form

   c. time of filing/furnishing:

   ☐ contained in the international application as filed.

   ☐ filed together with the international application in computer readable form.

   ☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

Box No. II Priority

1. ☒ The validity of the priority claim has not been considered because the International Searching Authority does not have in its possession a copy of the earlier application whose priority has been claimed or, where required, a translation of that earlier application. This opinion has nevertheless been established on the assumption that the relevant date (Rules 43*bis*.1 and 64.1) is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	7,8,15,16
	No:	Claims	1-6,9-14,17-21
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-21
Industrial applicability (IA)	Yes:	Claims	1-21
	No:	Claims	

2. Citations and explanations

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following documents:

D1: WO 03/073711 A
D2: WO 2004/012415 A
D3: EP 1 085 444 A
D4: WO 03/036492 A

1. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1, 9 and 17 is not new in the sense of Article 33(2) PCT.

1.1. Document D1 discloses (referring in general to p. 33, l. 23 - p. 35, l. 4 and fig. 2A):

a computerized messaging server ("Rost Server 14") in an electronic messaging system, comprising:

- a messaging module adapted to control a message database storing messages exchanged in the messaging system ("the system creates a copy of the original message to be stored for later processing", step 203), each message comprising one or more message components ("file attachments");
- an interface module adapted to receive a message component from a messaging client ("the sender's message is transferred to the RPost server", step 202); and
- an audit module adapted to interact with an audit information database storing audit information describing usage of the messaging system ("the system creates a record in a database", step 204), and further adapted to generate tamper-detection data for the message component received from the messaging client and store the generated tamper-detection data in the audit information database ("the system generates and stores a message digest for the message body", step 206; "the system generates and stores a message digest for each attachment included in the message", step 207).

The subject-matter of claim 1 is therefore not new.

1.2. The same reasoning applies, mutatis mutandis, to the subject-matter of the corresponding independent claim 9, which therefore is also considered not new.

1.3. Furthermore document D1 discloses (referring in general to p. 44, l. 2 - p. 45, l. 7 and fig. 7A):

> a computer-implemented method of authenticating messages in an electronic messaging system, comprising:
> - receiving a message component identified as a relational reference in a message container (step 700);
> - receiving tamper-detection data for the message component ("hash value recorded in the body of the receipt"); and
> - authenticating the message component using the tamper-detection data ("generate a hash of the attached file and compare it to the hash value recorded in the body of the receipt", step 708-709).

The subject-matter of claim 17 is therefore not new.

1.4. For the sake of completeness it is noted that the subject-matter of claims 1, 9 and 17 also does not involve an inventive step over the disclosure of D2 (p. 6, l. 23 - p. 7, l. 15; fig. 1).

2. Dependent claims 2-8, 10-16 and 18-21 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step, see documents D1, D2, D3 and D4 and the corresponding passages cited in the search report.

IN THE UNITED STATES

PATENT AND TRADEMARK OFFICE

APPLICANT:	Justin Marston et al
APPLICATION NO.:	11/623,653
FILING DATE:	January 16, 2007
TITLE:	Determining Relevance of Electronic Content
EXAMINER:	John P. Hocker
GROUP ART UNIT:	2169
ATTY. DKT. NO.:	20423-12381

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: January 15, 2010 By: /Christopher King/
Christopher P. King, Reg. No. 60,985

AMENDMENT C AND RESPONSE

Sir:

This amendment is in response to the Final Office Action mailed May 12, 2009, and is timely filed with respect to the Notice of Appeal filed on August 12, 2009.

IN THE CLAIMS

Claims 1, 7, 8, 11, and 17 are amended herein. Claims 2-6, 12-16, and 18-22 are canceled, and claims 23-37 are 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 computer-implemented system for determining a relevance score of a piece of electronic content sent from a sender to a user, the relevance score determined with respect to the user, the computer-implemented system comprising:

a computer processor; and

a computer-readable storage medium storing computer program modules configured to execute on the computer processor, the computer program modules comprising:

a monitoring module configured to track actions by a plurality of users associated with an application for managing electronic content;

~~a relevance analysis module coupled to the monitoring module and configured to determine a relevance to a user of a piece of electronic content sent from a sender to the user, the relevance being determined dependent on:~~

a first relevance measurement module coupled to the monitoring module and configured to determine a first measure of [[a]] relevance of the piece of electronic content based at least in part ~~as determined dependent~~ on one or more actions of the user on the piece of electronic content;~~, and~~

a second relevance measurement module coupled to the monitoring module and configured to:

identify at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user, and

determine a second measure of [[a]] relevance of the piece of electronic content ~~as determined dependent~~ based at least in part on one or more measures derived from the group consisting of:

a local importance describing an importance of the sender to the user,

a global importance describing an importance of the sender within an organization with which the plurality of users are associated,

a content relevance determined responsive to content of the piece of electronic content, and

one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user; and

a relevance analysis module configured to determine the relevance score of the piece of electronic content sent from the sender to the user, the relevance score being determined based at least in part on the first determined measure of relevance and on the second determined measure of relevance.

2-6. (Canceled)

7. (Currently Amended) The system of claim 1, further comprising:

a content presentation module configured to present the piece of electronic content to the user in accordance with the determined relevance score and to present to the user a value describing the determined relevance score.

8. (Currently Amended) The system of claim 1, further comprising:

a search module configured to search the electronic content in accordance with the determined relevance score.

9. (Original) The system of claim 1, wherein the piece of electronic content comprises an electronic mail object in a relational mail system.

10. (Original) The system of claim 1, wherein the electronic content comprises at least one of an email, a document, an instant message, and an SMS message.

11. (Currently Amended) A computer program product for determining a relevance score of a piece of electronic content sent from a sender to a user, the relevance score determined with respect to the user, the computer-program product having a computer-readable storage medium having computer program instructions encoded thereon comprising:

a monitoring module configured to track actions by a plurality of users associated with an application for managing electronic content;

~~a relevance analysis module coupled to the monitoring module and configured to determine a relevance to a user of a piece of electronic content sent from a sender to the user, the relevance being determined dependent on:~~

a first relevance measurement module coupled to the monitoring module and configured to determine a first measure of [[a]] relevance of the piece of electronic content based at least in part ~~as determined dependent~~ on one or more actions of the user on the piece of electronic content;~~, and~~

a second relevance measurement module coupled to the monitoring module and configured to:

identify at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user, and

determine a second measure of [[a]] relevance of the piece of electronic content based at least in part ~~as determined dependent~~ on one or more measures derived from the group consisting of:

a local importance describing an importance of the sender to the user,

a global importance describing an importance of the sender within an organization with which the plurality of users are associated,

a content relevance determined responsive to content of the piece of electronic content, and

one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user; and

a relevance analysis module configured to determine the relevance score of the piece of electronic content sent from the sender to the user, the relevance score being determined based at least in part on the first determined measure of relevance and on the second determined measure of relevance.

12-16. (Canceled)

17. (Currently Amended) A computer-implemented method for determining a relevance score of a piece of electronic content sent from a sender to a user, the relevance score determined with respect to the user, the computer-implemented method[[,]] comprising:

tracking actions by a plurality of users associated with an application for managing electronic content;

~~determining a relevance to a user of a piece of electronic content sent from a sender to the user, the relevance being determined dependent on:~~

identifying at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user,

determining a first measure of [[a]] relevance of the piece of electronic content based at least in part ~~as determined dependent~~ on one or more actions of the user on the piece of electronic content;~~, and~~

determining a second measure of [[a]] relevance of the piece of electronic content ~~as determined dependent~~ based at least in part on one or more measures derived from the group consisting of:

a local importance describing an importance of the sender to the user,

a global importance describing an importance of the sender within an organization with which the plurality of users are associated,

a content relevance determined responsive to content of the piece of electronic content, and

one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user; and

determining the relevance score of the piece of electronic content sent from the sender to the user, the relevance score being determined based at least in part on the first determined measure of relevance and on the second determined measure of relevance.

18-22. (Canceled)

23. (New) The system of claim 1, wherein identifying at least one other of the plurality of users that is cognate to the user comprises analyzing historical actions of the at least one other of the plurality of users with respect to historical actions of the user.

24. (New) The system of claim 23, wherein the at least one other of the plurality of users is cognate to the user, and the user is not cognate to the at least one other of the plurality of users.

25. (New) The system of claim 9, wherein the electronic mail object includes one or more submessages.

26. (New) The system of claim 25, wherein the submessages are represented in the electronic mail object as references to submessage content stored in a data store of the relational mail system.

27. (New) The system of claim 9, wherein the electronic mail object has an associated job code representing a business process with which the electronic mail object is associated.

28. (New) The computer program product of claim 11, further comprising:

a content presentation module configured to present the piece of electronic content to the user in accordance with the determined relevance score and to present to the user a value describing the determined relevance score.

29. (New) The computer program product of claim 11, further comprising:

a search module configured to search the electronic content in accordance with the determined relevance score.

30. (New) The computer program product of claim 11, wherein the electronic content comprises at least one of an email, a document, an instant message, and an SMS message.

31. (New) The computer program product of claim 11, wherein the piece of electronic content comprises an electronic mail object in a relational mail system.

32. (New) The computer program product of claim 31, wherein the electronic mail object includes one or more submessages that are represented in the electronic mail object as references to submessage content stored in a data store of the relational mail system.

33. (New) The method of claim 17, further comprising:

presenting the piece of electronic content to the user in accordance with the determined relevance score and presenting to the user a value describing the determined relevance score.

34. (New) The method of claim 17, further comprising:

searching the electronic content in accordance with the determined relevance score.

35. (New) The method of claim 17, wherein the piece of electronic content comprises an electronic mail object in a relational mail system.

36. (New) The method of claim 35, wherein the electronic mail object includes one or more submessages that are represented in the electronic mail object as references to submessage content stored in a data store of the relational mail system.

37. (New) The method of claim 17, wherein identifying at least one other of the plurality of users that is cognate to the user comprises analyzing historical actions of the one other of the plurality of users with respect to historical actions of the user.

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(54) Electronic messaging in a wide area network

(57) A method for electronic communication using wide area network (WAN) storage and signalling capabilities. The method and apparatus provides for deposit of a message in message stores in the WAN, storage of the message such that the message is uniformly accessible throughout the WAN and notifying the recipient of the message of the availability and address of the message in the message stores in the WAN so that he can access the message.

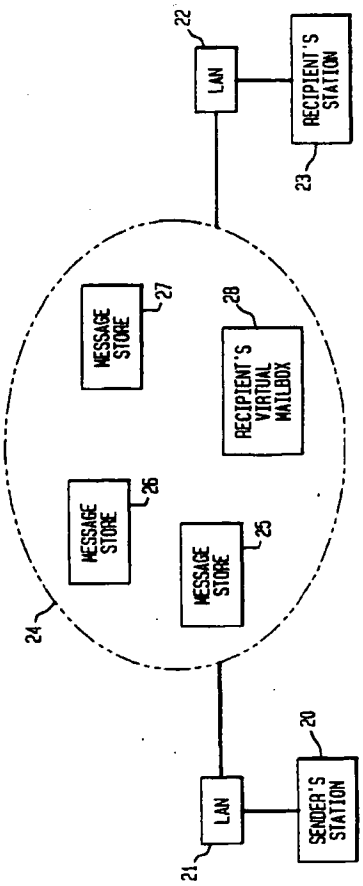


FIG. 2

EP 0 739 115 A2

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Description

TECHNICAL FIELD

This invention relates to a method and apparatus for providing electronic communications.

BACKGROUND OF THE INVENTION

Messaging can be defined as time-delayed communication or communication in which the origination of the communication occurs asynchronously from its reception. For example, letters and public notices are traditional form of messaging. Messaging also includes traditional forms of publishing, whether text/image-based (e.g. memoranda, books and periodicals), audio-based (e.g. tapes and compact discs) or audio/visually-based (e.g. movies). Other forms of messaging include voice mail, including multi-user systems and answering machines, and electronic counterparts of traditional messaging, for example telegrams, cablegrams, faxes, telex, electronic mail, asynchronous computer-based conferencing (i.e. bulletin-boards) and electronic publishing.

Because messaging is communication across time, messaging requires storage of the message content. The way in which the message is stored can be used to distinguish types of messaging.

"Store-and-forward" messaging is one type of electronic messaging system. In store-and-forward messaging, a message is transmitted from its sender to its recipient through at least one "message transfer agent" (MTA). The message can be relayed through as many successive MTAs as are needed for the message to reach its final destination. Each MTA independently chooses the next MTA to which to route the message, based on information carried along with the message, such as its intended recipient, together with information held by the MTA, such as routing tables. If a message is directed to more than one recipient, an MTA can multicast the message by sending copies of the message to separate MTAs for forwarding to each intended recipient. When the message reaches an MTA that has direct access to the recipient's mailbox, the message is deposited in local area network (LAN) storage associated with the recipient's mailbox. The LAN storage associated with recipient's mailbox is comprised of message stores for storing messages deposited therein.

During the messaging transmission process, each MTA temporarily stores the message, until the message is transferred to another MTA or deposited in the LAN storage associated with the recipient's mailbox. Thus, the MTAs constitute a succession of storage locations and the message is forwarded from MTA to MTA until ultimately reaching the recipient's mailbox.

Referring to Fig. 1, the general structure of store and forward messaging as applied to LAN messaging and wide area network (WAN) messaging is shown. With respect to LAN messaging, a message can be sent from a sender at a sender station 1 to a recipient at a recipient station 2 through a LAN 3. The message is transmitted from the sender station 2 through an MTA 6 in LAN 3. MTA 6 has a message store 12 that stores the message temporarily until the MTA, acting on information carried along with the message, routes the message. Because MTA 6 has direct access to the recipient's mailbox 4, MTA 6 deposites the message into LAN 3 storage associated with the recipient's mailbox 4. The recipient can then access the message in his mailbox 4 from the recipient station 2.

With respect to WAN messaging, a series of LAN systems may be connected together (not shown) or LAN systems may be connected through an intermediate WAN (shown in Fig. 1) to permit WAN messaging. As shown in Fig. 1, a message can be sent from the sender at sender station 1 to a recipient at a recipient station 11 through MTA 6 in LAN 3, MTA's 7, 8 and 9 in a WAN 17 and an MTA 10 in a LAN 5. MTA's 6, 7, 8, 9 and 10 have messages stores 12, 13, 14, 15 and 16, respectively, that store the message temporarily until the MTA, acting on information carried along with the message, routes the message. The message is transmitted from sender station 1 to MTA 6 in LAN 3. MTA 6 routes the message to MTA 7 in WAN 17. MTA 7 in turn routes the message to MTA 8 in WAN 17 and MTA 8 in turn routes the message to MTA 9 in WAN 17. MTA 9 routes the message to MTA 10 in LAN 5. MTA 10 has direct access to the recipient's mailbox 18 and deposits the message into the LAN 5 storage associated with the recipient's mailbox 18. The recipient can access the message in his mailbox 18 from the recipient station 11.

Because store-and-forward messaging is an application specific overlay on a network, it has limitations. For example, the costs involved are spread only among the users of the store-and-forward messaging application. Moreover, the scope of messaging is limited to users of that application. Finally, diverse message formats and conversion- from one format to another them are not readily accommodated.

SUMMARY OF THE INVENTION

The above problems are solved in accordance with the principles of the invention by providing a method and apparatus for WAN messaging using WAN storage and signalling capabilities. The invention generally includes three aspects: message origination, message storage and message reception.

Message origination includes the sender's deposit of a message into at least one message store on the WAN, identification of the addresses of the intended recipients and notification of each of the intended recipients of the availability and address of the message on the WAN.

Message storage refers to the characteristics of storage in the WAN. The message stores and the mes-

sages stored have a logical identity in the WAN independent of their physical realization such that uniform accessibility is provided throughout the WAN.

Message reception refers to the recipient's processing of the message. Message reception is provided via "virtual mailboxes" that reside in storage elements on the WAN. The recipient's virtual mailbox does not contain his messages. Instead, it serves as an aggregation and storage point for the signaling information that notifies the recipient of the availability and address of his messages on the WAN. The recipient's station uses the signaling data to alert the recipient of the existence of his messages and to retrieve the messages under the recipient's direction.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a block diagram showing the structure of store-and-forward messaging.

Fig. 2 is a block diagram showing the structure of an embodiment of the invention.

Fig. 3 is a flow diagram illustrating the processing of messaging in accordance with an embodiment of the invention.

DETAILED DESCRIPTION

Referring to Fig. 2, the structure of an embodiment of the invention is shown. The sender's station 20 is connected to a LAN 21 which is connected to a WAN 24 and the recipient's station 23 is connected to a LAN 22 which is connected to WAN 24. LAN 21 and LAN 22 do not require message stores because the WAN 24 includes message stores, such as message stores 25, 26 and 27, for storing messages. WAN 24 also includes virtual mailboxes, such as the recipient's virtual mailbox 28, for storing information regarding the availability and address of the recipient's messages.

To deposit a message into message stores in the WAN, the sender at a sender station allocates storage from the WAN by selecting at least one message store from those residing in storage elements integrated into the WAN and fills that message store with the contents of the message.

The storage location of a message may be chosen by the sender's station. For example, if all messages for a given recipient are stored in one location, the sender's station directly deposits the message into those message stores and, if there are multiple recipients, the sender's station deposits the message to the message stores associated with each of the recipients. Alternatively, if the recipients do not have locations dedicated to storage of their messages, the message is deposited in message stores in the WAN selected by the sender and accessible to all of the intended recipients through multiplexed access to the message stores, effectively consolidating the storage required. Consolidated storage is especially advantageous because it provides for administrative simplicity, more efficient use of storage resources and, as explained more fully below, open-ended sets of recipient to facilitate group communications and electronic publishing.

To signal the intended recipients, the recipients are notified of the message's availability and its address on the WAN. The signaling process begins with the determination of the addresses of the recipients. The sender may know the addresses of the intended recipients or may need to refer to network-based interactive directories. Once the recipients' addresses are determined, the sender at a sender station instructs the WAN to notify the recipients of the availability and address of the message via the signaling mechanisms of the WAN.

In addition, the sender may store access authorization information for the message with the message in the message store. The access authorization information may be the list of intended recipients, unlimited in the case of publically available information or specified by identifiable characteristics of a group, for example security clearance, organizational affiliation or subscribers to a service. The access authorization information for a message can be different than the persons signaled of the availability of message. For example, a group may be authorized to access a message, such as any employee of a company, but only certain members of that group being signaled of its availability, such as the members of a particular project.

The sender need not signal all of the recipients at the same time. For instance, if the sender were to think of an additional recipient a day after sending the message, resending it would require only signaling the additional recipient and, perhaps, notifying the message store to add the additional recipient to the list of persons authorized to access the message.

In many messaging applications, the recipients are not explicitly enumerated by the sender, but are determined instead through processes such as self-selection, third-party reference or guided searching. In such cases, the signaling process may be absent. For example, a recipient can select a message by browsing through accessible message stores, by receiving a reference to it from a friend, co-worker or from another message or by searching through messages on the basis of keywords or other identifier provided by the sender. In such situations the new recipient must be authorized to access the message. The access authorization information may be broad enough to already include the new recipient or a recipient may be allowed to extend the access authorization to include a new recipient.

The message stores have the following characteristics. The message stores are located in storage elements integrated into the WAN. This functional integration is independent from questions of ownership or physical location.

The message stores and the messages stored therein have a logical identity in the WAN, independent of their physical realization at any given moment. This

enables greater reliability and efficiency by, for example, distributing the storage of a given message across multiple message stores.

The message stores are uniformly accessible from throughout the WAN. This means that they offer the same functionality independent of their physical location or that of the person accessing the message. As different recipients access a given message store from arbitrary locations, the functionality available to each recipient from the message store varies only with the characteristics of the recipient station used by the recipient to access the message store and its connection to the WAN (e.g. bandwidth).

Access to message stores can be multiplexed, allowing concurrent access by multiple senders and recipients. Thus, the senders and recipients are unlikely to be blocked when sending or receiving messages as can be the case with storage elements having more limited connectivity to the WAN.

The message stores control access to the messages they contain in accordance with the access authorization information provided by the sender.

Message reception is provided for via "virtual mailboxes." A virtual mailbox resides in storage elements in the WAN, but does not store the content of the recipient's messages. Instead, a virtual mailbox serves as an aggregation and storage point for signaling information that notifies a recipient of the availability and address of a message on the WAN. The recipient's station makes use of this signaling information to alert the recipient of the existence and availability of the message and to retrieve the message under the recipient's direction.

Because a recipient's messages can reside in multiple message stores spread throughout the network, the essence of the signaling information contained in the virtual mailbox is the reference to messages available to the recipient. Because of uniform accessibility to the message stores, the recipient's station can make use of those references to retrieve the recipient's messages. Through the use of the information stored in the virtual mailbox, the recipient can access his messages residing in multiple message stores in the WAN as if all of his messages were stored in a single mailbox.

The messages referenced in the virtual mailbox may include any type of information, from any medium. For example, a virtual mailbox could hold references to a text message on one LAN server, an audio message on another LAN server, another audio message on a voice-mail adjunct to a PBX or an audio/video message in another LAN server.

Referring to Fig. 3, a flow diagram illustrating the process of messaging in accordance with an embodiment of the invention is shown. To send a message, the sender instructs his sender station 20 to initiate WAN messaging (step 100). LAN 21 connects sender station 20 to WAN 24 (step 101). The sender station 20 allocates storage from WAN 24 by selecting message stores, e.g. message stores 25, 26 and 27, from available message stores in WAN 24 (step 102). The sender station deposits the message into the selected message stores in the WAN and the message is stored in the selected message stores (step 104).

The sender identifies the intended recipients of the message (step 106). If the sender would like to provide access to additional persons of a specified class, the sender may provide message access authorization information such that additional persons falling within the specified class of authorized persons can access to the message (steps 108, 110).

In response to deposit of the message and identification of intended recipients by the sender, sender's station 20 is disconnected from WAN 24 and the WAN signals the intended recipient of the availability and address of the message in the message stores in the WAN by placing a reference to the message in the recipient's virtual mailbox 28 (step 112).

To receive the message, the recipient instructs the recipient station 23 to access his virtual mailbox 28 (step 116). LAN 22 connects recipient station 23 to WAN 24 (step 117). The virtual mailbox 28 contains a reference notifying the recipient of the availability and address of the message (step 118). The recipient instructs the recipient station 23 to access the message (step 120). Using the message address stored in virtual mailbox, the recipient station accesses and provides the recipient with interactive access to the message stored in message stores in the WAN (step 121). After access to the message is complete the recipient station is disconnected from the WAN 24 (step 122).

If the sender has made the message accessible to additional persons of a specified class, the WAN also makes the message available to persons satisfying the access authorization information (steps 123, 124). Once such a person identifies the address of the message through, for example, the means referred above (step 125) using the address information, he can instruct his user station to access the message (step 126).

When such a person attempts to access the message, the message store 26 verifies that the person satisfies the access authorization information (step 128). If the access authorization information is satisfied, interactive access to the message is provided (step 130). If the access authorization information is not satisfied, access to the message is denied (step 132). Thereafter, the recipient's station is disconnected from the WAN 24 (step 133).

After the message has been accessed by the recipient and/or additional persons of the specified class, the message remains stored in the message stores in the WAN for access by additional intended recipients and other persons satisfying the access authorization information (step 134).

It is to be understood that the above description is only of one preferred embodiment of the invention. Numerous other arrangements may be devised by one skilled in the art without departing from the scope of the

invention. The invention is thus limited only as defined in the accompanying claims.

Claims

1. A method for electronic messaging using wide area network (WAN) signalling and storage capabilities, comprising:

   allocating storage in a WAN having an address in the WAN;
   depositing a message into the allocated storage;
   identifying persons authorized to have access to the message; and
   instructing the WAN to signal persons authorized to have access to the message of an available message and the address of the message in the allocated storage in the WAN.

2. The method of claim 1 wherein allocating storage in a WAN comprises selecting a message store from available message stores in the WAN.

3. The method of claim 1 wherein identifying persons authorized to have access to the message comprises identifying at least one intended recipient of the message.

4. The method of claim 1 wherein identifying persons authorized to have access to the message comprises identifying characteristics of a class authorized to have access to the message.

5. An apparatus for electronic messaging using wide area network (WAN) signalling and storage capabilities, comprising:

   a means for allocating storage in a WAN having an address in the WAN;
   a means for depositing a message into the allocated storage;
   a means for identifying persons authorized to have access to the message; and
   a means for instructing the WAN to signal persons authorized to have access to the message of an available message and the address of the message in the allocated storage in the WAN.

6. The apparatus of claim 5 wherein the means for allocating storage in a WAN comprises a means for selecting a message store from available message stores in the WAN.

7. The apparatus of claim 5 wherein the means for identifying persons authorized to have access to the message comprises a means for identifying at least one intended recipient of the message.

8. The apparatus of claim 5 wherein the means for identifying persons authorized to have access to the message comprises a means for identifying characteristics of a class authorized to have access to the message.

9. A method for electronic messaging using wide area network (WAN) signalling and storage capabilities, comprising:

   identifying an available message and an address of the message in allocated storage in a WAN; and
   using the address of the message in allocated storage in the WAN to interactively access the message in allocated storage in the WAN.

10. The method of claim 9 wherein identifying an available message and an address of the message in allocated storage in a WAN comprises accessing a virtual mailbox comprised of storage elements in the WAN for storing a notification of the availability of the message and the address of the message in allocated storage in the WAN.

11. The method of claim 9 wherein the allocated storage on the WAN comprises a message store.

12. An apparatus for electronic messaging using wide area network (WAN) signalling and storage capabilities, comprising:

   a means for identifying an available message and an address of the message in allocated storage a WAN; and
   a means for using the address of the message in allocated storage in the WAN to interactively access the message in allocated storage in the WAN.

13. The apparatus of claim 12 wherein the means for identifying an available message and an address of the message in allocated storage in a WAN comprises a means for accessing a virtual mailbox comprised of storage elements in the WAN for storing a notification of the availability of the message and the address of the message in allocated storage in the WAN.

14. The apparatus of claim 12 wherein the allocated storage on the WAN comprises a message store.

15. A method for electronic messaging using wide area network (WAN) signalling and storage capabilities, comprising:

providing storage in a WAN for receiving a message and for receiving an identification of persons authorized to have access to the message;
signalling the persons authorized to have access to the message of an available message and an address of the message in the storage in the WAN; and
providing interactive access to the message in the storage in the WAN through the use of the address of the message.

16. The method of claim 15 wherein the storage in a WAN network for receiving a message and for receiving an identification of the persons authorized to have access to the message comprises a message store.

17. The method of claim 15 wherein the identification of the persons having access to the message comprises the identity of at least one intended recipient of the message.

18. The method of claim 15 wherein the identification of the persons having access to the message comprises identifying characteristics of a class authorized to have access to the message.

19. The method of claim 15 wherein signalling the intended recipients of an available message and an address of the message comprises storing in a virtual mailbox comprised of storage elements in the WAN a notification of the availability and address of the message.

20. An apparatus for electronic messaging using wide area network (WAN) signalling and storage capabilities, comprising:

a means for providing storage in a WAN for receiving a message and for receiving an identification of persons authorized to have access to the message;
a means for signalling the persons authorized to have access to the message of an available message and an address of the message in the storage in the WAN; and
a means for providing interactive access to the message in the storage in the WAN through the use of the address of the message.

21. The apparatus of claim 20 wherein the means for providing storage in a WAN for receiving a message and for receiving an identification of persons authorized to have access to the message comprises a message store.

22. The apparatus of claim 20 wherein the means for receiving an identification of the persons having access to the message comprises a means for identifying of at least one intended recipient of the message.

23. The apparatus of claim 20 wherein the means for identification of the persons having access to the message comprises a means for identifying characteristics of a class authorized to have access to the message.

24. The apparatus of claim 15 wherein the means for signalling the intended recipients of an available message and an address of the message comprises a means for storing in a virtual mailbox comprised of storage elements in the WAN a notification of the availability and address of the message.

25. A method of electronic messaging using wide area network (WAN) storage and signalling capabilities, comprising instructing a WAN to signal a virtual mailbox comprised of storage elements in the WAN.

26. The method of claim 25 wherein instructing the WAN to signal a virtual mailbox comprised of storage elements in the WAN comprises instructing the WAN to signal the virtual mailbox of an available message and an address of the message.

27. An apparatus or electronic messaging using wide area (WAN) network storage and signalling capabilities, comprising a means for instructing a WAN to signal a virtual mailbox comprised of storage elements in the WAN.

28. The apparatus of claim 27 wherein the means for instructing a WAN to signal a virtual mailbox comprised of storage elements in the WAN comprises a means for instructing the WAN to signal the virtual mailbox of an available message and an address of the message.

29. A method of electronic messaging using wide area network (WAN) storage and signalling capabilities, comprising signalling a virtual mailbox comprised of storage elements in a WAN.

30. The method of claim 29 wherein signalling a virtual mailbox comprised of storage elements in a WAN comprises signalling the virtual mailbox of an available message and an address of the message.

31. An apparatus for electronic messaging using wide area network (WAN) storage and signalling capabilities, comprising a means for signalling a virtual mailbox comprised of storage elements in a WAN.

32. The apparatus of claim 31 wherein the means for

signalling a virtual mailbox comprised of storage elements in a WAN comprises a means for signalling the virtual mailbox of an available message and an address of the message.

33. A method for electronic messaging using wide area (WAN) network storage and signalling capabilities, comprising retrieving information stored in a virtual mailbox comprised of storage elements in a WAN.

34. The method of claim 33 wherein retrieving information stored in a virtual mailbox comprised of storage elements in a WAN comprises retrieving information regarding an available message and an address of the message stored in the WAN.

35. An apparatus for electronic messaging using wide area network (WAN) storage and signalling capabilities, comprising a means for retrieving information stored in a virtual mailbox comprised of storage elements in a WAN.

36. The apparatus of claim 35 wherein the means for retrieving information stored in a virtual mailbox comprised of storage elements in a WAN comprises a means for retrieving information regarding an available message and an address of the message stored in the WAN.

37. A virtual mailbox comprising storage elements in a wide area network (WAN).

38. The virtual mailbox of claim 37 wherein the signalling information stored comprises information regarding an available message and an address of the message stored in the WAN.

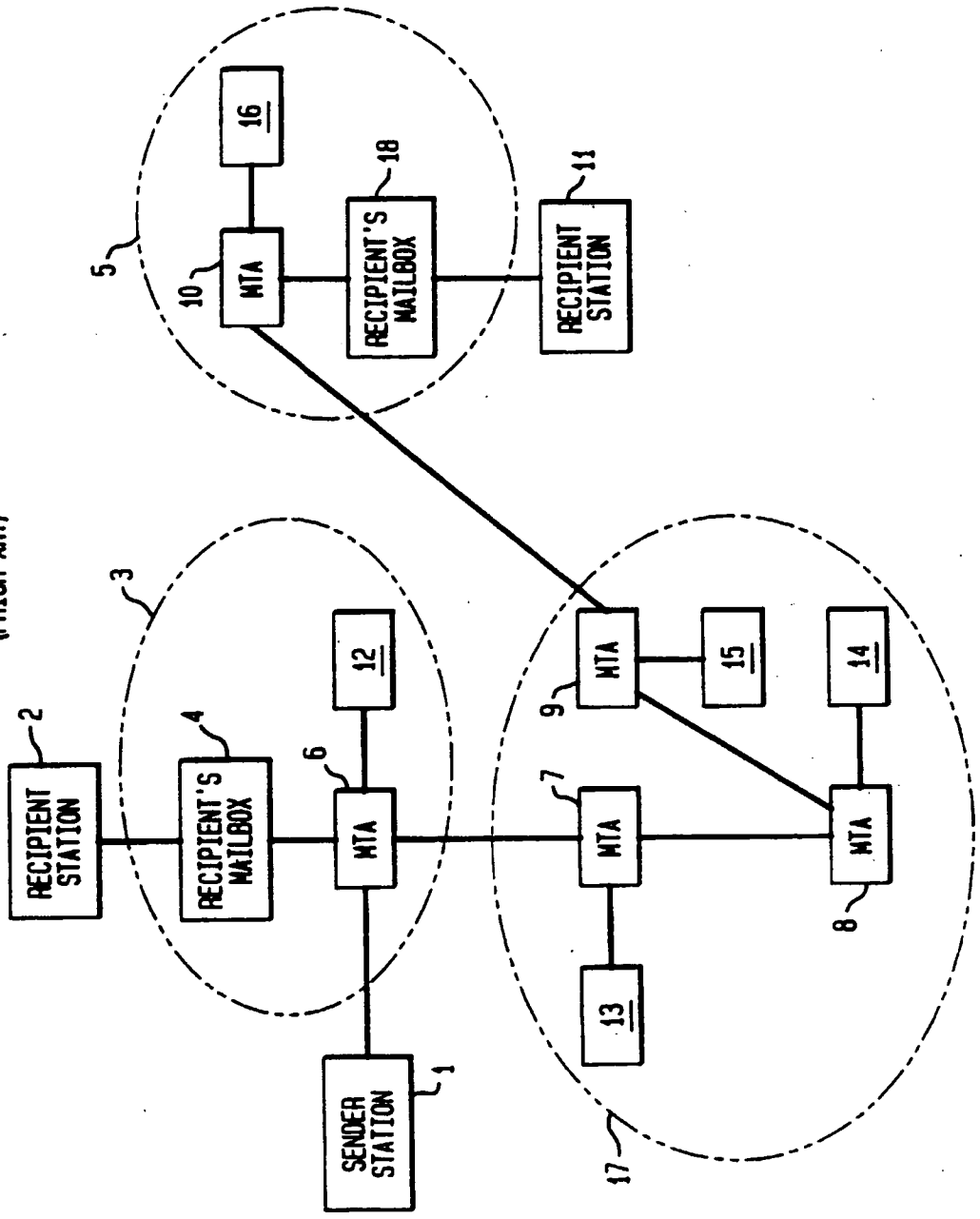


FIG. 1
(PRIOR ART)

FIG. 2

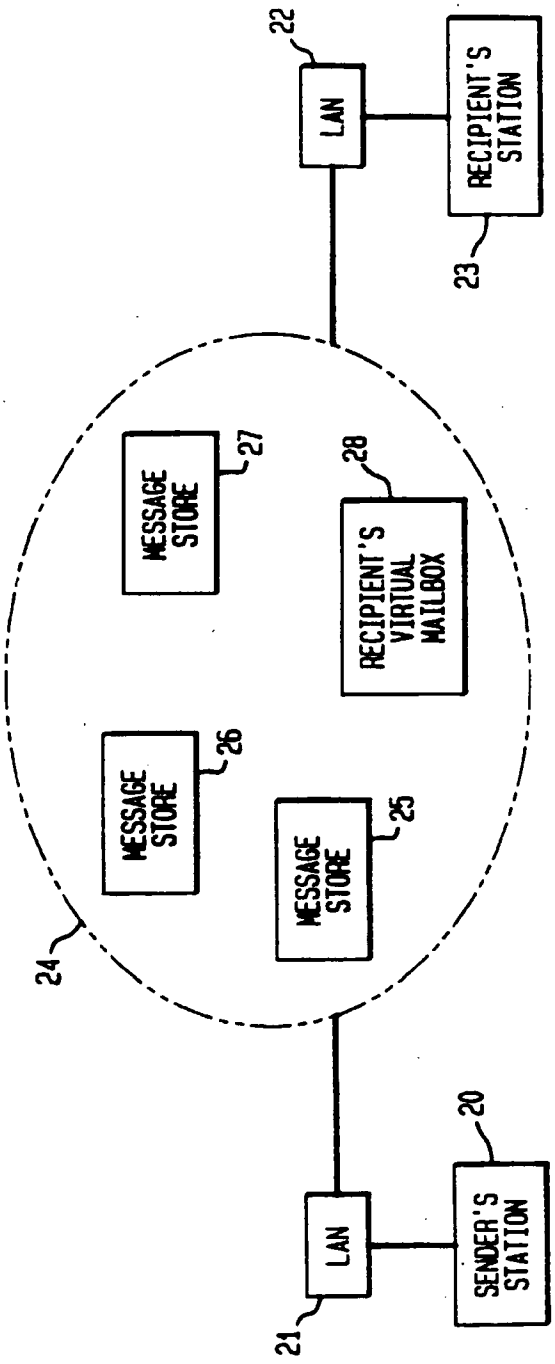

22
LAN
RECIPIENT'S STATION
23
MESSAGE STORE
27
28
RECIPIENT'S VIRTUAL MAILBOX
MESSAGE STORE
26
MESSAGE STORE
25
24
20
LAN
SENDER'S STATION
21

FIG. 3A

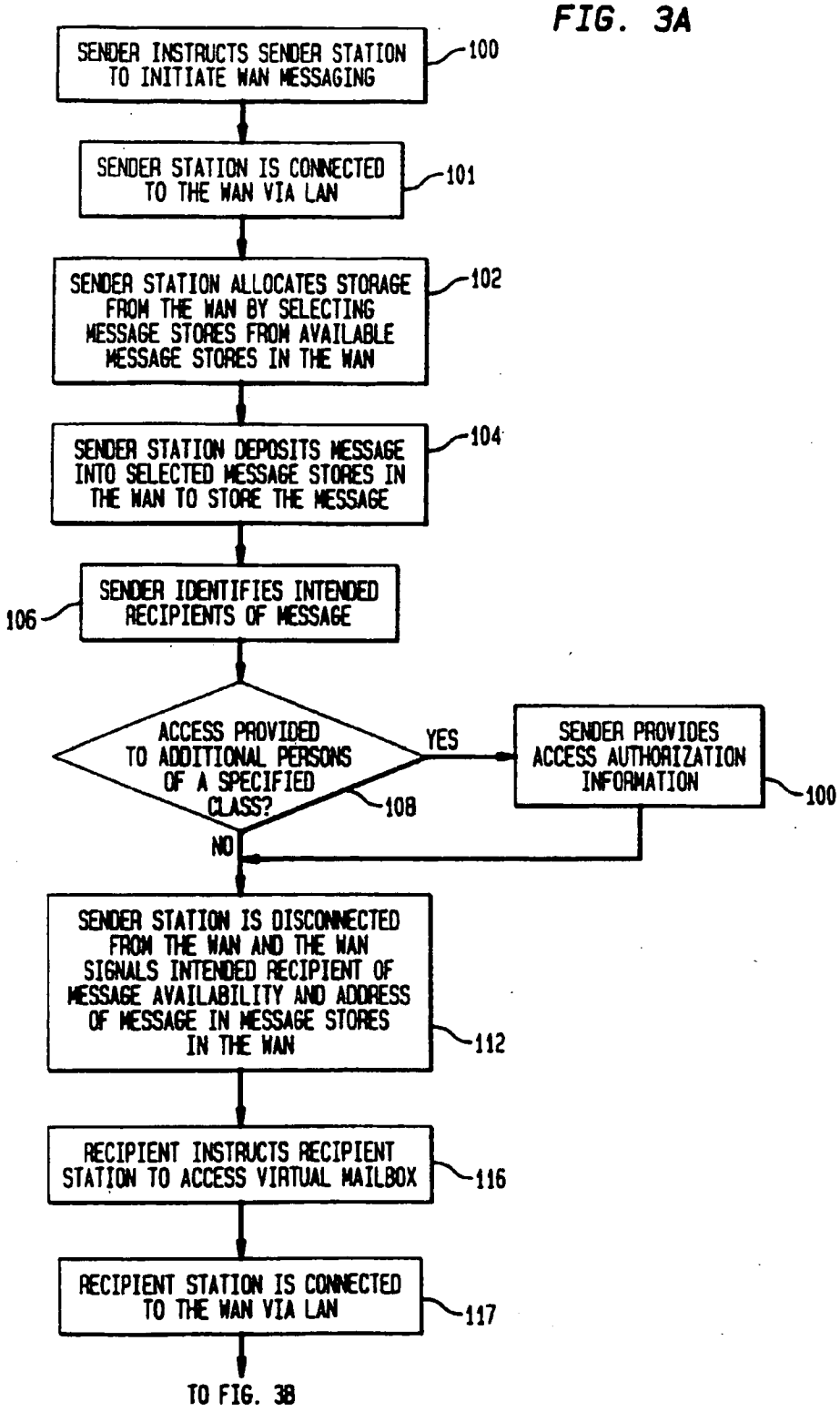
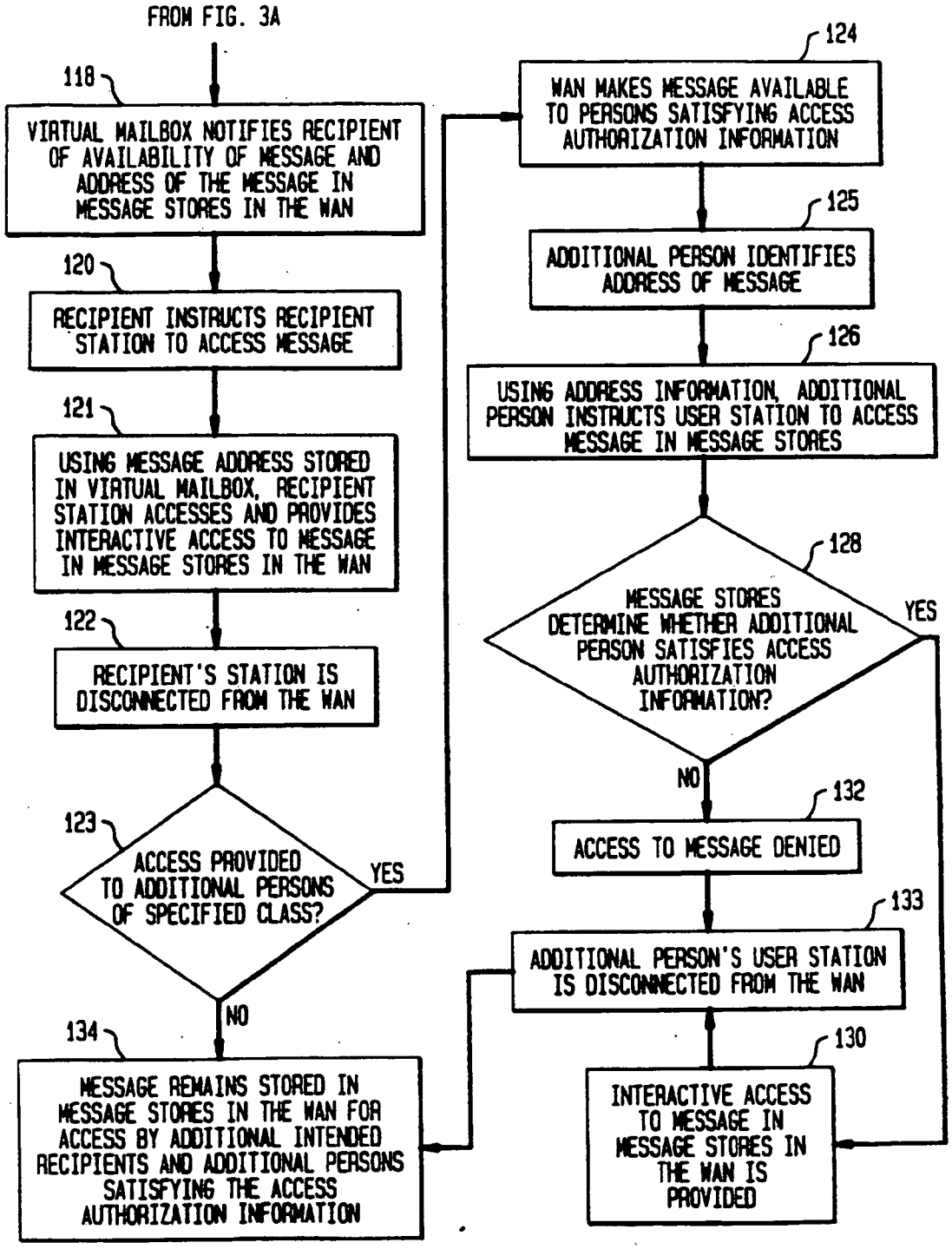

SENDER INSTRUCTS SENDER STATION TO INITIATE WAN MESSAGING
100
SENDER STATION IS CONNECTED TO THE WAN VIA LAN
101
SENDER STATION ALLOCATES STORAGE FROM THE WAN BY SELECTING MESSAGE STORES FROM AVAILABLE MESSAGE STORES IN THE WAN
102
SENDER STATION DEPOSITS MESSAGE INTO SELECTED MESSAGE STORES IN THE WAN TO STORE THE MESSAGE
104
SENDER IDENTIFIES INTENDED RECIPIENTS OF MESSAGE
106
ACCESS PROVIDED TO ADDITIONAL PERSONS OF A SPECIFIED CLASS?
108
YES
SENDER PROVIDES ACCESS AUTHORIZATION INFORMATION
100
NO
SENDER STATION IS DISCONNECTED FROM THE WAN AND THE WAN SIGNALS INTENDED RECIPIENT OF MESSAGE AVAILABILITY AND ADDRESS OF MESSAGE IN MESSAGE STORES IN THE WAN
112
RECIPIENT INSTRUCTS RECIPIENT STATION TO ACCESS VIRTUAL MAILBOX
116
RECIPIENT STATION IS CONNECTED TO THE WAN VIA LAN
117
TO FIG. 3B

FIG. 3B


FROM FIG. 3A
118
VIRTUAL MAILBOX NOTIFIES RECIPIENT OF AVAILABILITY OF MESSAGE AND ADDRESS OF THE MESSAGE IN MESSAGE STORES IN THE WAN
120
RECIPIENT INSTRUCTS RECIPIENT STATION TO ACCESS MESSAGE
121
USING MESSAGE ADDRESS STORED IN VIRTUAL MAILBOX, RECIPIENT STATION ACCESSES AND PROVIDES INTERACTIVE ACCESS TO MESSAGE IN MESSAGE STORES IN THE WAN
122
RECIPIENT'S STATION IS DISCONNECTED FROM THE WAN
123
ACCESS PROVIDED TO ADDITIONAL PERSONS OF SPECIFIED CLASS?
YES
NO
124
WAN MAKES MESSAGE AVAILABLE TO PERSONS SATISFYING ACCESS AUTHORIZATION INFORMATION
125
ADDITIONAL PERSON IDENTIFIES ADDRESS OF MESSAGE
126
USING ADDRESS INFORMATION, ADDITIONAL PERSON INSTRUCTS USER STATION TO ACCESS MESSAGE IN MESSAGE STORES
128
MESSAGE STORES DETERMINE WHETHER ADDITIONAL PERSON SATISFIES ACCESS AUTHORIZATION INFORMATION?
YES
NO
132
ACCESS TO MESSAGE DENIED
133
ADDITIONAL PERSON'S USER STATION IS DISCONNECTED FROM THE WAN
130
INTERACTIVE ACCESS TO MESSAGE IN MESSAGE STORES IN THE WAN IS PROVIDED
134
MESSAGE REMAINS STORED IN MESSAGE STORES IN THE WAN FOR ACCESS BY ADDITIONAL INTENDED RECIPIENTS AND ADDITIONAL PERSONS SATISFYING THE ACCESS AUTHORIZATION INFORMATION

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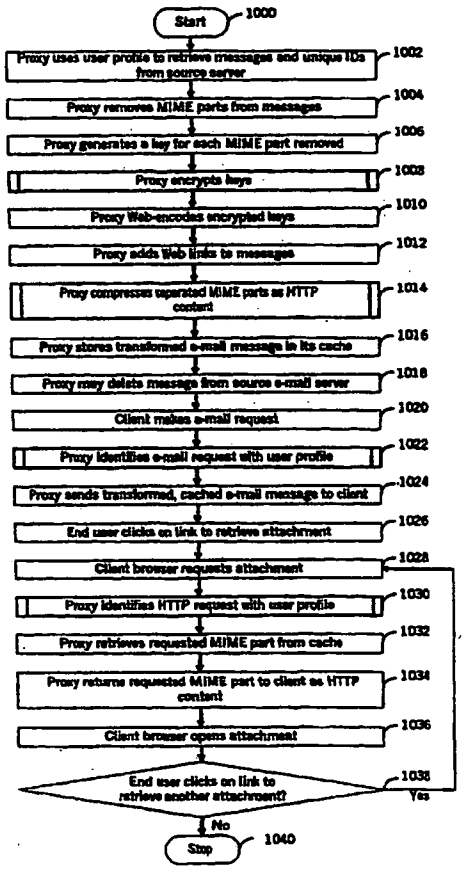
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[Continued on next page]

(54) Title: CLIENTLESS ELECTRONIC MAIL MIME ATTACHMENT RE-DELIVERY SYSTEM VIA THE WEB TO REDUCE NETWORK BANDWIDTH USAGE



(57) Abstract: A method to reduce the network capacity usage of electronic email containing MIME-encoded attachments. A proxy server (100) located between the email client (202) and the source email server separates the MIME parts of the message, removes (1004) one or more MIME attachments, then insert links corresponding to the one or more MIME attachments into the email message. The proxy server (100) transmits the email message to the client using a 7-bit text format. The end user may click on a link corresponding to a MIME attachment. The attachment is transmitted to the client using a non-7-bit format. The proxy server (199) can act as a protocol proxy, retrieving and transmitting messages in real time, or it can retrieve, transform, and cache messages before clients request them.

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Declaration under Rule 4.17:

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Published:

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DESCRIPTION

CLIENTLESS ELECTRONIC MAIL MIME ATTACHMENT RE-DELIVERY SYSTEM VIA THE WEB TO REDUCE NETWORK BANDWIDTH USAGE

BACKGROUND OF INVENTION

Technical Field

This invention generally relates to processing of electronic mail messages with Multipurpose Internet Mail Extensions (MIME), and more particularly to removing MIME attachments from electronic mail messages and making the attachments accessible through Web links.

Related Art

Internet electronic mail (email) is non-interactive, and most email servers and clients are designed for low-cost, high-bandwidth Internet services. These characteristics mean that email uses resources inefficiently in low-performance, high-cost connection environments, such as wireless networks.

Email gateways require email to be encoded in 7-bit text formats. The first email messages were ASCII text, which required only 7 bits to express the full character set on early mainframe terminals.

With the advent of email attachments and the MIME standard (RFC 1049 and RFC-1341), encoding techniques are required to convert 8-bit multi-media formats into 7-bit formats to guarantee backward compatibility with older email gateways and reader clients.

The base 64 encoding scheme is one popular encoding technique for converting 8-bit content to 7-bit clean MIME attachments. This process adds significant overhead, as every 8-bit byte of content is converted into a 7-bit representation plus remainder. Using only 7 bits out of a potential 8 bits per byte increases the overall size of the message.

Unlike email, the more recent HTTP protocol is capable at handling 8-bit, multi-media content. In addition to supporting content encodings like email's base 64 type, compressed encodings, namely gzip and compress, are available in most modern Web-browsing clients.

Email servers and clients treat MIME-compliant email messages as single, large objects. MIME messages include boundary definitions of the multiple parts of the message, and standard tools (e.g., Perl or Java objects) can parse the messages.

BRIEF SUMMARY OF THE INVENTION

This invention comprises systems and methods for removing electronic mail MIME attachments from an email message and replacing them with Web (HTML) links, thereby reducing the network capacity usage of email containing MIME-encoded attachments. The end user receives the non-attachment portions of an email message with a standard email client and can select the Web links to download the attachments via the Web.

By removing the attachments from email messages, this invention may reduce the bandwidth use between the email gateway and the user in various ways. For example, it may enable faster download of the non-attachment portions of a message. User preferences can determine which portions of a message the proxy server treats as attachments. It may also enable faster download of attached portions of the email message, accomplished both by avoiding base 64 encoding and by applying Web-compliant compression. Further, it may eliminate the need to transmit some data. Because users can control when or if they wish to download attachments, not all attachments may need to be transmitted.

This invention can leverage common clients, standards and protocols for email and the Web, using server-side intelligence to deliver content to the user over poor-performance network environments. It is particularly applicable to the wireless environment where network capacity is expensive and speeds are slow.

One embodiment of the invention comprises a method for increasing the speed and minimizing the bandwidth required for delivering email messages containing MIME attachments to a client. The method of this embodiment comprises receiving an email message having one or more MIME attachments, removing the MIME attachments from the email message, inserting one or more links corresponding to the one or more MIME attachments into the email message, and transmitting the email message containing the one or more links to the client using a 7-bit text format. The client may then select the links to access the attachments, which are delivered to the client using an 8-bit format.

Another embodiment of the invention comprises a system in which a proxy server is located between an email server and a client. The proxy server is configured to receive an email message having one or more MIME attachments from the email server, and to remove the one or more attachments from the email message. The proxy server inserts links corresponding to the one or more attachments into the email message and then transmits the modified email message to the client in a 7-

bit format. In response to the client selecting a link, the corresponding attachment is delivered to the client in an 8-bit format.

Another embodiment of the invention comprises software configured to implement the methods described herein. ("Software" is used herein to refer to software, firmware, and other manners of programming instructions for a computer or other data processor.) The software may be embodied in any medium readable by such a computer or data processor, including floppy disks, magnetic tapes, CD-ROMs, DVD-ROMs, RAM, ROM, and the like. Likewise, a computer or data processor which is configured to execute such software applications, or which is otherwise programmed to perform the methods disclosed herein is intended to be covered by the present application.

Various other embodiments are also possible.

BRIEF DESCRIPTION OF THE DRAWINGS

Other objects and advantages of the invention may become apparent upon reading the following detailed description and upon reference to the accompanying drawings.

FIG. 1 shows the system architecture for an embodiment in which a proxy server collects and caches email messages independently of the client's requests. The proxy server transforms and delivers attachments.

FIG. 2 is a flowchart outlining in detail the steps that the proxy server and client execute in FIG. 1.

FIG. 3 shows the system architecture for an embodiment in which a proxy server scans and reformats email nearly in real time. The proxy server transforms and delivers attachments.

FIG 4. is a flowchart outlining in detail the steps that the proxy server and client execute in FIG. 3.

FIG. 5 shows the system architecture for an embodiment in which an email proxy server scans and reformats email nearly in real time. A separate, stand-alone Web server transforms and delivers attachments.

FIG. 6 is a flowchart outlining in detail the steps that the email proxy server, client, and separate Web server take in FIG. 5.

While the invention is subject to various modifications and alternative forms, specific

embodiments thereof are shown by way of example in the drawings and the accompanying detailed description. It should be understood, however, that the drawings and detailed description are not intended to limit the invention to the particular embodiment which is described. This disclosure is instead intended to cover all modifications, equivalents and alternatives falling within the scope of the present invention as defined by the appended claims.

DETAILED DESCRIPTION OF THE INVENTION

Preferred embodiments of the invention are described below. It should be noted that these and any other embodiments described below are exemplary and are intended to be illustrative of the invention rather than limiting.

This invention comprises systems and methods for removing electronic mail MIME attachments from an email message and replacing the attachments with links to the attachments. The end user receives the non-attachment portions of an email message with a standard email client and can select the links to download the attachments (for example, using an ordinary browser to access the attachments via the Web). The non-attachment portions of the message can be downloaded faster because they do not include the attachments, and the attachments can be downloaded faster because they are converted from the 7-bit MIME format to their original 8-bit format.

This functionality may be implemented in a proxy server positioned between the source email server and the email client. The proxy server is configured to remove the MIME attachments from email messages, decode the attachments, and insert links to the attachments in the email messages.

When the proxy server removes attachments from email messages, the attachments are decoded from the standard base 64, 7-bit clean encoding to the original, 8-bit format. This significantly reduces the attachment size, since bytes encoding only 7-bits each are transcoded into fewer bytes encoding 8 bits each.

The Web links that the proxy server adds to the message make the attachments accessible via a Web server and client, and the Web server's built-in decompression algorithms can compress the attachments to sizes well below the original, non-compressed size. The Web server that transforms and delivers the attachments can be either the email proxy server itself or a separate, stand-alone Web server. The proxy server uses the HTTP protocol to send MIME attachments to client devices, so it can apply all Web-compliant transformations to them. The advantage of using a separate Web server is that an end user can retrieve attachments through a non-proxied channel.

The proxy server combines, and potentially encrypts, several pieces of information to generate a passkey which can be used to uniquely identify and retrieve attachments. The information combined

is: the end user's account name, a unique identifier for the message, and an indicator of which attachment within the message. When the proxy server is configured to allow users to access multiple email servers at the same time, the key also must incorporate the source email server information. To generate these keys, the proxy server must request a unique identifier for each message from the source email server.

In a deployment that uses a separate Web server for attachment traffic, to avoid the need to look up the user's account, mailserver and password when retrieving attachments, the links themselves must include that information. Alternatively, the separate Web server must store that information, potentially using some sort of user profile storage mechanism.

To ensure that the intended recipient is the only one who can retrieve an attachment, the proxy server should encrypt the key that identifies the attachment. To create standards compliant Web links which can be used to retrieve attachments, the proxy server should further Web-encode the keys after they have been encrypted. The proxy server then replaces the attachments within a message with web links, also known as URLs (uniform resource locators), which include the Web-encoded, encrypted keys

In one embodiment of the invention, the end user's email messages and attachments are pre-fetched and cached by the proxy server in a dedicated email spool and Web attachment area, ready for the user to retrieve. The proxy server loads the spools offline periodically at some configurable interval. The advantage of this embodiment is that removing attachments, generating Web links, and compressing attachments can be performed offline or during idle times. This embodiment may, however, use large amounts of disk space on the proxy server and may raise privacy concerns relating to email content re-distribution.

FIG. 1 illustrates a system architecture in accordance with this embodiment, and FIG. 2 is a flowchart showing the steps that the proxy server and client device may execute in this embodiment. Reference numbers for both the architecture diagram of FIG. 1 and the flowchart of FIG. 2 are incorporated into the discussion below. The reference numbers for FIG. 2 are enclosed in parentheses to make them more easily distinguishable from the reference numbers for FIG. 1.

The proxy server 100 collects and stores email messages independently of the client's requests. User profiles 106 stored on the proxy server 100 provide information on end users' source email servers 400, accounts and passwords. The method that the proxy server 100 uses to store and look up user profiles 106 depends on the deployment. The proxy server 100 stores end users' email messages in its cache 104.

The proxy server 100 uses the client's user profile information 106 to issue a retrieve request over the Internet 300 to the end user's source email server 400. When it issues the retrieve request, the proxy server 100 also issues a request for the unique identifier for any message it retrieves. The proxy server 100 retrieves full email messages (and their unique identifiers) from the source email server 400 (1002), leaving the original messages on the source email server 400. The proxy server 100 can retrieve email from multiple accounts for the same user.

The proxy server 100 removes the MIME attachments from the email message (1004). For each attachment removed, the proxy server 100 generates a key (1006). The key combines the following information: the user-identifier, the message-identifier, and the attachment number. When the proxy server 100 is configured to allow users to access multiple email servers at the same time, the key should also include the source email server 400 information.

If the security of the attachments is a concern, the proxy server 100 should encrypt the keys to the attachments (1008). The proxy server 100 can Web-encode the keys (1010), then add the Web-encoded keys to the message as Web link URLs (1012), which connect to the attachments removed from the message. The proxy server 100 may compress separated parts of the message as necessary (1014).

The proxy server 100 stores the transformed email message in its cache 104 (1016), then may then delete the email message from the source email server 400 (1018).

The end user's email application 202 makes an email request (1020). The proxy server's email port 102 receives the request. The proxy server 100 identifies the request with a user profile 106 (1022), retrieves the end user's email from its cache 104, then sends the transformed, cached email message to the client 200 (1024).

When the end user clicks on a link to retrieve an attachment (1026), a browser 204 window opens automatically and issues an HTTP request for the attachment (1028). (The success of this step depends on the configuration of the client device.) The proxy server's HTTP port 108 receives the request. The proxy server 100 identifies the HTTP request with a user profile 106 (1030), retrieves a copy of the requested MIME part from its cache 104 (1032), then returns the requested MIME part to the client 200 as HTTP content (1034). The client device's Web browser 204 opens the attachment (1036). If the browser 204 does not recognize the content type of the attachment, it opens a dialog box allowing the user to save the file to disk. (The success of this step depends on the configuration of the client device.) The end user may retrieve another attachment by clicking on another link (1038).

A second embodiment of this invention is to use a protocol proxy (for example, POP or IMAP)

to make client requests to the source email server and return server responses to the client. The advantage of this system is that the proxy server scans and reformats email messages in near real time, using an off-site email repository (the source email server). The only information stored on (or network accessible to) the proxy is the user profile, which is only required in some embodiments. No part of an email message is stored on the proxy server, so the system does not require the implementation overhead or raise the privacy issues of queuing mail and attachments in third party spools. The main concern that this embodiment raises is email box synchronization, since, if an email message is deleted from the source email server, the Web links to the message's attachments will not work.

FIG. 3 illustrates the system architecture of this second embodiment, and FIG. 4 is a flowchart showing the steps that the proxy server and client device execute. Again, the reference numbers for the flow diagram of the method are enclosed in parentheses, while the reference numbers for the architecture diagram are not.

Before making a request to a source email server 400, the proxy server 100 must receive a request from a client 200. The proxy server 100 may alter this request before sending it over the Internet 300 to the source email server 400.

The end user's email application 202 makes an email request (1202). The proxy server's email port 102 receives the request, and the proxy server 100 identifies the request, potentially using a user profile 106 (1204). The proxy server 100 issues a retrieve request on behalf of the client 200 to the source email server 400. When it issues the retrieve request, the proxy server 100 also issues a request for the unique identifier for any message it retrieves. The proxy server 100 retrieves the end user's email messages (and their unique identifiers) from the source email server 400 (1206), including a full copy of any MIME messages, leaving the original messages on the email server 400.

The proxy server 100 removes attachments from the email message (1208). For each attachment removed, the proxy server 100 generates a key. (1210). The key combines the following information: the user-identifier, the message-identifier, and the attachment number. When the proxy server is configured to allow users to access multiple email servers at the same time, the key also must include the source email server information.

If the security of the attachments is a concern, the proxy server 100 should encrypt the keys to the attachments (1212). The proxy server 100 Web-encodes the encrypted keys (1214), then adds the Web-encoded keys to the message as Web link URLs (1216), which connect to the attachments removed from the message.

The proxy server 100 sends the transformed email message to the email client 202 (1218).

When the end user clicks on a link to retrieve an attachment (1220), a browser 204 window opens automatically and issues an HTTP request for the attachment (1222). (The success of this step depends on the configuration of the client device.) The proxy server's HTTP port 108 receives the request. The proxy server 100 identifies the HTTP request with a user profile 106 (1224), then retrieves a copy of the full email message from the source email server 400 (1226), leaving the original message on the email server 400. The proxy server 100 separates the MIME part requested (1228), compresses it as necessary (1230), then returns the requested MIME part the client 200 as HTTP content (1232). The client device's Web browser 204 opens the attachment (1234). If the browser 204 does not recognize the content type of the attachment, it opens a dialog box allowing the user to save the file to disk. (The success of this step depends on the configuration of the client device.)

The end user may retrieve another attachment by clicking on another link (1236).

The proxy server 100 may delete an email message from a source email server 400 (1238).

A third embodiment of this invention is to use a proxy server for email traffic only, and to use a separate, stand-alone Web server to handle end user requests for attachments and the source server's responses. The email proxy generates attachment links containing enough information to allow the separate Web server to identify and retrieve attachments. (In an alternative embodiment, the separate Web server could store the same user profiles as the email proxy server.) The email proxy server scans and reformats email messages in near real time, using an off-site email repository (the source email server). In addition to offering the advantages of the second embodiment, this third embodiment allows end users to access their attachments through a non-proxied channel. The concerns that this embodiment raises are the same as those of the second embodiment.

FIG. 5 illustrates the system architecture of this third embodiment, and FIG. 6 is a flowchart showing the steps that the email proxy server, client device, and the separate Web server execute.

Before making a request to a source email server 400, the email proxy server 100 must receive a request from a client 200. The email proxy server 100 may alter this request before sending it over the Internet 300 to the source email server 400.

The end user's email application 202 makes an email request (1402). The proxy server's email port 102 receives the request, and the proxy server 100 identifies the request with a user profile 106 (1404). The proxy server 100 issues a retrieve request on behalf of the client 200 to the source email server 400. When it issues the retrieve request, the proxy server 100 also issues a request for the

unique identifier for any message it retrieves. The proxy server 100 retrieves the end user's email messages (and their unique identifiers) from the source email server 400 (1406), including a full copy of any MIME messages, leaving the original messages on the email server 400.

The proxy server 100 removes parts of the email message (1408), For each attachment removed, the proxy server 100 generates a key. (1410). The key combines the following information: the user-identifier, the message-identifier, and the attachment number. When the proxy server 100 is configured to allow users to access multiple email servers at the same time, the key also must include the source email server 400 information. In cases where the attachment is to be retrieved from a stand-alone server 500 that does not have a user profile containing the user's mail server or mail account password, then that information also must be combined into the key. Any reversible method of combination can be used, for example, concatenation.

If the security of the attachments is a concern, the proxy server 100 should encrypt the keys to the attachments (1412), Web-encodes the encrypted keys (1414), then adds the Web-encoded keys to the message as Web link URLs (1416), which connect to the parts removed from the message.

The proxy server 100 sends the transformed email message to the email client 202 (1418).

When the end user clicks on a link to retrieve an attachment (1420), a browser 204 window opens automatically and issues an HTTP request for the attachment (1422). (The success of this step depends on the configuration of the client device.) The separate Web server's HTTP port 502 receives the request. The separate Web server 500 uses the key in the encoded Web link to request the attachment (1424), then retrieves a copy of the full email message from the source email server 400 (1426), leaving the original message on the email server 400. The separate Web server 500 separates the MIME part requested (1428), compresses it as necessary (1430), then returns the requested MIME part the client 200 as HTTP content (1432). The client device's Web browser 204 opens the attachment (1434). If the browser 204 does not recognize the content type of the attachment, it opens a dialog box allowing the user to save the file to disk. (The success of this step depends on the configuration of the client device.)

The end user may retrieve another attachment by clicking on another link (1436).

The proxy server 100 or the separate Web server 500 may delete an email message from a source email server 400 (1438).

The benefits and advantages which may be provided by the present invention have been described above with regard to specific embodiments. These benefits and advantages, and any elements or limitations that may cause them to occur or to become more pronounced are not to be

construed as critical, required, or essential features of any or all of the claims. As used herein, the terms 'comprises,' 'comprising,' or any other variations thereof, are intended to be interpreted as non-exclusively including the elements or limitations which follow those terms. Accordingly, a process, method, article, or apparatus that comprises a list of elements does not include only those elements but may include other elements not expressly listed or inherent to the claimed process, method, article, or apparatus.

While the present invention has been described with reference to particular embodiments, it should be understood that the embodiments are illustrative and that the scope of the invention is not limited to these embodiments. Many variations, modifications, additions and improvements to the embodiments described above are possible. It is contemplated that these variations, modifications, additions and improvements fall within the scope of the invention as detailed within the following claims.

CLAIMS

1. A method comprising:

receiving an email message having one or more MIME attachments;

removing the MIME attachments from the email message;

inserting one or more links corresponding to the one or more MIME attachments into the email message; and

transmitting the email message containing the one or more links to a client.

2. The method of claim 1, further comprising transmitting one of the one or more attachments to the client in response to the client selecting the corresponding one of the one or more links.

3. The method of claim 2, further comprising converting the one of the one or more attachments to a non-7-bit-text format prior to transmitting the one of the one or more attachments to the client.

4. The method of claim 2, further comprising storing the attachments in a cache in a proxy server and retrieving the attachments from the cache prior to transmitting the one or more attachments to the client.

5. The method of claim 2, further comprising, in response to the client selecting one of the one or more links, retrieving the email message from an email source, removing from the email message the one of the one or more attachments corresponding to the selected link, and converting the one of the one or more attachments corresponding to the selected link to a non-7-bit-text format prior to transmitting the one of the one or more attachments to the client.

6. The method of claim 5, wherein the email message containing the one or more links is transmitted to the client by a proxy server and the one of the one or more attachments is transmitted to the client by a Web server which is separate from the proxy server.

7. The method of claim 2, further comprising retrieving a user profile corresponding to the client and retrieving the one of the one or more attachments based upon the user profile.

8. The method of claim 1, The method of claim 1, wherein the email message containing the one or more links is transmitted to the client using a 7-bit text format.

9. The method of claim 1, further comprising generating a key for each of the attachments removed from the email message and incorporating each key in the link to the corresponding attachment.

10. The method of claim 9, wherein the key includes a user identifier, a message identifier, and an attachment identifier.

11. The method of claim 10, wherein the key also includes an email source identifier.

12. The method of claim 9, further comprising encrypting the keys.

13. The method of claim 1, wherein the links comprise Web URLs.

14. A system comprising:

a proxy server,

wherein the proxy server is configured to receive an email message from a mail server, wherein the email message has one or more MIME attachments, and

wherein the proxy server is configured to remove the one or more attachments from the email message and to insert one or more links corresponding to the one or more attachments into the email message, and to transmit the modified email message to a client.

15. The system of claim 14, wherein the proxy server is configured to provide one of the one or more attachments in response to the client selecting a corresponding one of the one or more links.

16. The system of claim 15, wherein, in response to the client selecting the one of the one or more links, the proxy server is configured to retrieve the original email message from a mail server, extract the corresponding one of the one or more attachments from the original email message, and transmit the extracted attachment to the client.

17. The system of claim 16, further comprising a Web server which is separate from the proxy server, wherein the proxy server is configured to transmit the email message containing the one or more links to the client and the Web server is configured to transmit the one of the one or more attachments to the client.

18. The system of claim 15, further comprising a cache, wherein the proxy server is configured to store the attachments in the cache and wherein, in response to the client selecting the one of the one or

more links, the proxy server is configured to retrieve the corresponding one of the one or more attachments from the cache, and transmit the retrieved attachment to the client.

19. The system of claim 15, wherein the proxy server is configured to transmit the extracted attachment is over a non-seven-bit protocol.

20. The system of claim 15, further comprising a memory configured to store one or more user profiles, wherein the proxy server is configured to retrieve a user profile corresponding to the client and to retrieve the one of the one or more attachments based upon the retrieved user profile.

21. The system of claim 14, wherein the proxy server is configured to transmit the email message containing the one or more links to the client in a 7-bit text format.

22. The system of claim 14, wherein the proxy server is configured to generate a key for each of the attachments removed from the email message and to incorporate each key in the link to the corresponding attachment.

23. The system of claim 22, wherein each key includes a user identifier, a message identifier, and an attachment identifier.

24. The system of claim 23, wherein each key further includes an email source identifier.

25. The system of claim 22, wherein the proxy server is configured to encrypt each key.

26. The system of claim 14, wherein the links comprise Web URLs.

FIG. 1

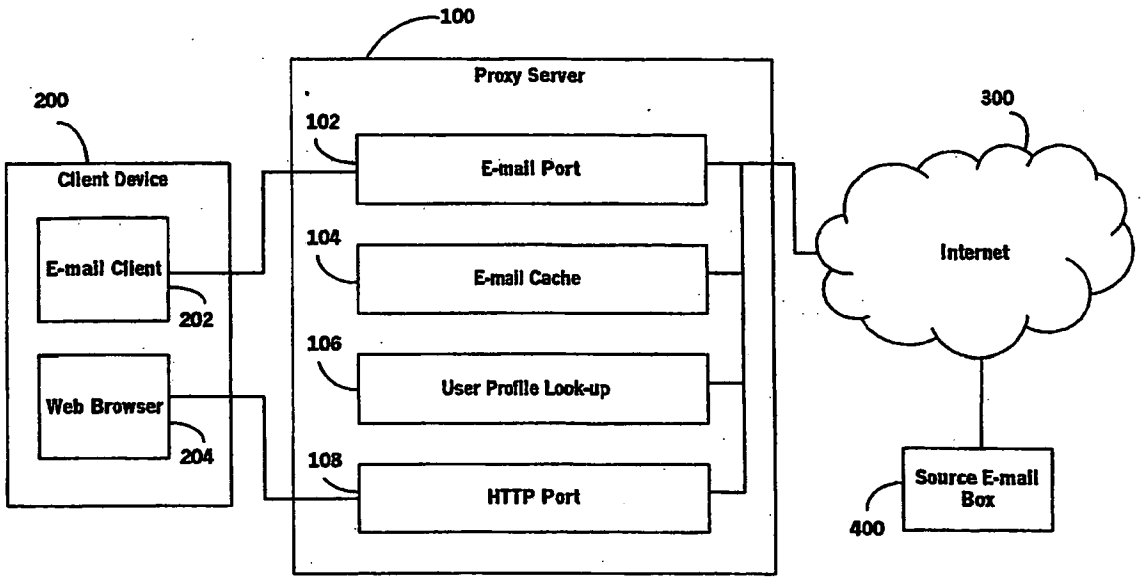
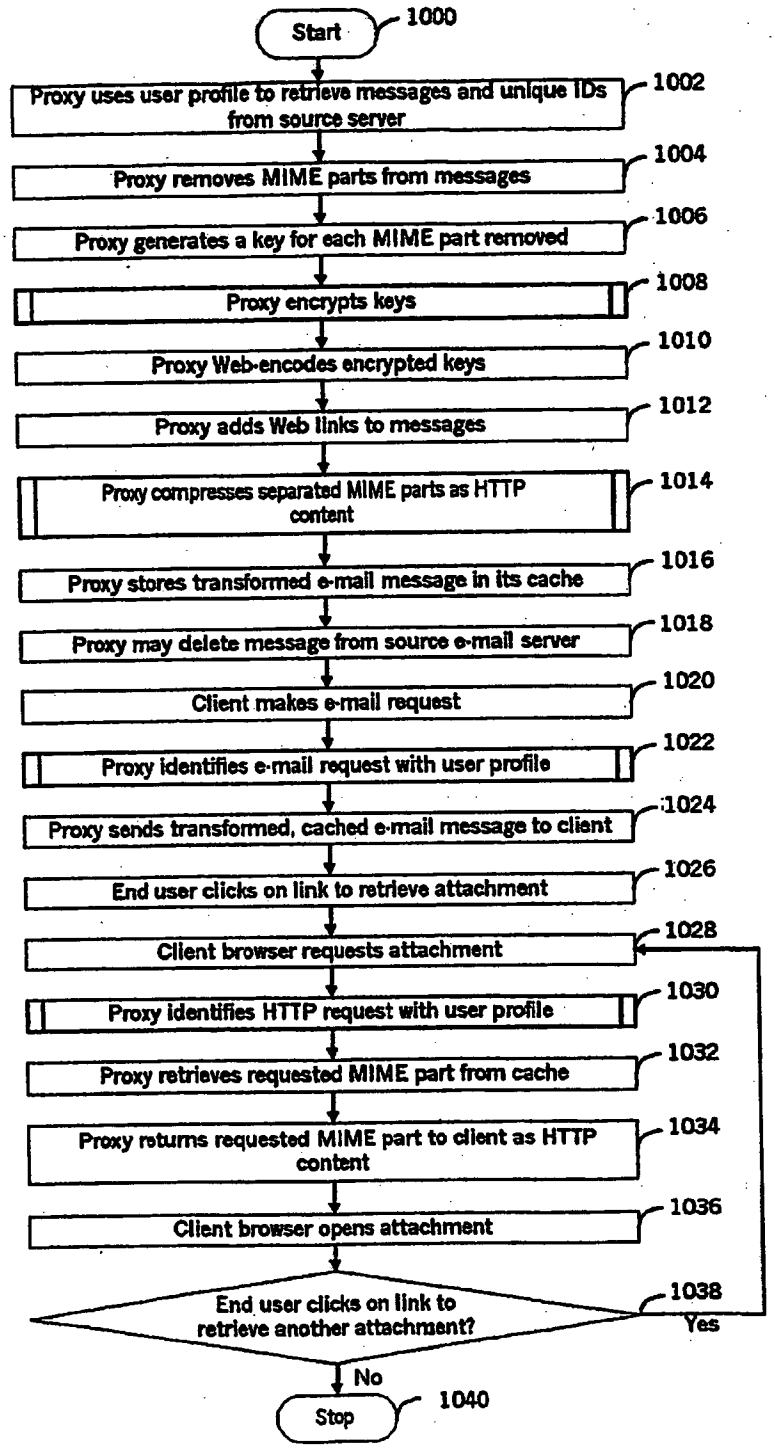

100
Proxy Server
200
Client Device
E-mail Client
202
Web Browser
204
102
E-mail Port
104
E-mail Cache
106
User Profile Look-up
108
HTTP Port
300
Internet
Source E-mail Box
400

FIG. 2


Start
1000
Proxy uses user profile to retrieve messages and unique IDs from source server
1002
Proxy removes MIME parts from messages
1004
Proxy generates a key for each MIME part removed
1006
Proxy encrypts keys
1008
Proxy Web-encodes encrypted keys
1010
Proxy adds Web links to messages
1012
Proxy compresses separated MIME parts as HTTP content
1014
Proxy stores transformed e-mail message in its cache
1016
Proxy may delete message from source e-mail server
1018
Client makes e-mail request
1020
Proxy identifies e-mail request with user profile
1022
Proxy sends transformed, cached e-mail message to client
1024
End user clicks on link to retrieve attachment
1026
Client browser requests attachment
1028
Proxy identifies HTTP request with user profile
1030
Proxy retrieves requested MIME part from cache
1032
Proxy returns requested MIME part to client as HTTP content
1034
Client browser opens attachment
1036
End user clicks on link to retrieve another attachment?
1038
Yes
No
Stop
1040

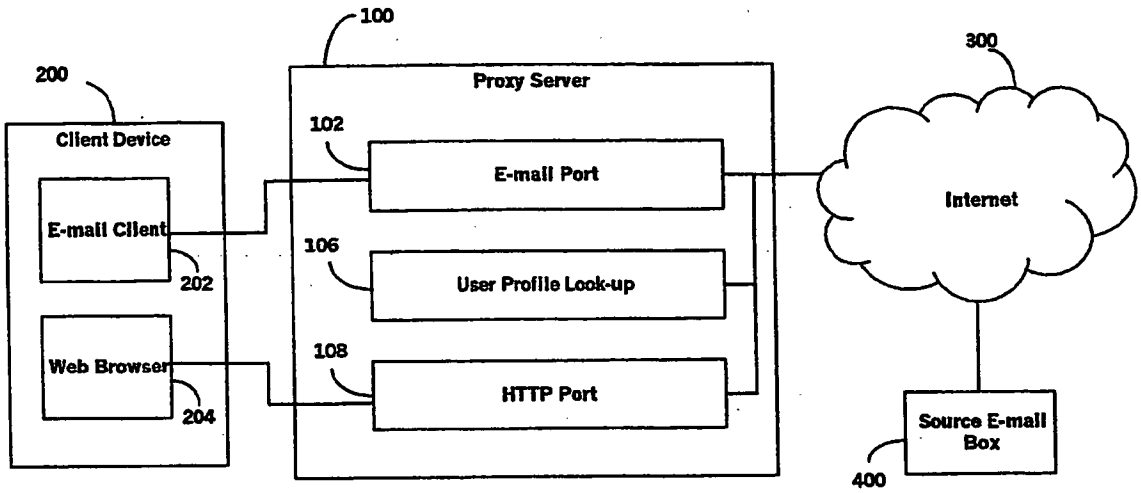
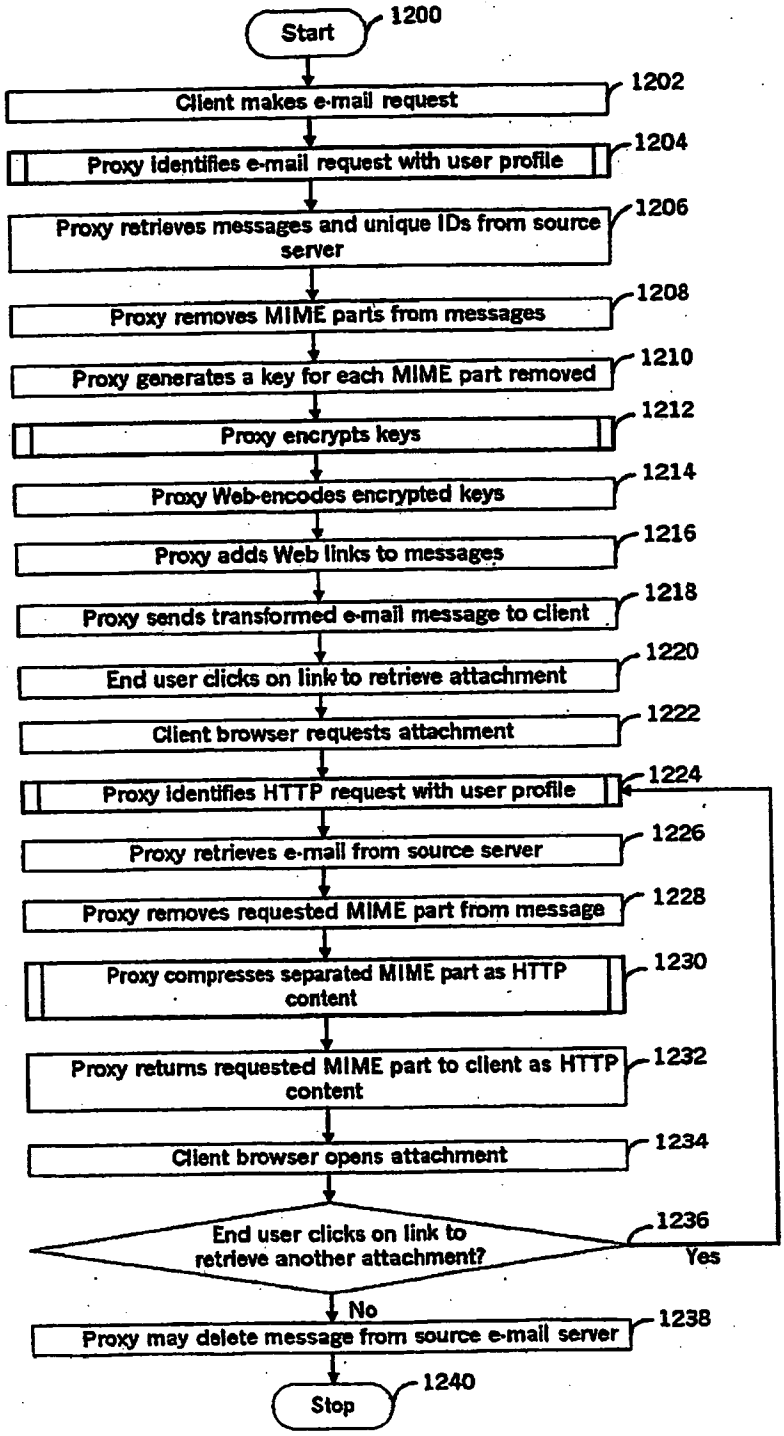

100
Proxy Server
200
Client Device
E-mail Client
202
Web Browser
204
102
E-mail Port
106
User Profile Look-up
108
HTTP Port
300
Internet
Source E-mail Box
400

FIG. 3

FIG. 4


Start
1200
Client makes e-mail request
1202
Proxy identifies e-mail request with user profile
1204
Proxy retrieves messages and unique IDs from source server
1206
Proxy removes MIME parts from messages
1208
Proxy generates a key for each MIME part removed
1210
Proxy encrypts keys
1212
Proxy Web-encodes encrypted keys
1214
Proxy adds Web links to messages
1216
Proxy sends transformed e-mail message to client
1218
End user clicks on link to retrieve attachment
1220
Client browser requests attachment
1222
Proxy identifies HTTP request with user profile
1224
Proxy retrieves e-mail from source server
1226
Proxy removes requested MIME part from message
1228
Proxy compresses separated MIME part as HTTP content
1230
Proxy returns requested MIME part to client as HTTP content
1232
Client browser opens attachment
1234
End user clicks on link to retrieve another attachment?
1236
Yes
No
Proxy may delete message from source e-mail server
1238
Stop
1240

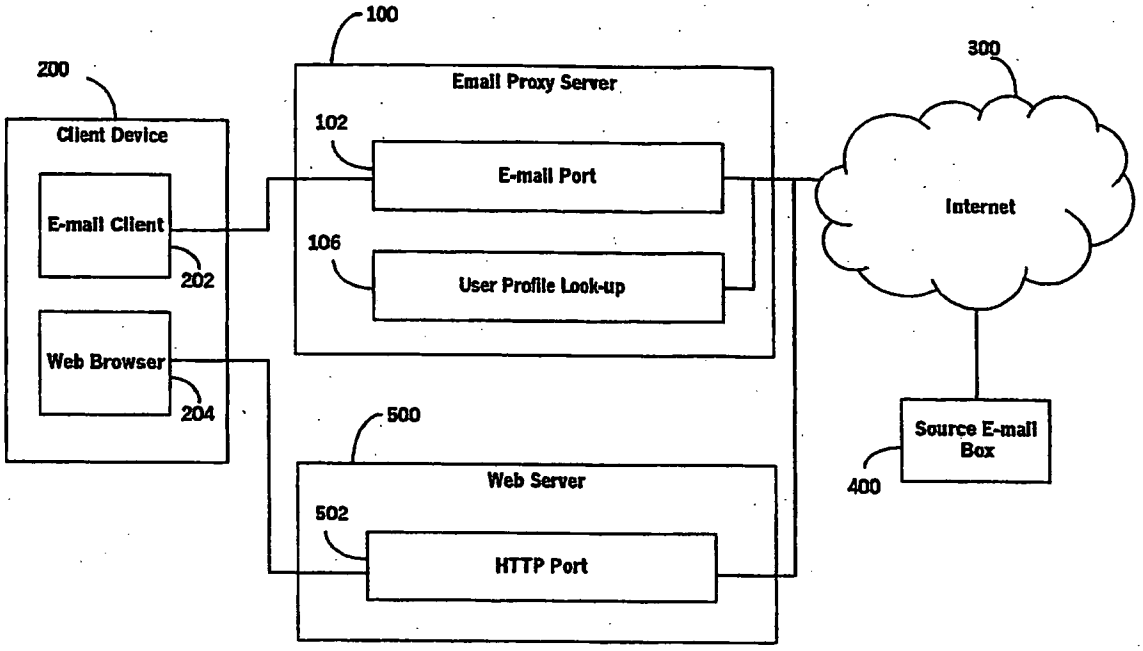
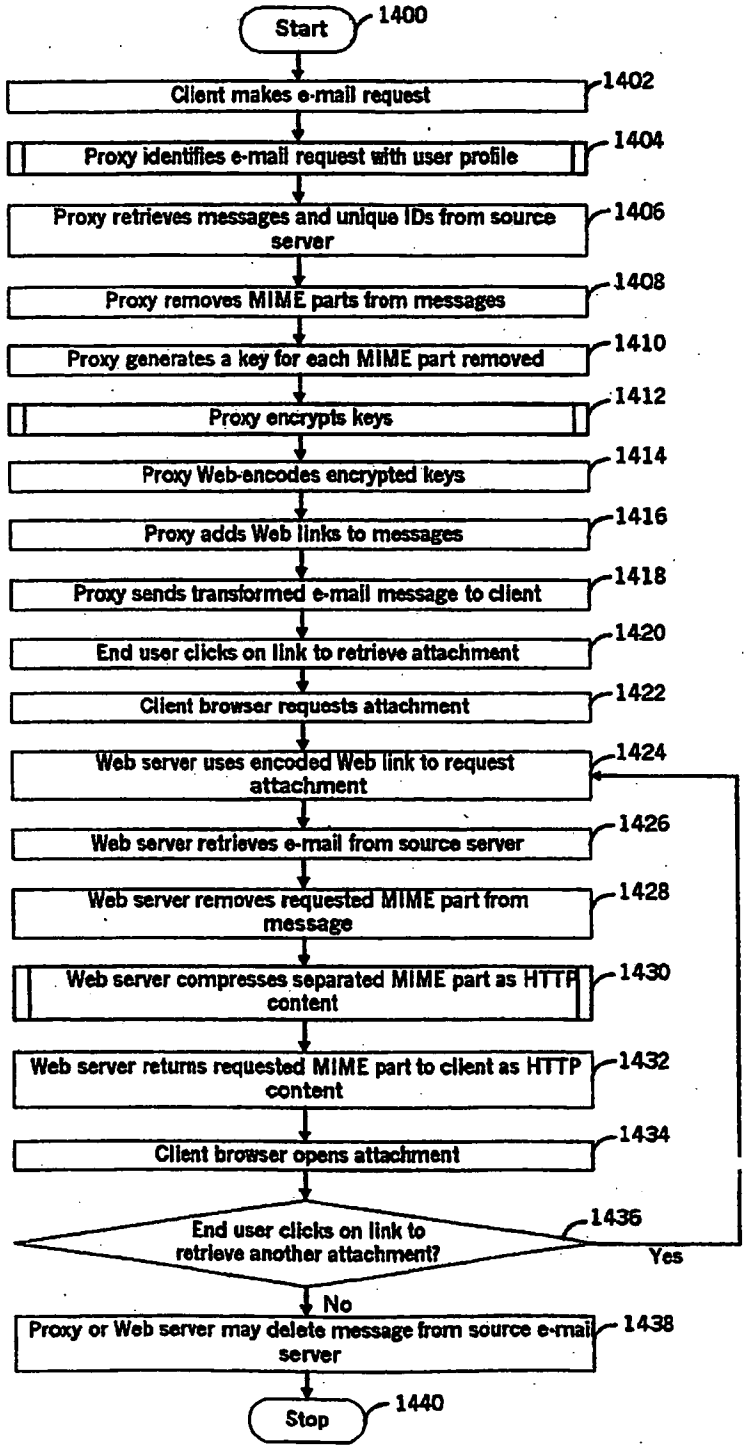

100
Email Proxy Server
200
Client Device
102
E-mail Port
E-mail Client
202
106
User Profile Look-up
Web Browser
204
300
Internet
500
Web Server
502
HTTP Port
Source E-mail Box
400

FIG. 5

FIG. 6


Start
1400
Client makes e-mail request
1402
Proxy identifies e-mail request with user profile
1404
Proxy retrieves messages and unique IDs from source server
1406
Proxy removes MIME parts from messages
1408
Proxy generates a key for each MIME part removed
1410
Proxy encrypts keys
1412
Proxy Web-encodes encrypted keys
1414
Proxy adds Web links to messages
1416
Proxy sends transformed e-mail message to client
1418
End user clicks on link to retrieve attachment
1420
Client browser requests attachment
1422
Web server uses encoded Web link to request attachment
1424
Web server retrieves e-mail from source server
1426
Web server removes requested MIME part from message
1428
Web server compresses separated MIME part as HTTP content
1430
Web server returns requested MIME part to client as HTTP content
1432
Client browser opens attachment
1434
End user clicks on link to retrieve another attachment?
1436
Yes
No
Proxy or Web server may delete message from source e-mail server
1438
Stop
1440

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US02/29689

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : G06F 15/16
US CL : 709/206, 207

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 709/206, 207

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6,275,848 B1 (ARNOLD) 14 August 2001 (14.08.2001), see column 2, line 20 to column 6, line 25.	1-3,5,7-8,13-16,20-21,26
Y	US 6,256,666 B1 (SINGHAL) 03 July 2001 (03.07.2001), see column 3, line 45 to column 7, line 57.	1-3,5,7-8,13-16,20-21,26
A	US 6,275,850 B1 (BEYDA et al.) 14 August 2001 (14.08.2001), see the whole reference.	1-26
A	US 6,249,807 B1 (SHAW et al.) 19 June 2001 (19.06.2001), see the whole reference.	1-26
A	US 5,890,163 A (TODD) 30 March 1999 (30.03.1999), see the whole reference.	1-26

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Date of the actual completion of the international search	Date of mailing of the international search report
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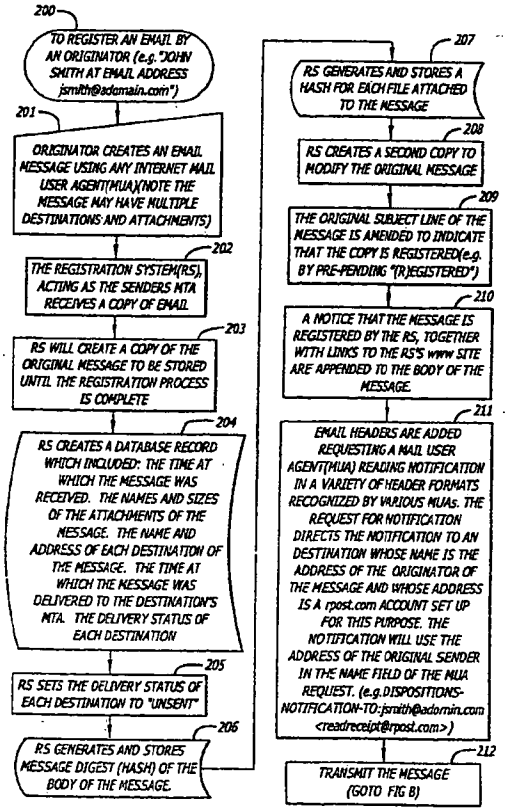
(74) Agents: PARKHURST, David, G. et al.; Fulwider Patton Lee & Utecht, LLP, Howard Hughes Center, 6060 Center Drive, Tenth Floor, Los Angeles, CA 90045 (US).

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[Continued on next page]

(54) Title: SYSTEM AND METHOD FOR VERIFYING DELIVERY AND INTEGRITY OF ELECTRONIC MESSAGES



(57) Abstract: A server receives a message from a sender and transmits the message through the Internet to a recipient. The server normally transmits the message in a first path through the Internet to the recipient. When the sender indicates at a particular position in the message that the message is registered, the server transmits the message in a second path through the Internet to the recipient. The sender can also provide additional indications in the message to have the server handle the message in other special ways not normally provided by the server. After learning from the receipt or the recipient's agent through the Internet that the message was successfully received, the server creates, and forwards to the sender, an electronic receipt. The receipt includes at least one, and preferably all: the message and any attachments, a delivery success/failure table listing the receipts, and the receipt times, of the message by the recipient's specific agents, and the failure of other agents of the recipient to receive the message and a digital signature of the message and attachments subsequently. By verifying that the digital signature on the sender's receipt matches the digital receipt at the server, the server can verify, without retaining the message, that the receipt is genuine and that the message is accurate.

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SYSTEM AND METHOD FOR VERIFYING DELIVERY AND INTEGRITY OF ELECTRONIC MESSAGES

BACKGROUND OF PREFERRED EMBODIMENTS OF THE INVENTION

I. FIELD OF THE INVENTION:

This invention relates generally to a system and method for verifying delivery and content of an electronic message and, more particularly, to a system and method of later providing proof regarding the delivery and content of an e-mail message. More specifically, the invention relates to a system and method for sending registered mail through the internet while verifying delivery and content of an electronic message and later providing proof regarding the delivery and content of the registered e-mail message.

II. DESCRIPTION OF RELATED ART:

In recent years e-mail has become an indispensable business tool. E-mail has replaced "snail mail" for many business practices because it is faster, cheaper and generally more reliable. But there remain some mail applications where hard copy is still dominant, such as registered and certified mail. For example, when a letter is sent by certified mail the sender is provided with a receipt to prove that the letter was mailed. A returned registered mail receipt adds the Postal Service's confirmation that the letter was successfully delivered to the addressee or the addressee's authorized agent. Additionally, private couriers such as Federal Express® and United Parcel Service® (UPS) provide some type of delivery confirmation. Since every piece of courier mail is, in effect, registered it is natural for consumers to turn to these services when they want proof of delivery.

Many existing e-mail systems and e-mail programs already provide for some form of proof of delivery. For instance, some e-mail systems today allow a sender to mark a message with "request for notifications" tags. Such tags allow a sender to request notification that the message was delivered and/or when the message was opened. When a sender requests delivery notification, the internet e-mail system may provide the sender with an e-mail receipt that the message was delivered to the mail server or electronic in-box of the recipient. The receipt message may include the title of the message, the destination address, and the time of delivery. It may also include (depending on the types of "flags" that are provided and activated in the mailing software) a list of all the internet "stations" that the message passed through en route to its destination. This form of reporting is built into some of the rules and protocols which implement e-mail. Furthermore, when a message is sent with a "read notification" request, the recipient's e-mail program may send to the sender an e-mail notification that the recipient opened that message for reading. Many electronic mail clients can and do support this kind of reporting; however, Internet protocols do not make this mandatory.

However, this does not mean that an e-mail sent with a notification request is as effective in all respects as registered mail. People certify and register letters because they want proof of delivery, e.g., proof that can be used in a civil or criminal proceeding, or proof that will satisfy a supervisor or a client or a government agency that a message has been sent, a job has been done, an order placed, or a contract requirement satisfied.

A registration receipt from the United States Postal Service (USPS) constitutes proof of delivery because the USPS stands behind it. The receipt represents the Post Office's confirmation that the letter or package in question was actually delivered to the addressee or his authorized representative. On the other hand, with the e-mail receipt various hurdles exist to an e-mail receipt being admitted and relied upon as persuasive evidence in a court of law as a proof that the message was delivered. After all, the receipt may be just another e-mail message that could have been altered or created by anyone, at any time.

There exists a need for an e-mail system and/or method that can provide reliable proof of the content and delivery of an e-mail message in order to take fuller advantage of the convenience and low cost of communicating via e-mail.

To meet this need some systems have been established whereby senders may receive third party proof of delivery by enrolling in services whereby:

a) The sender transmits an electronic message to a third party together with a list of the document's intended recipients.

b) The third party sends a notification to each of the message's intended recipients inviting them to visit the third party's web site where the message can be viewed.

c) If the intended recipient visits the third party's web site to view the message, the third party records this visit so that the sender may know that his message has been read by the recipient.

The drawbacks of such systems are manifold. In the first place, they rely essentially on the co-operation of the recipient of the e-mail to collect his messages from the third party's service. But the circumstances in which a sender may want proof of delivery of a message are often ones in which it cannot be assumed that the intended recipient will co-operate in receiving the message. In such cases, e.g. where acknowledging receipt of the message would place a financial or legal burden on the recipient, the recipient can simply ignore the notification that mail is available for him to receive. Note that there is nothing in such a system to guarantee that the intended recipient has received notification of waiting mail. In the second place, such systems are cumbersome and slow to use as compared to regular e-mail insofar as it can require the sender and/or the recipient to connect to a World Wide Web site to send, collect and verify the delivery of each message. Moreover, transmission of documents by such methods may require both sender and receiver to upload and download files to a web site. Finally, because these methods require the third party to retain a copy of the whole of each message until such time as they are collected or expired, the methods can require its provider to devote substantial computational resources to data storage and data tracking over an

extended period of time. As an alternative method of providing proof of delivery, some systems provide proprietary e-mail clients or web-browser plug-ins that will notify senders when a message has been received provided that a recipient uses the same e-mail client. The obvious disadvantage of such systems is that they require both sender and recipient to use the same e-mail client.

Therefore, there exists a need for an e-mail system/method that can provide reliable proof of the content and delivery of electronic messages which does not require the compliance or co-operation of the recipient, which requires no special e-mail software on the part of sender or recipient, which operates with the same or nearly the same convenience and speed of use as conventional e-mail, and which can be operated economically by a service provider. A general object of the invention disclosed and claimed in co-pending non-provisional application 09/626,577 (attorneys file RPOST-57228), filed by Terrance A. Tomkow on July 27, 2000 and assigned of record to the assignee of record in this application, is to provide a system and method for reliably verifying via secure and tamper-proof documentation the content and delivery of an electronic message such as an e-mail. Ideally, the invention disclosed and claimed in co-pending application 09/626,577 (attorneys file RPOST-57228) will give e-mail and other electronic messages a legal status on a par with, if not superior to, that of registered United States mail. However, it is not necessary to the invention that any particular legal status is accorded to messages sent according to the methods taught herein, as the invention provides useful information and verification regardless.

The invention disclosed and claimed in co-pending non-provisional application 09/626,577 includes an electronic message system that creates and records a digital signature of each electronic message sent through the system. An originator may send a copy of the electronic message to the system or generate the electronic message within the system itself. The system then forwards and delivers the electronic message to all recipients (or to the designated message handlers associated with the recipients), including "to" addressees and "cc" addressees. Thereafter, the system returns a receipt of delivery to the originator of the electronic

message. The receipt includes, among other things: the original message, the digital signature of the message, and a handshaking and delivery history including times of delivery to the recipients. To later verify and authenticate information contained in the receipt, the originator or user sends a copy of the receipt to the system. The system then verifies that the digital signature matches the original message and the rest of the receipt. If the two match, then the system sends a letter or provides other confirmation of authenticity verifying that the electronic message has not been altered.

The system disclosed and claimed in co-pending non-provisional application 09/626,577 may include a form of e-mail server connected to the Internet, which can be utilized in many ways. For instance, individual users can register their electronic messages, such as e-mails, by sending a "carbon copy" (cc:) to the system or composing the message within the system itself. For corporate or e-commerce users, these users can change their server to a server incorporating the present invention and have all of their external electronic messages registered, with the option of having the system retain and archive the receipts. The system can accept and verify encrypted electronic messages and manage the electronic messages within and/or outside a "fire wall." For web-based users, i.e., individuals or corporations using web-based e-mails, such as MSN Hotmail® or Yahoo Mail®, such users could check a box or otherwise set a flag within their e-mail programs to select on a case-by-case basis whether to make the e-mails of record and/or to archive the messages using the system disclosed and claimed in co-pending non-provisional application 09/629,577.

The digital signature can be created using known digital signature techniques, such as by performing a hash function on the message to produce a message digest and then encrypting the message digest. Separate digital signatures can be created for the body of the message, any attachments, and for the overall message including the body, the attachments, and the individual message digests. The encrypted message digest provides one type of message authentication or

validation code, or secure documentation. Other message authentication and/or validation codes may also be generated and used.

In one aspect, the invention disclosed and claimed in co-pending application 09/626,577 is a method of providing proof regarding the delivery and content of an electronic message, comprising: receiving from a sender across a computer network an electronic message, the message having a delivery address associated therewith; computing a message digest according to the message; encrypting the message digest; sending the message electronically to a destination corresponding to the delivery address; recording the Simple Mail Transport Protocol (SMTP) or Extended SMTP (ESMTP) dialog which effects the delivery of the message; receiving Delivery Status Notification information associated with the message and the delivery address; providing to the sender an electronic receipt, the receipt comprising: a copy of the message, the encrypted message digest, the (E)SMTP transcripts, and at least a subset of the Delivery Status notification information, and, at a future date, receiving electronically the electronic receipt from the sender, verifying that the encrypted message digest corresponds to the message, and verifying that the message was received by an electronic message handler associated with the delivery address.

In another aspect, the invention disclosed and claimed in co-pending application 09/626,577 includes a method of verifying delivery of an electronic message, comprising: in a wide area network computer system, receiving an electronic message from a message sender for routing to a destination address; establishing communication with an electronic message server associated with the destination address, the server defining a destination server; querying the destination server to determine whether the destination server supports Delivery Status Notification (DSN) functionality; receiving a response to the query, the query and response together defining an SMTP dialog; requesting Delivery Status notification information from the destination server according to results of the SMTP dialog; transmitting the electronic message to the destination address; receiving DSN information from the destination server with respect to delivery of

the electronic message; and providing to the message sender at least a portion of the SMTP dialog, and at least a portion of the DSN information.

In yet another aspect, the invention disclosed and claimed in co-pending application 09/626,577 includes a method of verifying content of a received electronic message, comprising: receiving the electronic message; generating a digital signature corresponding to the content of the received message; providing the message and the digital signature to a designated addressee; and, at a later time, verifying that the digital signature corresponds to the message.

In accordance with still another aspect of the invention disclosed and claimed in co-pending application 09/626,577, the method includes establishing whether a message was electronically received by a recipient, comprising: providing a message to be dispatched electronically along with a recipient's address from a sender; creating a signature associated with the message; dispatching the message electronically to the recipient's address; tracking the message to determine a final Delivery Status of the message dispatched to the recipient's address; upon receiving final Delivery Status of the message, generating a receipt, the receipt including a copy of the message, the signature, and the final Delivery Status for the message; and providing the receipt to the sender for later establishing that the message was electronically received by the recipient.

In accordance with yet another aspect of the invention disclosed and claimed in co-pending application 09/626,577, a method is provided for proving that an electronic message sent to a recipient was read, comprising: providing an electronic message along with a recipient's address; calculating a digital signature corresponding to the electronic message; dispatching the electronic message electronically to the recipient's address; requesting a Mail User Agent (email client "reading") notification from the recipient; upon receiving the reading notification, generating a reading receipt, the reading receipt including a copy of the message, the digital signature for the corresponding electronic message, and a second digital signature for the reading receipt from the recipient; and providing the reading receipt for later verification that said message was received by the recipient.

In accordance with another aspect of the invention disclosed and claimed in co-pending application 09/626,577, a method is provided for validating the integrity of a purported copy of an electronic message, comprising: receiving the purported electronic message copy, said purported copy including an encrypted message digest associated therewith; decrypting the message digest; generating a second message digest based on content of the purported copy; and validating the purported copy by comparing the decrypted message digest and the second message digest to determine whether the two message digests match.

In accordance with a still further aspect of the invention disclosed and claimed in co-pending application 09/626,577, a method is provided for validating a received registered e-mail, comprising: receiving an electronic receipt, said receipt including a base message and an encrypted message digest; decrypting the encrypted message digest; generating a second message digest from the base message; and validating the e-mail if the decrypted message digest matches the second message digest.

In yet another aspect, the invention disclosed and claimed in co-pending application 09/626,577 includes a website at which users can go to send and receive secure messages, with the website host acting as an independent third party which will send and receive the messages and provide secure documentation regarding the content and delivery of the messages.

The above-described objects of the invention disclosed and claimed in co-pending application 09/626,577 and other features and benefits of the present invention will become clear to those skilled in the art when read in conjunction with the following detailed description of a preferred illustrative embodiment and viewed in conjunction with the attached drawings in which like numbers refer to like parts, and the appended claims.

BRIEF DESCRIPTION OF PREFERRED EMBODIMENTS OF THE INVENTION

A server receives a message from a sender and transmits the message through the Internet to a recipient. The server normally transmits the message in a first path through the Internet to the recipient. When the sender indicates at a particular position in the message that the message is registered, the server transmits the message in a second path through the Internet to the recipient. The sender can also provide additional indications in the message to have the server handle the message in other special ways not normally provided by the server.

After learning from the receipt or the recipient's agent through the Internet that the message was successfully received, the server creates, and forwards to the sender, an electronic receipt. The receipt includes at least one, and preferably all: the message and any attachments, a delivery success/failure table listing the receipts, and the receipt times, of the message by the recipient's specific agents, and the failure of other agents of the recipient to receive the message and a digital signature of the message and attachments subsequently. By verifying that the digital signature on the sender's receipt matches the digital receipt at the server, the server can verify, without retaining the message, that the receipt is genuine and that the message is accurate.

BRIEF DESCRIPTION OF THE DRAWINGS

A detailed description of the preferred embodiment of the invention will be made with reference to the accompanying drawings:

FIG. 1 is a system diagram of a first embodiment of the invention disclosed and claimed in co-pending application 09/626,577, in which embodiment outgoing messages are made of record by being transmitted by a special Mail Transport Agent (MTA).

FIGS. 2-2F constitute a representative flow diagram for making an outgoing e-mail of record according to the embodiment of FIG. 1.

FIG. 3 is a system diagram of a second embodiment of the invention disclosed and claimed in co-pending application 09/626,577, in which embodiment senders may direct a Mail Transport Agent to transmit selected messages through a separate Mail Transport Agent constructed to make the selected messages of record.

FIG. 4 is a system diagram of a third embodiment of the invention disclosed and claimed in co-pending application 09/626,577, in which carbon copies (cc's) of outgoing messages are sent to a special server to be made of record.

FIG. 5 is a system diagram of a fourth embodiment of the invention disclosed and claimed in co-pending application 09/626,577, in which embodiment users compose outgoing messages to be made of record at a designated website.

FIG. 6 is a system diagram of a fifth embodiment of the invention disclosed and claimed in co-pending application 09/626,577 in which users may send e-mails made of record and store receipts from within a Web Based Mail User Agent (MUA).

FIG. 7 is a flow diagram for validating an e-mail receipt made of record.

FIG. 8 is a system diagram of an embodiment of the present invention for making of record incoming messages.

FIG. 9 is a flow diagram for making of record incoming messages.

FIG. 10 is a flow diagram for validating received messages made of record.

FIG. 11 is a system diagram showing an exemplary use of the invention disclosed and claimed in co-pending application 09/626,577 by an e-business to make of record and acknowledge incoming and outgoing communications.

FIG. 12 is a block diagram showing a flow chart for a method of making of record mail in a system such as shown in individual ones of the different embodiments shown in the previous Figures and showing how a message from a sender to a server with an indication representing made of record mail provides for the transmission of the message by the server to a recipient through a special route

different from the route in which the message is normally transmitted by the server to the recipient;

FIG. 13 is a block diagram showing a flow chart similar to that shown in Figure 12 but with additional blocks for providing special functions in addition to the functions provided by the flow chart in Figure 12; and

FIG. 14 is a partial view of a form which is used by the sender to make of record a message to be sent by the server to the recipient.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS OF THE INVENTION

This description is not to be taken in a limiting sense, but is made merely for the purpose of illustrating the general principles of the invention. The section titles and overall organization of the present detailed description are for the purpose of convenience only and are not intended to limit the present invention. Accordingly, the invention will be described with respect to e-mail messaging systems that use the Internet network architecture and infrastructure. It is to be understood that the particular message type and network architecture described herein is for illustration only; the invention also applies to other electronic message protocols and message types using other computer network architectures, including wired and wireless networks. For convenience of discussion, messages that are processed according to the invention disclosed and claimed in co-pending application 09/626,577 may be referred to herein as being "made of record" messages. In the discussion which follows, the term "RPost" will refer in general terms to a third party entity which creates and/or operates software and/or hardware implementing the present invention, and/or acts as a disinterested third party message verifier. Messages that are processed according to the present inventions are referred to as "registered" inventions. The term is used for convenience of exemplary discussion only, and is not to be understood as limiting the invention.

Rpost as outgoing mail server embodiment

FIG. 1 is a system diagram of a first embodiment of the present invention, wherein outgoing e-mails are made of record according to the invention disclosed and claimed in co-pending non-provisional application 09/626,577 . In this embodiment, the RPost server 14 serves as the primary outgoing Mail Transport Agent (MTA) for a message sender's Mail User Agent (MUA) 13. Although message recipient 18 is technically the addressee and is therefore merely the intended recipient or intended destination at this point in time, for simplicity of discussion this entity will be referred to herein as the recipient, addressee, or destination. Note that a single message may have many different destinations and that each of these may be reached through a different MTA. The method of sending messages made of record may divided into three parts:

1) *Preprocessing*: Steps to be taken before a message is transmitted;
2) *Transmission*: The method of delivering messages to addressees;
3) *Post Processing*: Procedures for gathering information about messages after their delivery, the creation of receipts, and the validation of receipts.

1.1 Preprocessing

On receiving a message for transmission, the Rpost server 14 will create records in a database for each message that will be used to store such information as:

a) the time at which the message was received;
b) the names of the attachments of the message; and
c) the number of addresses of the message.

For each destination of the message the database will record:

a) the name of the destination (if available);
b) the internet address of the destination;

c) the time at which the message was delivered to the destination's Mail Server; and

d) the *Delivery Status* of this destination.

Recipient Delivery Statuses used by the system will include:

UNSENT

This status indicates that the message has not been sent.

DELIVERED-AND-WAITING-FOR-DSN

This status indicates that the message has been delivered to an ESMTP compliant MTA that supports Delivery Status Notification (DSN) so that a success/failure notification can be expected.

DELIVERED

This status signifies that the copy of the message sent to this recipient has been successfully delivered to a server that does not support ESMTP DSN.

DELIVERED-TO- MAILBOX

This status signifies that a DSN message has been received which indicates that the copy of the message sent to this recipient was delivered to the mailbox of the recipient.

RELAYED

This status signifies that an MTA DSN has been received which indicates that the copy of the message sent to this recipient has been relayed onward to another server.

UNDELIVERABLE

This status indicates that after repeated attempts RPost has been unable to connect to an MTA to deliver the messages to this recipient.

FAILED

This status signifies that an MTA DSN has been received that indicates a failure to deliver a copy of the message to this recipient.

At this time the system will also perform *hashing* functions on the message's contents.

RPost server 14 employs a hash function and an encryption algorithm. The hash function may be one of any well-known hash functions, including MD2, MD5, the Secure Hashing Algorithm (SHA), or other hash functions which may be developed in the future. Hash algorithms and methods are described in Bruce Schneider, *Applied Cryptography: Protocols, Algorithms, and Source Code in C*, John Wiley & Sons, Inc. (New York) 1993; *Federal Information Processing Standard Publication 180-1 (FIPS PUB 180-1) Secure Hash Standard*, National Institute of Standards and Technology; and U.S. Pat. No. 5,530,757 issued to Krawczyk, entitled "Distributed Fingerprints for Information Integrity Verification," which are hereby incorporated by reference for their teachings of hash functions, encryption, and methods and systems for implementing those functions. Other known or new methods of detecting whether the contents of the message have been altered may be used.

A good hash function H is one-way; that is, it is hard to invert where "hard to invert" means that given a hash value h, it is computationally infeasible to find some input x such that $H(x) = h$. Furthermore, the hash function should be at least weakly collision-free, which means that, given a message x, it is computationally infeasible to find some input y such that $H(x) = H(y)$. The consequence of this is that a would-be forger who knows the algorithm used and the resulting hash value or message digest will nevertheless not be able to create a counterfeit message that will hash to the same number. The hash value h returned by a hash function is generally referred to as a message digest. The message digest is sometimes referred to as a "digital fingerprint" of the message x. Currently, it is recommended that one-way hash functions produce outputs that are at least 128 bits long in order to ensure that the results are secure and not forgeable. As the current state of the art advances, the recommended length for secure hash functions may increase.

RPost server 14 computes a message digest for the message body, and a separate message digest for each of the attachments of the message and stores these in a manner in which they may be later included in a receipt for the message.

Before the message is altered in the ways that registration will require, a copy of the original message and its attachments are stored in a manner in which they can be later retrieved by the system.

The RPost server 14 may alter a message in several ways before transmission to the recipient's MTA.

Although such is not necessary to the practice of the invention, the message may be tagged to denote the fact that the message has been made of record, such as by inserting the words "Made of Record" or at the beginning of the "subject" line of the message, by appending a tag such as,

"This message has been made of record with RPost. Visit our web site at www.RPost.com for additional information."

at the end of the original message or other tagging. Additionally, the tag may contain instructions, World Wide Web addresses, or links that invite and allow the recipient to send a reply made of record to the message by linking to a Web Page from which messages made of record may be composed and sent.

Although tagging is optional, the delivered message will generally be referred to herein as the tagged message.

Internet protocols provide two forms of receipt for e-mail messages:

MTA NOTIFICATIONS

These are e-mails that are sent by a recipient's MTA notifying the nominal sender of the message that various events have occurred. MTAs that conform to the SMTP protocol will typically only send a notification in the event that the mailer cannot deliver a message to the mailbox of the addressee (as might happen if the address is not valid or if the addressee's mailbox has exceeded its allotted storage quota).

With the introduction of the Extended SMTP standard it became possible for sending MTAs to request notices of success and failure in the delivery of messages.

These Delivery Status Notifications (DSNs) are e-mails which are sent by a receiving MTA to the nominal sender of the message when certain events occur: e.g. the message has been successfully deposited into the mailbox of the recipient; the message cannot be delivered to the recipient's mailbox for some reason; the recipient's message has been relayed on to another server which does not give DSN receipts.

Note that only e-mail servers that support the Extended SMTP (ESMTP) protocol support this form of DSN and that support for this function is optional for ESMTP servers and depends on the configuration selected by the server's administrators.

Although DSN is a term that only came into use with the advent of ESMTP, we will, in what follows, use 'DSN' to refer to any MTA generated message relating to the status of a received message whether or not it is in conformity to the ESMTP protocol.

MUA NOTICES (READING NOTIFICATIONS)

These are emails that are sent to the (nominal) author of a message by the recipient's Mail User Agent (MUA) (e-mail program) when certain events occur: e.g. the message is opened for reading, or deleted from the system without being read. By Internet convention (RFC 1891), no MUA program can be forced to generate such notifications. Whether an MUA will generate these receipts will depend upon the configuration chosen by its user.

The RPost server 14 will configure and transmit messages in a way that attempts to elicit both MTA DSNs and MUA notices from compliant MTAs and MUAs. In order to elicit a Reading Receipt from compliant MUAs, certain headers should be included in the header section of an e-mail message. Different MUAs respond to different headers; hence Server 14 will add several different headers to each message requesting a read notification in a form recognized by various MUAs. These headers all take the form:

```
Header label: user name <user address>
```

For example:

```
Disposition-notification-to: john smith
```

<jsmith@adomain.com>
read-notification-to: john smith
<jsmith@adomain.com>

where 'john smith' is the name of the user to whom an MUA notification is to be sent and '<jsmith@adomain.com>' is that user's internet address. Normally such headers would refer to the author of the message but in the case of the present method it is required that the notification be returned to RPost so that the notification can be processed by RPost. To assure that this is so Server 14 will insert headers that request that MUA receipts be sent to an address where they can be processed by the RPost server, for example: "readreceipt@RPost.com". This will direct any compliant recipient MUAs to send their notifications to an RPost address for processing.

The task of processing returned MUA notifications raises another problem that must be dealt with at this stage. There are no standards governing the format or content of MUA notifications. Often they will quote the subject of the original message and the time of the event (e.g. "opened for reading") that they are reporting. But even if this information is included in the notification it is rarely sufficient to uniquely identify the message that prompts it or to identify the author of that message. When the system receives a MUA notification it should be able to identify the message that prompts it, so as to include the notification information in the receipt that RPost will generate for the sender. Alternatively, the system should at least be able to reliably identify the sender of the message to which the MUA notification refers so that the notification information can be passed on to the sender in the form of an RPost Reading receipt (see below).

To accomplish the latter goal, the system can take advantage of the fact that internet addresses have two components: a name field and an address field, where the address field is set off by corner quotes "<>". Most MUAs will include both fields in the destination address of their MUA notifications. In composing its requests for MUA receipts, the RPost system will include the server 14 read receipt-handling address as the address for the notification but will use the *address* of the original sender in the name field of the header. For example, where the original

sender of the message is user John Smith with internet address jsmith@adomain.com, the RPost server 14 will include headers of the form:

```
Disposition-notification-to: jsmith@adomain.com
<readreceipts@RPost.com>
```

This will typically result in the compliant MUA sending a notification to readreceipts@RPost.com addressed as:

```
jsmith@adomain.com <readreceipts@RPost.com>
```

On receipt of such a notification at the address *"readreceipts@RPost.com"*, the server can, by parsing the addressee's field, determine that the notification concerns a message originally sent by *jsmith@adomain.com*, even if this could not be determined by any examination of the contents of the notification. With this information in hand, the server can then package the contents of the notification in a digitally signed RPost Reading receipt and send the receipt to the address jsmith@adomain.com

The RPost system will also endeavor to elicit and collect MTA DSN notices generated by recipient MTAs. Since such notifications are always sent to the address listed in the "FROM:" field of the message header, the server 14 will alter each message header so that the message is received as "FROM:" an RPost address at which DSNs may be processed.

However the problem of processing DSNs raises another issue, which will be dealt with at this stage. DSNs do not have any standard content or format; often it is impossible to determine, merely by examining the contents of these e-mails, what message their contents are giving notification of. This problem was supposed to have been addressed for DSNs generated in compliance with the ESMTP protocol by the use of DSN envelope ID numbers (see RFC 1869). According to the protocol, a transmitting MTA can include a reference number along with its request for a DSN. This number would be quoted in any returning DSN, allowing the sender to identify the subject message of the DSN. However, as a matter of fact, many MTAs that report themselves as supporting ESMTP DSN do not return a DSN envelope ID or any other information sufficient to reliably identify the subject message. Finally, even where a DSN does return information sufficient to identify

the message it is giving notice of, it often will not contain sufficient information to identify the specific addressee of the message that has prompted the notification. Thus, a single message might be sent to two addressees at a domain; one might be successfully delivered to the addressee's mailbox; the other, not. The MTA for the domain may report these events in a DSN in ways that provide no way for the recipient of the DSN to determine which addressee was successfully delivered and which was not (as, for example, may happen if the DSN reports the recipient's addresses as their local alias names rather than by the addresses contained in the original message).

The present invention solves this problem in four steps:

1) A unique identification number is generated for each outgoing message (e.g. based upon a time stamp). This number is stored in a database.

2) The recipients of each message are enumerated and the identifying numbers are stored in a database.

3) The message is sent separately to each intended recipient's MTA. (Even when two recipients have a common domain name and MTA, the server 14 will transmit the message to that MTA in two separate SMTP telnet sessions.)

4) When the server 14 transmits the message to a recipient's MTA it augments the message's "FROM" field to show the message as having been sent from an address which incorporates the message's unique ID and the identifying number of the sender. The address also contains a substring (e.g. "rcpt") that enables the server to identify return messages as DSNs.

Thus, a single message denominated "mmyyddss" by the server 14, from the sender named John Smith, might be sent to its first intended recipient (denominated "a" by the system) with a header reading:

```
From: John Smith <rcptmmddyyssa@RPost.com>
```

The same message would be sent to the second recipient with a header reading:

From: John Smith <rcptmmddyyssb@RPost.com>

Many e-mail MUAs will only display the name of the sender of a message and thus the special address will be unseen by most recipients.

The upshot of this form of addressing is that when the recipient MTAs issue DSNs (whether ESMTP compliant or not) they will address those DSNs to different RPost addresses. On receiving these DSNs, the server 14 can identify them as DSN messages by their "RCPT" prefix and, by parsing the addressees, can determine which message and which recipient is the subject of the DSN.

The server 14 will alter the 'FROM' field of each message to refer to a recipient of the message each time it attempts to transmit the message to that recipient's MTA.

To insure that recipient replies to transmitted messages are directed properly the server 14 will add an explicit "reply-to:" message header into the message listing the original sender's name and internet address. In the case of the present example this would be:

Reply-to: john smith <jsmith@adomain.com>

This will lead recipient MUAs to address replies to a received message to the actual sender's address, rather than the constructed RPost address.

I.2 Transmission

As noted above, it is part of the method that the RPost server 14 transmits a separate copy of an outgoing message to each addressee of that message. Moreover RPost will attempt to make each such delivery through a direct SMTP connection with a mail eXchanger (MX) of record for each destination.

Note: Each valid internet e-mail address includes an internet domain name or IP address. Each domain name/address has associated with it an e-mail server(s) authorized to receive mail for addresses in that domain. It will be noted that some domains have more than one server. The Domain Name Server responsible for each domain broadcasts the identity of its mail servers across the Internet. This information is publicly available and is managed and transmitted in ways that conform to rules and conventions which govern internet e-mail and Domain Name service.

Before transmitting a copy of a message to any destination the RPost server 14 will perform an Internet Name Server Lookup to identify an MTA associated with the destination's domain. Having identified the MTA responsible for receiving mail on behalf of a destination address, the system will attempt to open a telnet connection with the destination's local MTA.

It is common practice for internet e-mails to be relayed from MTA to MTA until they reach their final destination. The primary purpose for providing a direct connection between the RPost server 14 and the destination's MTA is so that the RPost server can record delivery of the message, (this record taking the form of an SMTP dialogue) with the e-mail server which has proprietary responsibility for receiving e-mail for the recipient domain name.

The existence of this record provides helpful evidence that the message was delivered, in much the same way that a registered mail receipt provides evidence of delivery. USPS Registered mail is treated as verifiably delivered if it can be proved to have been delivered to the addressee's authorized agent (e.g. a secretary, or mail room clerk). In the event of any legal challenge to the evidentiary merit of an RPost delivery receipt, it will be recognized that in selecting an internet e-mail service provider, the recipient has authorized that provider to collect electronic messages on his behalf. In turn, that service provider has acknowledged its status as the authorized agent for e-mail recipients of that domain name by broadcasting the address of its MTAs as the receptive e-mail servers for this domain.

Accordingly, having delivered messages directly to the mail server responsible for receiving the recipient's e-mail, RPost will have delivered the message to an agent the recipient has legally authorized to receive his mail. By recording the delivery transaction (that transaction taking the form of an SMTP dialogue) RPost can claim to have proof of delivery to the recipient's authorized agent.

Note that while the method herein described attempts to collect other forms of proof of delivery to each destination, whether or not these attempts succeed will depend upon factors that will not be in the control of RPost, (e.g. the form of SMTP

support deployed on the recipient's mail server). On the other hand, every successful delivery direct to a recipient's mail server will always generate an SMTP record. Recording this record allows RPost to provide proof of delivery to any valid internet destination that complies with the minimum protocols (SMTP) for internet mail. This represents an important advantage of the current method over other methods that might attempt to prove delivery by reliance on ESMTP DSN.

Having identified the MTA for a destination of a message, the RPost server 14 will attempt to open an ESMTP connection with the destination MTA by issuing an "EHLO" handshake in compliance with RFC 1869. If SERVER 16 supports ESMTP, it will respond by listing which ESMTP services it supports.

If SERVER 16 supports ESMTP, the RPost server 14 will first determine if SERVER 16 supports the ESMTP Service "VERIFY". The Verify service allows a calling SMTP server to determine, among other things, if an address in an MTA's domain is genuine. If the RPost server 14 determines by these means that the address it is attempting to deliver its message to is not valid, it will terminate the connection, cease attempting to deliver a message to this addressee, and record, in its database, the status of this message destination as UNDELIVERABLE.

Whatever its result, the RPost server 14 will record the ESMTP VERIFY dialogue in a file and store it so that it may be later attached to or included in the Delivery Receipt for this message. It should be noted that, out of concern for security, few ESMTP servers support the VERIFY function.

If System 16 does not support the VERIFY method, then the RPost server 14 will nevertheless attempt to deliver the message to System 16. Typically an MTA will accept messages for any address nominally in its domain and will later send a DSN if the address is invalid.

The RPost server 14 will then attempt to determine if the destination server supports the ESMTP service DSN. If it does, RPost will transmit the message with a request that SERVER 16 notify the sender of the message with an ESMTP DSN if the delivery to the addressee succeeds or fails. After the successful transmission of

the message to this destination the system will record the Delivery Status of this destination as DELIVERED-WAITING-FOR-DSN.

If Server 16 replies to the "EHLO" handshake in a way that indicates that it does not support ESMTP, the RPost server 14 will issue a "HELO" message to initiate an SMTP connection. If this connection is achieved, the RPost server 14 will transmit the message in compliance with the SMTP protocol and will record the Delivery Status of the destination as DELIVERED.

Whether the connection is SMTP or ESMTP, the RPost server 14 will record the entire protocol dialogue between the two servers. Typically this dialogue will include protocol messages in which, among other things, the destination server identifies itself, grants permission to upload a message for a named recipient, and acknowledges that the message was received. RPost will save the record of this transaction in such way that it may be later retrieved and included in or attached to the RPost Delivery Receipt for this message.

For various reasons RPost may not be able to achieve an SMTP connection with an MTA of a recipient or it may achieve such a connection but be denied permission to transmit the message by the recipient. In that case, if the internet DNS lookup reveals that the destination address is served by multiple MTAs, the RPost server 14 will attempt to deliver its message to each of these in turn. RPost will continue to attempt to deliver to an appropriate MTA as often as system resources permit. If, after a length of time, RPost cannot deliver the message to an address, it will mark the status of this recipient of this message as "UNDELIVERABLE" and stop attempting to send this message to this destination address.

When the RPost server 14 succeeds in transmitting a message to a destination Server that explicitly supports ESMTP DSN, RPost will record the status of this recipient for this message as "DELIVERED-AND-WAITING-FOR-DSN".

When the RPost server 14 succeeds in transmitting a message to the destination Server via a connection that does not explicitly support ESMTP DSN, RPost will record the status of this recipient for this message as "DELIVERED."

I.3. Postprocessing

DSN Processing

MTA DSNs will be returned to the RPost server 14 addressed to fictitious addresses in its proprietary domain (e.g. "RPost.com"), these addresses having been constructed as described above. The RPost server 14 will scan all inbound mail addressed to the domain and detect DSN messages by their identifying substring (e.g. "rcpt"). By parsing these addresses in the manner described above, the system can identify the message and the recipient that has prompted the DSN notification.

There is no standard format for DSN messages; neither is there any standard lexicon in which they report their results. To evaluate a received DSN the system should look in the subject line and the body of DSN messages for words and phrases that express the DSN's meaning. For example, such phrases as "successful delivery" or "delivered to mailbox" or "was delivered" normally signal that the message the DSN concerns was deposited to the mailbox of the destination. When it detects such phrases the System will change the Delivery Status of this destination of the message to "DELIVERED TO MAILBOX".

Phrases such as "could not be delivered", "fatal error", "failure" and "unsuccessful" typically signal a DSN that reports a failure by the MTA to deliver the message to the destination. When it detects phrases such as these in the DSN, the system will change the record of the recipient's Delivery Status to "FAILED".

Though the system always delivers mail to a proprietary MTA for the destination's domain, these MTAs will sometimes relay the message to a different server (as may be the case, for example, if the receiving MTA sends mail behind a firewall). In this case the DSN will contain such phrases as "relayed" or "relayed onward". In such cases the system will change the recipient's Delivery Status to "RELAYED".

Having evaluated the DSN and updated the recipient's Delivery Status accordingly, the system will save the DSN and any attachments it may contain in such a way that this message(s) may be included in and/or attached to an RPost Delivery Receipt.

Message Management

From time to time the system will scan each sent message and examine the status of each destination of that message in order to determine if the system has completed processing of that destination's delivery. The criteria for completion depend upon the destination's Delivery Status:

DELIVERED: This status indicates that a copy of the message for this recipient has been delivered to an MTA that does not support ESMTP DSN. Such an MTA may nevertheless send a form of Delivery Status Notification in the event that the message could not be delivered to the Mailbox of the addressee (as might happen, for example, if the destination address does not correspond to a valid account within the domain). Accordingly, the system will not treat the delivery for such a recipient as completed until a period of time has elapsed since the delivery to the recipient MTA. This time period--typically two to twenty-four hours--represents an estimate of the maximum time required for a majority of servers to return a notification of a failure to deliver and it may be adjusted if the specific destination domain is remote or known to be prompt or tardy in producing such notifications.

RELAYED: This status signifies that a DSN has been received that indicates that the recipient MTA has forwarded the message to another MTA that does not support ESMTP DSN. In this case it is nevertheless possible that the MTA to which the message has been delivered will send a notification of failure to deliver in due course. Accordingly recipients with this status are treated as complete under the same conditions as recipients with the status DELIVERED.

DELIVERED-AND-WAITING-FOR-DSN: This status indicates that the recipient's MTA supports ESMTP DSN and that a DSN has been solicited but not yet received. It may sometimes happen that although an MTA identifies itself as supporting this service it will nevertheless not provide DSNs even in the event of successful delivery. Accordingly, the system will regard deliveries to a destination with this status as completed even if no DSN is received after an interval of time. This interval--typically six to twenty-four hours--represents an estimate of the maximum time typically required for a compliant MTA to return a DSN.

DELIVERED-TO-MAILBOX: This status indicates that a DSN indicating successful delivery has been received for this recipient and hence the delivery of the message to this destination is completed.

FAILED, UNDELIVERABLE: Deliveries to recipients with this status are always treated as complete.

When the system finds that delivery to all recipients of a message has been completed the system will construct a Delivery Receipt for the message.

Creation of Delivery Receipts

Delivery receipts are e-mails sent to the original sender of the made-of-record message. The receipt 20 may contain:

1. an identifier for administrative purposes. This identifier may be or may include reference to the sender's ID and/or the value of the Internet Message-ID of the sender's message as received by the system;
2. the date and time at which the receipt was generated;
3. the quoted body of the original message together with the e-mail addresses of its intended recipients;
4. the date and time at which the RPost server received the message;
5. a table for each destination listing:

(i) the time at which the recipient's MTA received the message and/or the time at which the system received a DSN report from the recipient's MTA;

(ii) a Delivery Status of the message for that destination. The Delivery Status quoted in a Delivery Receipt is based upon the system's internal record of the destination's Delivery Status. They may be transcribed as follows:

- Deliveries to destinations whose status is FAILED or UNDELIVER ABLE will be recorded in the receipt as "failed".
- Deliveries to destinations whose status is DELIVERED or DELIVERED-AND-WAITING-FOR DSN will be recorded in the receipt as "delivered to mail server".
- Deliveries to recipients whose status is DELIVERED-TO-MAILBOX will be recorded in the receipt as "delivered to mail box".

The purpose of these reports is to accurately apprise the reader of the form of verification of delivery the system has been able to achieve.

6. a list of the original attachments of the e-mail together with the separate message digests of those attachments;
7. copies of the attachments to the original message, each original attachment being attached as an attachment to the receipt;
8. transcripts, summaries, or abstractions of the transcripts of all of the SMTP dialogs involved in the delivery of the message to each destination;
9. quotations from the bodies and the attachments of all received DSN reports including whatever details of

delivery or disposition of the message that they might reveal; and

10. any files that were returned to the system as attachments to DSN reports.

All of these separate elements of the receipt may have their own message digests or digital signatures included within the receipt. Additionally, the receipt may include a single overall encrypted message digest or digital signature computed and appended as part of the receipt, thus providing a single message authentication code which could be used to authenticate all of the information contained within the receipt. Since the receipt itself and SMTP dialogs and DSN reports within the receipt contain time-stamps, the receipt includes a non-forgeable record of the message recipient(s), the message content, and the time(s) and route(s) of delivery.

MUA Notification Processing

MUA Notifications could be collected and incorporated within RPost Delivery receipts in the same manner as MTA DSNs. However, MTA notifications are typically issued by receiving MTAs within a few hours of delivery whereas MUA Notifications will not be generated, if ever, until the recipient opens his MUA e-mail client and takes some action with respect to the received mail. For this reason, in this embodiment of the invention MUA notifications are collected separately from MTA notifications and reported in "RPost Reading Receipts" separate from RPost Delivery Receipts.

MUA notifications elicited by message headers constructed in the manner described above will be returned to a common RPost address (e.g. "readreceipts@RPost.com") and each notification will contain-- in the name field of its address-- the address of the original sender of this message. Because this is the only information required to generate an RPost reading receipt in the manner described below, the system can deal with MUA notices whenever these notices

may arrive and without any need to have stored any information about the original message in its databanks.

MUA notices may report, among other things, that a message has been read by a recipient, that a message has been displayed on the recipient's terminal (whether or not read), that a message has been deleted without having been opened. There is no protocol-governed standard for the content or format of MUA messages. The system could be configured so as to examine the text of MUAs to interpret their reports in the same fashion as the system uses for MTA DSNs. However, in the current embodiment of the invention, MUAs are not evaluated or interpreted by the RPost server 14 but are, instead, passed on to the sender for his own evaluation in a form that can be authenticated by RPost. To accomplish this the system will create an e-mail message styled as an "RPost Reading Notice" which may include, among other items:

1. subject line of the received MUA notice;
2. the body of the received MUA notice quoted as the body of the Reading Notice;
3. the received MUA notice included as an attachment;
4. any attachment(s) to the received MUA notice included as an attachment(s).
5. message digests of the received MUA notice and of any attachment(s) to that notice;
6. a date and time stamp;
7. an encrypted hash of at least items 5 and 6 providing an authenticatible date stamped digital signature for the document and all of its contents.

Receipt Disposition

In the case of the current embodiment of the invention, both RPost delivery receipts and Reading Notices are sent to the original sender of the made-of-record message. Since these receipts are digitally signed with an encrypted hash, RPost

can authenticate the information contained in these messages any time they are presented to RPost for this purpose, in the manner described below. This means that once it has transmitted a copy of the receipt to its sender (with instructions to the sender to retain the receipt for his records), RPost has no further need to retain any data concerning the message or its delivery and may expunge all such records from its system. Thus, RPost need not keep any copy of the original message or the receipt. This economy of archival memory gives the present invention an advantage over various prior art message authentication systems that required large amounts of data storage at the service provider side.

In this case the burden of retaining receipt data falls on the original sender of the message. Alternatively or additionally, third party verifier RPost may, perhaps for an additional fee, store a permanent copy of the receipt or of some or all receipt data. The receipt or part(s) thereof may be kept on any suitable archival storage devices including magnetic tape, CD ROM, or other storage device types. Additionally or alternatively, RPost may return receipts or parts thereof to a storage system devoted to this purpose within the control of the sender or the sender's organization.

As described above, RPost receipt information includes all of the data from the original sender's message and its attachments. There are circumstances in which users of the system might not wish to undertake the burden of retaining receipts in their records (e.g., out of fear of accidental data loss) but might also not wish to have the contents of their message in the hands of the RPost third party. Accordingly RPost might discard the contents of messages but store in its database only such information (e.g. sender, date of composition, message digests, destinations and Delivery Statuses) as might be provided by RPost to authenticate and verify the delivery of a message when presented with a copy of the message retained by the sender.

Verification

In the event that the originator of a message requires evidence at a later date that an e-mail was sent, delivered, and/or read, the originator presents the receipt(s) for the message to the operators of the system.

For example, in order to prove that a particular message was sent from sender 10 to recipient 18, sender 10 sends to RPost a copy of receipt 20 with a request to verify the information contained within the receipt. This could be done by sending the receipt to a predefined mailbox at RPost, e.g., verify@RPost.com. RPost then determines whether or not the receipt is a valid receipt. A receipt is a valid receipt if the digital signature matches the remainder of the receipt, and the message digests match the corresponding respective portions of the original message. Specifically, RPost performs the hash function on the various portions of the message including the message body, the attachments, and the overall message including the SMTP dialog and DSN reports, to produce one or more message digests corresponding to the purported message copy. RPost compares the message digests in the purported copy, including the overall message digest, with the message digests which RPost has computed from the purported message copy. The overall message digest can be compared by either decrypting the overall message digest received as the digital signature in the purported receipt, or by encrypting the overall message digest which was calculated from the purported message copy. If the message digests including the digital signature match, then the receipt is an authentic RPost-generated receipt. Assuming that a good hash function was used and that the keys used in the cryptographic hash function and the digital signature encryption algorithm have not been divulged to others, it is virtually impossible that the receipt has been "forged" by the person presenting the receipt. That is, the receipt must have been a receipt that was generated by RPost, and therefore the message contained in the receipt, the to/from information, the date and time of delivery, the fact of successful delivery, the route by which the message traveled, and any DSN information contained within the receipt, must be a true copy of that

information and is accurate. RPost can then provide authentication, verification, and confirmation of the information contained within the receipt. This confirmation can take the form of an e-mail confirmation, affidavit testimony from RPost employees familiar with the methods used by RPost, live sworn testimony in depositions and in court, and other forms of testimony. RPost can charge sender 10, recipient 18, or any other entity, fees for the various respective confirmation services. RPost can also provide testimony or other confirmation with regard to the non-authenticity of a purported receipt. Testimony may be provided in accordance with Federal Rules of Evidence 901(9), 901(10), 803(6), 803(7), 1001-1004, 1006, 702-706, corresponding state rules of evidence, and other applicable rules.

In sum, the system provides reliable evidence based on the testimony of a disinterested third party that a particular message having a particular content was sent, when it was sent, who sent it, who received it, when it was opened for reading, and when it was deleted. This evidence can be presented any time a dispute arises regarding the content and delivery of messages, as for example in contract formation, the timing of stock buy or sell orders, and many other applications. The operators of the system can attest to the accuracy of the information contained in the receipt itself without the need for the operators to preserve any record or copy of the information contained in the receipt.

A significant advantage of the system is that it can be used by existing MUAs without any change thereto. Because all the computation, encryption, ESMTP interrogation and dialog, DSN report collection, and receipt compilation, are performed by the third party RPost server 14, none of these functions need to be implemented within any of the user's equipment. Thus, users can take advantage of the system quickly and easily.

In the embodiment of the invention described above, the RPost server 14 makes of record the delivery of all messages passing through it. Alternatively, an RPost server 14 might make of record only those messages having certain destinations (e.g. external to an organization) or from certain senders (e.g. a customer relations group). Alternatively or additionally, the RPost server 14 might

make of record only those messages that had distinguishing characters or strings in the subject or body of the message. For example, the server might make of record only messages that the sender had included "(Make of Record)" or "(MR)" in the subject of the message. All other messages might be delivered by the RPost server 14 or some other server function as an ordinary internet MTA.

In this embodiment, RPost can raise revenue in a variety of ways. For instance: RPost can charge message sender 10 or her organization a fee on a per-message basis, on a per-kilobyte basis, on a flat fee periodic basis such as monthly, or on a combination of the above. RPost can also charge fees for authenticating and verifying a receipt, with a schedule of charges depending on whether the verification sought is a simple return e-mail, a written affidavit or declaration, sworn fact testimony in deposition or in court, or sworn expert testimony in deposition or in court. If the users opt to have RPost retain copies of the receipts, RPost can charge per item and /or per-kilobyte per month storage fees.

FLOW DIAGRAM FOR MAKING OF RECORD AN OUTGOING MESSAGE

FIGS. 2A-2G constitute a flow chart showing an exemplary operation of the first embodiment of the system. Modifying this flow chart to apply to other embodiments is within the skill of one familiar with software and e-mail protocols.

FIG 3A, Pre-processing, illustrates the steps taken with a message before it will be transmitted by the Making of Record Server (the System).

To make of record an e-mail message, in step 201 an originator/sender/user creates an e-mail message using any internet Mail User Agent (MUA). Possible MUAs include: (1) client side e-mail programs; (2) server based e-mail programs; (3) web based e-mail services; and (4) HTML forms submitted through web pages. The message may contain attached files as described in the Requests for Comments (RFCs) 822, 2046, and 2047, which are hereby incorporated by reference. RFCs are a series of notes regarding the Internet that discuss many aspects of computer

communication, focusing on networking protocols, procedures, programs, and concepts.

In this embodiment, the system functions as the sender's outgoing mail server and hence the sender's message will be directly transferred to the RPost server by the sender's MUA (step 202).

In step 203, the system creates a copy of the original message to be stored for later processing.

In step 204, the system creates a record in a database which may include such information as: the time at which the message was received by the server, the names and size(s) of the file attachment(s) of the message, the name (if known) of each destination of the message; the internet address of each destination; the time at which the message was delivered to the destination's MTA (initially this value is null) and a unit which records the Delivery Status of each destination.

In step 205, the Delivery Status of each destination is set to "UNSENT".

In step 206, the system generates and stores a message digest or digital fingerprint generated from the message body.

In step 207, the system generates and stores a hash or message digest for each attachment included in the message.

In step 208, the system may create a modified copy of the original message. In this second copy (step 209), the original subject line of the message may be amended to indicate that this copy is made of record (e.g. by pre-pending "Made of Record").

In step 210, a notice that the message is made of record by the system together with links to the system's Word Wide Web site may be appended to the body of the message.

In step 211, the e-mail headers may be added requesting reading notification in a variety of header formats recognized by various MUAs. The requests for notification direct the return notification to an address associated with the system: for example, "readreceipt@RPost.com". These headers will also include the

address of the original sender of the message in the name field of the address to which the MUA notification should be sent.

Preprocessing having been completed, the system will now transmit a copy of the message to each of its destinations as illustrated in FIG 2B.

Fig 2B illustrates the steps provided to transmit a message made of record. As step 220 indicates, the process provides a separate transmission for each recipient of the message.

In step 221, the system changes the header field of its working copy of the message to show the message as being "FROM:" a sender whose name is the original sender of the message but whose address is an "RPost.com" address constructed from:

a) a string used to identify returning MTA notifications (e.g. "RCPT");

b) a string which uniquely identifies the message being sent;

c) a tag which uniquely identifies the destination this copy of the message is being sent to.

In step 222, using the domain name of the destination currently being sent to, the system does a Domain Name Server Mail exchange lookup to find the address of the MTA(s) responsible for collecting mail for addresses in this domain.

In step 223, the system attempts to make a direct telnet connection to the MTA of the destination. If the connection fails, the system will try to make the connection again. Provided that the system has not exceed a maximum number of retries (227) for this destination, the system will try to remake the connection perhaps using another MX server for the destination's domain (228).

If, after a maximum number of retries, the system cannot connect to an MTA for this destination, the system will, as in step 226, record this destination's Delivery Status as "UNDELIVERABLE" and cease attempting to deliver this message to this destination.

On connecting to the destination's MTA, the system will begin making a record of its (E)SMTP dialog with the MTA (225).

In step 229, the system attempts to initiate an Extended SMTP (ESMTP) exchange with the destination MTA by issuing an "EHLO" greeting.

If the destination's MTS supports ESMTP, the system will then (230) determine if the destination MTA supports the SMTP function VERIFY. If the MTA supports VERIFY, the system will attempt to determine if the destination address is a valid address within the domain (231).

If the address is not valid, then, as in step 232, the system will record the Delivery Status of this destination as "FAILURE" and will cease attempting to deliver this message to this destination.

If the address is valid or if the ESMTP server does not support VERIFY, the system will then (233) determine if the receiving MTA supports the ESMTP service DSN (Delivery Status Notification).

If the MTA does support ESMTP DSN, the system will transmit the message with ESMTP requests to notify the nominal sender of the message of delivery success or failure (234). Having transmitted the message, the system will record the Delivery Status of this destination as "DELIVERED-AND-WAITING-FOR-DSN" (235).

If the receiving MTA does not support Extended SMTP, the system will transmit the message using SMTP (236) and record the destination's status as "DELIVERED" (237).

Having delivered the message, the system will then store the (E)SMTP dialog, recording the delivery in a manner in which it can later be recovered (238) and attempt to send the message to another destination.

Having transmitted a message to its destination(s), the system must perform several functions in order to gather information about the message's disposition. Fig. 2C illustrates the process by which the system processes MTA Notifications returned by recipient MTAs.

Because of the format used in the headers of sent messages illustrated in Fig 2B step 221, MTA message notifications will be delivered to a fictional local address at the server. The system will be able to detect these notifications by a

string (e.g. "rcpt") embedded in their addresses (241). By parsing the address, as illustrated in 242, the system can determine which message to which destination prompted the received notification.

In step 243, the system scans the subject line and the body of received MTAs for phrases that indicate whether the MTA is reporting a successful delivery, a failed delivery, or that the message has been relayed to another server.

In the event that the process at step 243 reveals that the notification is reporting a successful delivery, the system will, as illustrated in step 245, change the Delivery Status of the relevant destination of the relevant message to "DELIVERED-TO-MAILBOX".

If the system determines that the MTA notice is reporting a delivery failure, the system will (247) change the Delivery Status of the relevant destination of the relevant message to "FAILURE".

In the event that the system determines that the MTA notification indicates that the message was relayed to another server, the system will, as illustrated in step 249, change the Delivery Status of the relevant destination of the relevant message to "RELAYED".

Having processed the MTA Notification, the system will save this message and all of its attachments in such manner that they may be later recalled and used in construction of a receipt for this destination (250).

From time to time, as illustrated in Fig. 2D, the system will examine the status of each message to determine if the system has recovered all of the MTA notifications it is likely to receive for each destination of message and may hence proceed to construct a receipt for the message.

The system will examine the Delivery Status of each destination of the message.

If any destination has the Delivery Status "UNSENT", then the processing of the message is not complete. (252).

If the Delivery Status of a destination is "DELIVERED-AND-WAITING-FOR-DSN", then the system will not regard the processing for this destination as

complete unless, as is illustrated in step 254, the time since delivery of the message has exceeded the system's waiting period (e.g. 24 hrs.).

If the Delivery Status of a destination is "DELIVERED", (257) then the system will regard the processing of this destination as complete provided (258) that a period of time has elapsed which the operators of the system treat as sufficient to have received notice of delivery failure from the destination's MTA. (e.g. 2 hours).

Any other destination Delivery Status (e.g. "FAILED", "UNDELIVERABLE", "DELIVERED TO MAILBOX") is treated as having completed processing.

If processing of any of a message's destinations is not complete the system takes no action but moves to consider other messages in the system (step 255).

However, as illustrated in step 259, if processing of every destination of the message is complete, the system will generate a Delivery Receipt for the message.

As illustrated by way of example in FIG. 2E, the receipt may include:

An identifier for administrative purposes as in block 271. This identifier may be, or may include, reference to the sender's ID and/or the value of the Internet Message-ID of the sender's message as received by the system.

As in block 272, the quoted body of the original message 12 together with the e-mail addresses of its intended recipients may also be included.

As in block 273, a table for each recipient listing may include:

a) the time at which the recipient's MTA received the message and/or the time at which the system received DSN from the recipient's MTA;

b) the Delivery Status report of the message for that destination, i.e., "Delivered to Mail Server", "Delivered to Mail Box", Relayed", "Delivery Failure", or "Undeliverable".

As in block 274, a list of the original attachments of the e-mail together with their separate hash values or message digests.

As in block 275, transcripts or abstractions of the transcripts of all of the SMTP dialogs involved in the delivery of the message to each destination.

As in block 276, quotations from the bodies and the attachments of all received DSNs including whatever details of delivery or disposition of the message that they might reveal.

As in block 277, the system may attach to the receipt copies of all of the attachments of the original message, and, as in block 278, the system may additionally attach files returned to the system as attachments to DSNs.

In step 279, having generated the text of the receipt so far, the system then generates a first hash for the e-mail message and a second hash(es) for any attachments to the body of the receipt and calculates a digital signature for each of the hash(es) using an encryption key known only to the operators of the system. Encryption can employ, for example, the Data Encryption Standard described in Federal Information Processing Standard Publication 4-2 (FIPS PUB 46-2), the Data Encryption Standard, National Institute of Standards and Technology, which is hereby incorporated by reference. Alternatively, other known or new methods of encrypting the hash value may be used.

In step 280, the encrypted hash is then appended to the end of the message as the "document digital signature".

In step 281, the receipt 20, now being complete, may be sent by e-mail to the sender with the advice that it be kept for the sender's records. In step 282, the system may now delete all copies of the original message, attachments, and DSNs. Alternatively, rather than sending the receipt to the sender, the system may store the receipt, or both the sender and system can store the receipt.

Because MUA notifications are returned only at the option of the recipient and only when the recipient takes some action with respect to the received message, embodiments of the system may choose to treat these return messages differently than MTA notifications.

FIG. 2F illustrates how these MUA notifications may be treated by the system. MUA notifications are solicited by the system by including various headers in outgoing messages in the manner of Fig 2A, step 211. These headers direct compliant MUAs to send notifications to a system address (e.g.

"readreciept@RPost.com") set aside for this purpose. The headers also use, in the "name" field of this return address, the e-mail address of the original sender of the message. Accordingly, in step 286, when MUA notifications are returned to readreceipt@RPost.com the system can, by examining the address of the notification, determine the address to which a reading notification should be sent.

Upon the arrival of a read receipt from a destination's MUA, the system, in step 287, generates a reading receipt that contains the subject of the received MUA notification as its subject and incorporates, in its message body, the body of the received MUA Notification.

In step 288, the system attaches to the receipt any files that may accompany the MUA's receipt (typically these may include details of delivery or disposition and identifying references to the original e-mail.)

In step 289, the system generates a hash for any files attached to the receipt and records this hash in the body of the receipt.

In step 290, the system generates a hash for the body of the receipt and its attachments, encrypts this hash, and appends the result to the message as a "document digital signature".

In step 291, the system sends the resulting receipt to the sender of the message. In step 292, having sent this receipt, the system may delete all internal records of the transaction.

III. RPOST AS SECONDARY MAIL SERVER EMBODIMENT

FIG. 3 is a system diagram of a second embodiment of the present invention wherein the RPost server 14 does not serve as the user's primary MTA but rather works in collaboration with another MTA. In this embodiment, the sender may elect to make of record a particular outgoing message by including some form of flag in an outgoing message, message subject, or message addresses. For example, if and only if a sender includes the symbol "(Made of Record)" or '(MR)" in the subject of the message the sender's MTA will direct the message to be transmitted through the RPost server 14 to generate a receipt.

In this embodiment the operators of RPost receive revenues from the operator of the sender's MTA per message and/or per kilobyte transmitted.

IV. CC TO RPOST EMBODIMENT

FIG. 4 is a system diagram of a third embodiment in which a carbon copy ("cc") is sent to the RPost server 14. In this embodiment, the user or message sender 10 can use a standard MUA and standard MTA without modification. Message sender 10 composes the e-mail having a message body and any number of attachments, and addresses it to message recipient 18, along with any carbon copies (cc's) and blind carbon copies (bcc's) as desired. Additionally, message sender 10 addresses a cc to RPost. RPost server 14 tags the message as before, and sends the tagged message including attachments to the recipient's MTA 16 and any designated cc's. On receipt of such a copy RPost server 14 may send an e-mail acknowledging receipt of the copy.

Recipient 18 and other destinations of the message will now receive two versions of the same message: a first version of the message received directly from sender 10, and a second and tagged version which was forwarded from RPost. Once RPost receives confirmation from recipient MTA 16 that the tagged version of the message was successfully received by recipient MTA 16, RPost server 14 composes message receipt 20 as before and sends the receipt to sender 10 for his records.

Revenue can be generated by establishing accounts for message originating domains or individual message senders, and charging the users' accounts per message, per kilobyte, per month, or a combination of these. Revenue can also be generated for the placement of advertisements on receipts and from authentication and verification services as previously described.

V. WEBSITE EMBODIMENT

FIG. 5 is a system diagram of a fourth embodiment. In this embodiment, RPost server 14 is associated with a website at which a user composes messages. Message sender 10 visits the RPost Website and composes his message at the

website by entering the desired "to", "cc", "bcc", "Subject", and message text information. Attachments can be added by using features available on standard browsers and web servers. In this embodiment, the sender additionally provides an address to which the made-of-record receipt may be sent. RPost server 14 sends the receipt to sender 10 through sender's MTA.

Revenue can be generated by establishing accounts for message originating domains or individual message senders, and charging the users' accounts per message, per kilobyte, per month, or a combination of these. Revenue can also be generated for the placement of advertisements on receipts and from authentication and verification services as previously described.

VI. WEB BASED MUA EMBODIMENT

FIG. 6 is a system diagram of a fifth embodiment. In this embodiment, the RPost server 14 is associated with a web based Mail User Agent. In addition to allowing users to compose mail through a web browser, such a MUA provides subscribers with browser viewable mailboxes that display messages stored on the Web server site. Subscribers to such a service gain access to mail accounts with user names and passwords. In this embodiment, message sender 10 visits the RPost Website, accesses a Web Based e-mail account by entering a user name and password, and composes his message which is transported for delivery to RPost server 14. Receipts generated by the RPost server 14 are returned to a web based mailbox associated with the subscriber's account.

In addition to the revenue sources available in other embodiments, in this embodiment the operators can charge storage fees for receipts held in the web based mailbox.

In all of these embodiments, the receipt may serve as evidence that:

(1) the originator sent an e-mail message;

(2) the message was sent at a certain time;

(3) the e-mail was addressed to certain recipient(s);

(4) the e-mail was delivered to the e-mail mailbox of each of its intended recipient(s);

(5) the e-mail was delivered at a certain time;

(6) the e-mail was delivered by a certain network route; and

(7) the e-mail message and its attachments had the specific content recorded in the receipt.

Furthermore, the system under certain circumstances generates a separate receipt, which may be used as evidence that:

(1) the e-mail was inspected through the recipient's Mail User Agent (MUA); and

(2) the recipient took certain actions in response to the message, e.g., read or deleted the e-mail, at a particular time.

As with the other embodiments, this embodiment produces documented evidence which may be attested to and verified by the disinterested third party operators of the system concerning the delivery and integrity of an electronic message. In other words, the system can be thought of as transforming the e-mail to a made-of-record e-mail that can later be used to prove that a particular e-mail message was sent, that it was successfully delivered, and when and how.

Should a dispute ever arise, the dispute can be resolved through the receipt generated by the system because the receipt is so encoded that the operators of the system can determine the authenticity of the receipt as the product of the system. Thereafter, operators of the system can attest to the accuracy of the information contained in an authentic receipt, relying only on information contained in the receipt itself and without the need for the operators to preserve any record or copy of the information contained in the receipt.

In addition to these benefits, the receipts generated by the system may also be useful as evidence of the existence and authorship of such materials as might be transmitted through the system. Moreover, the system is easy to use, as the system can be used from any internet e-mail client program/MUA, so that there is no additional software required.

FLOW DIAGRAM FOR VALIDATING A RECEIPT

FIG. 7 is a flow diagram illustrating an exemplary method for validating a receipt. In the event that the sender of a message should require evidence that an e-mail was sent and delivered (and/or read) the sender presents the receipt(s) corresponding to the message to the operators of the system in step 700. The operators of the system then, in step 702, detach and decrypt the document digital signature appended to the receipt. In step 703, the operators generate a hash of the balance of the document, including attachments.

In step 704, if the current hash value does not match the decrypted hash value, then the system generates a report stating that RPost cannot authenticate the receipt as an accurate record of the delivery or the contents of the message described in the receipt.

If the decrypted hash is equivalent to the current hash of the message, the system can, as in step 706, warrant that the information contained in the body of the message is unchanged since the receipt passed through the system. If the original message contained no attachments, the system may now generate a report that warrants that the receipt is an accurate record of the message's contents and its delivery by the RPost server.

If the receipt reports that the original message contained attachments, then the receipt will also record the name and hash value of each attachment. In generating the receipt all attachments of the original message are attached unchanged to the receipt. Accordingly, the system will, for each such attached file, generate a hash of the attached file (708) and compare it to the hash value recorded in the body of the receipt (709).

If the calculated hash value of a file matches the value included in the receipt, the system can warrant that the file attached to the receipt is identical to that attached to the message as originally delivered. If the hashes do not match, then the system will report that it cannot warrant that the file attached to the receipt is identical to the file attached to the original message.

Having performed this calculation for each file attached to the original message, the system prepares a report which reports on the authenticity of the receipt and each of its attached files (710) or which reports the failure of validation (712).

Having completed its evaluation, the system will then append a copy of the receipt and all of its attachments to the report it has generated and send it via e-mail to the return address of the user who submitted the report for validation.

Registering Inbound E-mails

FIG. 8 is a system diagram illustrating another embodiment of the invention in which incoming e-mails are made of record. In this embodiment, a message sender 60 sends an e-mail message 70. Sender's MTA 62 sends message 70 onto the internet as usual. However, in this embodiment RPost contracts with service subscriber/recipient 68 to make incoming e-mails of record. According to the agreement, RPost is designated with Network Solutions, Inc. (NSI) or other domain name authority as the mail recipient (MX server) for recipient 68. This causes the Domain Name Service (DNS) request performed by the sender's MTA 62 to return the IP address of RPost as the IP address for the recipient, which in turn causes sender's MTA 62 to send the e-mail message to RPost server 64. RPost server 64 acts as an SMTP, POP, POP3 or IMAP MTA (collectively, "POP mail server") for recipient 68. SMTP, POP and IMAP MTAs are governed by RFC 821, the SMTP protocol, RFC 1939 Post Office Protocol - Version 3 (which obsoleted RFC1725), and RFC 2060 IMAP (Internet Message Access Protocol) Version 4 rev 1 (which obsoleted RFC1730), which are hereby incorporated by reference.

RPost server 64 prepares a made-of-record version 74 of the original message 70, and places this made-of-record version 74 into recipient 68's in-box instead of, or in addition to, the original message 70. The made-of-record version may have all of the verification and informational features and options discussed earlier in connection with e-mail receipts. This information can include, but is not limited to: individual message digests for each of the message body and text, the

to/from information, other header information, each attachment, an overall message digest and digital signature and message routing information and tags. Made-of-record version 74 of message 70 as shown in FIG. 6 includes the message body including the header information, an attachment, separate message digests for each, and a digital signature or encrypted message digest. The hash functions and encryption are performed using private phrases or private keys known only to the operators of the system. The made-of-record version 74 is made available to recipient 68 for inspection or downloading through the recipient's MUA.

RPost server 64 can optionally send a confirming e-mail 72 to message sender 60. Confirmation message 72 can be a simple text message indicating that a message was received and made of record. Confirmation message 72 could also include a message such as, "Your e-mail message was received on March 24, 2000 at 2:05 p.m. The digital signature of the message was [128-bit digital signature]. For more information, visit our website at www.RPost.com." Alternatively, or additionally, confirmation message 72 could include all of the information contained in the made-of-record version 74.

Thus, the system may provide to message recipient 68 a receipt 74 or other verifiable confirmation that:

(1) the recipient received an e-mail message;

(2) the message was received at a certain time;

(3) the e-mail was addressed from a certain sender;

(4) the message purports to be delivered via a certain network route; and

(5) the e-mail message and its attachments had a specific content.

Accordingly, the system provides evidence, which may be attested to by the operators of the system, that particular electronic messages and documents were delivered to recipients having certain content and representing themselves as having come from certain senders.

FIG. 9 is a flow chart illustrating one example of making of record in-bound mail. In step 901, RPost server 64 receives a new e-mail message. In step 902, the system generates a hash/digital signature of the message's contents including the message's headers and attachments. Additionally, the system may generate a separate hash for each message attachment. In step 903, the system encrypts the hash(es) using an encryption key known only to the operators of the system. In step 904, the resulting encrypted hash(es) is then appended to the body of the message. Then, in step 905, the modified message may be made available for inspection or downloading through the recipient's MUA.

FIG. 10 is a flow chart of one example of validating a received made-of-record e-mail message. In step 1000, in the event that the recipient of a message should require evidence that an e-mail with a specific content was received at a particular time, the recipient can present a copy of the made-of-record version 74 (FIG. 8) of e-mail message 70 to the operators of the system for verification. To verify the message, in step 1001 the system detaches and decrypts the document digital signature appended to the message. In step 1002, the system generates a hash of the balance of the document, and one for each file attached to the message. In steps 1003 and 1004, the hashes are compared. If the document hash(es) matches the decrypted hash(es), then the message and its attachments have passed through the system and have not been altered since their delivery to the recipient.

Having determined that the e-mail is unaltered, the operators of the system can warrant that:

(1) the e-mail was received by the system at a certain time;

(2) the e-mail purported to arrive at the system via a certain internet route;

(3) the e-mail purported to be from a certain sender; and

(4) the e-mail and its attachments were delivered with the specific content they currently contain.

On the other hand, in step 1006, if the hash values do not match, then the operator cannot warrant that the e-mail is authentic, i.e., that the e-mail is an accurate version of an e-mail that was received by the system.

FIG. 11 illustrates how the invention may be used by a business which utilizes electronic tools (an "e-business"). E-business 30 can utilize the system to make of record all incoming and outgoing e-mail messages from its customers 34. In this case, the system includes Post Office Protocol (POP) server 36 and Simple Mail Transfer Protocol (SMTP) server 38. For example, the e-business 30 can set up its website to e-mail forms to customers, and to forward queries and complaints 40 from customers 34. The made-of-record queries, complaints, orders, offers to purchase, and other information 46 are sent to the e-business 30 by the system. Receipts are then provided to the customers 34 via SMPT server 38. This way there is no question regarding whether or not the customer sent the communication and what it contained. Moreover, the e-business can set up a web site 32 through the RPost server so that every communication with the customers can be made of record. In other words, through the web site form data orders 42 and automated responses 44 can be made of record through the system server; furthermore, any confirmation, collections notices, customer support, and special offers 48 sent by the e-business to customers 34 can be made of record and the confirmation sent to the customer to eliminate arguments about what was ordered, when, or by whom. If desired, identical receipts can be provided to both the customers 34 and to e-business 30. Alternatively, the functions of POP server 36 and SMTP server 38 may be combined in a single system server.

POP is a protocol used to retrieve e-mail from an e-mail server. Many e-mail applications (sometimes called e-mail clients) use the POP protocol, although some can use the newer Internet Message Access Protocol (IMAP). One version of POP, called POP2, requires SMTP to send messages. A newer version, POP3, can be used with or without SMTP. SMTP is a protocol for sending e-mail messages between servers. Many e-mail systems that send e-mail over the Internet use SMTP

to send messages from one server to another; the messages can then be retrieved with an e-mail client using either POP or IMAP. In addition, SMTP is generally used to send messages from a mail client to a mail server. E-mail servers may use a variety of protocols to communicate with the Internet. Commonly used protocols include SMTP, POP3 and IMAP4. Mail readers are at the opposite end of the server. Since mail servers receive messages via SMTP, e-mail readers send e-mail to a mail server using SMPT. Likewise, since mail servers send messages using POP3 and optionally IMAP4, mail readers receive messages from mail servers by using the POP3 or IMAP4 protocol.

Although the above generally describes a system and method of verifying that an e-mail was sent and/or received, the invention disclosed and claimed in application 09/626,577 may apply to any electronic message that can be transmitted through an electronic message network or through any electronic gate. Electronic messages may include text, audio, video, graphics, data, and attachments of various file types. The methods and techniques taught herein can be programmed into servers and other computers, and computer programs implementing the invention can be written onto computer readable media including but not limited to CD ROMs, RAM, hard drives, and magnetic tape. E-mail made-of-record services according to the present invention can be bundled with internet service provider (ISP) services to provide a single provider ISP solution to corporate and other institutional clients. Implementing the above-described invention is within the skill of the ordinary practitioner of the software arts.

As previously indicated, Figures 1-11 show, and the specification describes, systems in which the server receives a message from a sender and transmits this message in a first path to a recipient or to a Mail Transport Agent (MTA) of the recipient. There are times when the sender may wish to have the server send the message to the recipient or to a Mail Transport Agent of the recipient or to the Mail Transport Agent for the recipient by a more traveled path or a less traveled route, or at least a different path, than the first path. To accomplish this, the sender marks a message form 1200 (Fig. 14) with a particular indication such as "(R)" in a

particular position such as the "subject" line of the message. This particular position is indicated at 1202 in the message form 1200 in Figure 14. The step of marking "(R)" in the "subject" line 1202 of the message is shown at 1206 in Figure 12.

The message with the "(R)" in the "subject" line is transmitted by the sender to the server 14 which constitutes the sender's Mail Transport Agent. This is indicated at 1208 in Figure 12. As indicated at 1210, the server scans the "subject" line to determine if there is an "(R)" in the line. If the answer is "No" (see 1211), the server transmits the message to the recipient or the recipient's Mail Transport Agent through the route shown in Figures 1-11 and indicated in Figure 12 as "the ordinary route" and discussed above in the specification. This is indicated at 1212 in Figure 12. If the answer is "Yes" (see 1213), the message is transmitted through a special network route as indicated at 1214 in Figure 14.

Figure 13 is identical in a number of respects to Figure 12. However, Figure 13 includes additional blocks to perform additional functions other than those shown in Figure 12. These include, but are not limited to, the following:

(1) The sender may wish that a copy of the message should be archived. This may be accomplished by adding a coding such as the number "1" after "(R)" in the "subject" line so that the coding is "R1".

(2) The sender may desire that a record of the transmission should be recorded by the server 14 constituting the sender's mail transport agent. This may be accomplished by providing a coding such as "(R2)" in the "subject" line of the message.

(3) The sender may desire that a record of the message transmission should be recorded in a data base. This may be accomplished by providing a coding such as "(R3)" in the "subject" line of the message.

(4) The sender may wish that a record of the message transmission should be recorded in a database with a special annotation or

additional reference. This may be accomplished by providing a coding such as "(R4)" in the "subject" line of the message.

Figure 13 provides a method where the server constituting the sender's Mail Transport Agent processes selected e-mail messages such as those specified in this paragraph.

Figure 13 is particularly limited to a coding "(xyz)" in the "subject" line of the message. In Figure 13, the sender is shown at 1300 as composing an electronic message including "(xyz)" in the "subject" line of the message. As indicated at 1210 in Figures 12 and 13, the server 14 constituting the mail transport agent scans the "subject" line in the outbound message. If the "subject" line in the message does not contain the code "(R)", the server transmits the message though the route shown in Figure 1-11 and discussed above (see 1212 in Figures 12 and 13). If the code "(R)" is detected by the server in the "subject" line of the message, the server transmits the message through the special network route as indicated at 1214 in Figures 12 and 13.

Figure 13 indicates at 1304 that the code "(xyz)" is stripped by the server from the "subject" line of the message. If the delimiter "xyz" is detected, a copy of the message is saved. This is indicated at 1308 in Figure 13. If the delimiter "xyz" is not identified, a copy of the message is not saved.

Although the present invention has thus been described in detail with regard to the preferred embodiments and drawings thereof, it should be apparent to those skilled in the art that various adaptations and modifications of the present invention may be accomplished without departing from the spirit and the scope of the invention. Accordingly, it is to be understood that the detailed description and the accompanying drawings as set forth hereinabove are not intended to limit the breadth of the present invention, which should be inferred only from the following claims and their appropriately construed legal equivalents. In the following claims, those claims which contain the words "means for" are intended to be interpreted in accordance with 35 U.S.C. §112, paragraph 6; those claims which do not include

the words "means for" are intended to not be interpreted in accordance with 35 U.S.C. §112, paragraph 6.

WHAT IS CLAIMED IS:

1. A method of transmitting a message through the internet from a sender to a recipient through a server displaced from the recipient, including the steps of:

receiving the message at the server from the sender and receiving an indication that the sender wishes to send the message in a manner special to the sender and not normally provided by the server,

transmitting, through the internet from the server to an agent of the recipient, the message in the special manner, in accordance with the indication from the sender, an identification and an internet address of the server and the identity of the sender,

receiving from the agent at the server through the internet the identity of the agent and an indication of the receipt of the message by the agent and the identification and internet address of the server and the identity of the sender, and

sending to the sender from the server through the internet a copy of the message and the information received by the server from the agent.

2. A method as set forth in claim 1 wherein

the transmission through the internet from the server to the agent of the recipient is in the normal manner when the sender does not provide an indication through the internet that the sender wishes to transmit the message through the internet in the special manner to the agent of the recipient

3. A method as set forth in claim 1 wherein

the indication received by the server through the internet from the agent of the recipient includes an identification of the agent and any transferring agents through whom the message has passed between the server and the agent of the recipient.

4. A method as set forth in claim 1, wherein

a digital fingerprint of the message is provided by a plurality of digits in a unique sequence and is sent by the server to the sender.

5. A method as set forth in claim 3 wherein

the transmission through the internet from the server to the agent of the recipient is in the normal manner when the sender does not provide an indication through the internet that the sender wishes to transmit the message through the internet in the special manner to the agent of the recipient and wherein

a digital fingerprint of the message is provided by a plurality of digits in a unique sequence and is sent by the server to the sender.

6. A method as set forth in claim 1 wherein

an additional indication is provided to the server with the message from the sender that a high priority should be provided by the server to the sending of the message by the server to the agent of the recipient and wherein

the server provides the high priority in sending the message to the agent of the recipient in accordance with the additional indication.

7. A method as set forth in claim 5 wherein

an additional indication is provided to the server with the message from the sender that a high priority should be provided by the server to the sending of the message by the server to the agent of the recipient and wherein

the server provides the high priority in sending the message to the agent of the recipient in accordance with the additional indication.

8. A method as set forth in claim 1 wherein

an additional indication is provided to the server with the message from the sender that the sending of the message by the server to the agent of the recipient should be recorded by the server and wherein

the server records the sending of the message by the server to the agent of the recipient in accordance with the additional indication.

9. A method as set forth in claim 5 wherein

an additional indication is provided to the server with the message from the sender that the sending of the message by the server to the agent of the recipient should be recorded by the server and wherein

the server records the sending of the message to the agent of the recipient in accordance with the additional indication.

10. A method of transmitting a message through the internet from a sender to a recipient through a server displaced from the recipient, including the steps at the server of:

receiving the message at the server from the sender,

receiving at the server, with the message from the sender, an indication that the message is to be transmitted by the server in a special manner different from the manner normally provided by the server in transmitting messages,

transmitting from the server through the internet to an agent of the recipient, in the special manner indicated by the sender to the server, the message and an identification and an internet address of the server and an indication representing the identity of the sender,

receiving at the server from the agent a handshaking and delivery history of the transmission of the message from the server to the agent of the recipient, and

transmitting from the server to the sender through the Internet the message, a digital signature, including a digital fingerprint, of the message and the handshaking and delivery history of the message received by the server from the agent of the recipient.

11. A method as set forth in claim 10, including the steps of:

receiving at the server, with the message from the sender, an additional indication from the server of an additional function to be performed in the transmission of the message from the server to the agent of the recipient,

providing the additional function in the transmission of the message from the server to the agent of the recipient in accordance with the additional indication provided by the sender to the server.

12. A method as set forth in claim 11 wherein

the message is sent by the server to the sender after the server receives from the agent of the recipient the handshaking and the delivery history of the transmission of the message from the server to the agent of the recipient and wherein the server does not retain the message after it sends the message to the sender.

13. A method as set forth in claim 11 wherein

the additional indication from the sender to the server provides for a recording of the transmission of the message and wherein

the transmission of the message is recorded in accordance with the additional indication from the sender.

14. A method as set forth in claim 11 wherein

the additional indication from the sender provides for an archiving of the message and

wherein the message is archived in accordance with the additional indication from the sender.

15. A method as set forth in claim 11 wherein

the additional indication from the sender provides for the message to be sent to the agent for the recipient by a special route and wherein

the message is sent by the special route from the server to the agent of the recipient in accordance with the additional indication from the sender.

16. A method as set forth in claim 11 wherein

the additional indication from the sender provides for the message to be specially handled in the transmission of the message from the server to the agent of the recipient and wherein

the message is specially handled in the transmission of the message from the server to the agent of the recipient.

17. A method as set forth in claim 11 wherein

the additional indication provides for a transmission of the message with a high priority from the server to the agent of the recipient and wherein

the message is transmitted from the server to the agent of the recipient with a high priority in accordance with the additional indication from the sender.

18. A method as set forth in claim 11 wherein

the server retains a copy of the digital signature of the message and the handshaking and delivery history of the message, but not the message unless requested to do so by the sender, after the server transmits to the sender through the internet the message, the digital signature of the message and the handshaking and delivery history of the message.

19. A method as set forth in claim 10 wherein

the server retains a copy, except for the message, of the information received by the server from the agent of the recipient and sent to the sender and wherein

when the sender wishes to authenticate that the message was sent by the server to the agent of the recipient, the server matches the information, except for the message, sent by the server to the sender relating to the message with the information retained by the server relating to the message.

20. A method as set forth in claim 10 wherein

the server requests a delivery status notification from the agent of the recipient relating to the message when it transmits the message to the agent and wherein

the server receives the delivery status notification from the agent of the recipient when it receives the digital signature of the message from the agent.

21. In a method of transmitting a message through the internet to a recipient through a

server displaced from the recipient, the steps at the server of:

receiving the message at the server from the sender,

generating a hash constituting a synopsis of the message in coded form,

encrypting the hash with a particular encryption code to generate a digital fingerprint of the message,

receiving from the sender an indication with the message from the sender that the message is to be handled by the server in a particular manner different from a normal handling of the message by the server, and

handling the message at the server in the particular manner, in accordance with the indication from the sender, to transmit the message and the digital fingerprint to the recipient.

22. In a method as set forth in claim 21, the steps of:

generating, for any attachment to the message, a hash constituting a synopsis of the attachment in coded form,

encrypting the hash from the attachment with a particular encryption code to generate a digital fingerprint of the attachment, and

transmitting the attachment and the digital fingerprint of the attachment to the sender through the internet at the same time, and in the same manner, that the message and the digital fingerprint of the message are transmitted from the server to the sender through the internet.

23. In a method as set forth in claim 21 wherein

the message is handled by the server in the normal manner when the indication is not provided by the sender to the server with the message and wherein

the message is handled by the server in the particular manner when the indication is provided by the sender to the server with the message.

24. In a method asset forth in claim 23 wherein

the message is processed by the server in a first path when the indication is not provided by the sender to the server with the message and wherein

the message is processed by the server in a second path different from the first path when the indication is provided by the sender to the server with the message.

25. In a method as set forth in claim 23, the steps of:

storing at the server the digital fingerprint of the message, the name of the sender, the identity and internet address of the server and the identity and internet address of the recipient, and

transmitting to the sender for storage by the sender the message, the digital fingerprint of the message, the name of the sender, the identity and internet address of the server and the identity and internet address of the recipient.

26. In a message as set forth in claim 22,

the message is handled by the server in the normal manner when the indication is not provided by the sender to the server with the message and wherein

the message is handled by the server in the particular manner when the indication is provided by the sender to the server with the message and wherein

the message is processed by the server in a first path when the indication is not provided by the sender to the server with the message and wherein

the message is processed by the server in a second path different from the first path when the indication is provided by the sender to the server with the message and wherein

the digital fingerprint of the message, the name of the sender, the identity and internet address of the server and the identity and internet address of the recipient are stored at the server, and

the message, the digital fingerprint of the message, the name of the sender, the identity and internet address of the server and the identity and internet address of the recipient are transmitted to the sender for storage by the sender.

27. A method of transmitting a message through the internet from a sender to an agent

for a recipient through a server displaced from the agent including the steps of:

providing the message from the sender at the server,

providing at the server a digital fingerprint of the message and the identity of the sender and the identity and internet address of the server,

transmitting to the agent in a first route the message and the identity of the sender and the identity and internet address of the server,

providing an indication at the server from the sender that the message from the sender should be transmitted by the server to the sender through a second route different from the first route,

transmitting the message from the server to the agent of the recipient through the second route in accordance with the indication from the sender,

providing at the agent of the recipient an indication of the status of the reception at the agent of the transmittal from the server to the agent of the message and the identity of the sender and the identity and the internet address of the server, and

transmitting to the server from the agent of the recipient the identity and internet address of the gent and the status of the reception at the agent of the message and the identity of the sender and the identity and internet address of the server.

28. A method as set forth in claim 27 wherein

the digital fingerprint of the message includes a digital digest of the message and an encryption of the digital digest and wherein

the message and the digital fingerprint of the message and the identity of the sender and the identity and internet address of the server and the identity and

the internet address of the agent of the recipient and the status at the agent of the reception at the agent of the message are transmitted by the server to the sender.

29. A method as set forth in claim 27 wherein

the sender provides at the server for an additional function to be preformed at the server and wherein

the server performs the additional function in accordance with the indication from the sender.

30. A method as set forth in claim 29 wherein

the additional indication provides for the message to be specially handled in the transmission of the message from the server to the agent of the recipient and wherein

the message is specially handled in the transmission of the message from the server to the agent of the recipient.

31. A method as set forth in claim 28 wherein

the sender provides at the server for an additional function to be performed at the server and wherein

the additional function represented by the additional indication provides for the message to be specially handled in the transmission of the message from the server through the second route to the agent of the recipient and wherein

the message is specially handed in the transmission of the message from the server through the second route to the agent of the recipient.

32. A method of transmitting a message through the internet from a sender to an agent

for a recipient through a server displaced from the agent, including the steps at the server of:

providing at the server a digital fingerprint of the message and the identity of the sender and the identity and the internet address of the server,

transmitting to the agent of the recipient through a first route the message and the identity of the sender and the identity and internet address of the server,

receiving from the sender an indication that the message should be sent by the server to the agent of the recipient through a second path different from the first path,

transmitting to the agent of the recipient the message and the identity of the sender and the identity and internet address of the server through the second path different from the first path in accordance with the indication from the sender,

receiving from the agent of the recipient the identity of the sender and the identity and internet address of the server and the identity and internet address of the agent and an indication of the status of the reception of the message at the agent, and

transmitting to the sender the message and the information received by the server from the agent of the recipient relating to the message.

33. A method as set forth in claim 32 wherein

the server stores the information relating to the message, but not the message, transmitted by the server to the sender and wherein

the server authenticates the message by comparing the information stored by the server relating to the message with the information transmitted from the server to the sender relating to the message.

34. A method as set forth in claim 32 wherein

the server receives additional information from the sender relating to additional functions to be performed by the server on the message in the transmission of the message from the server to the agent of the recipient and wherein

the server performs the additional functions on the message, in accordance with the additional information received by the server from the sender, in the transmission of the message from the server to the agent of the recipient.

35. A method as set forth in claim 34 wherein

the indication received by the server from the sender constitutes a first coding of the message from the sender and wherein

the additional information received by the server from the sender of the additional function to be performed by the server constitutes a second coding, added to the first coding, of the message from the sender.

36. A method set forth in claim 33 wherein

the server receives additional information from the sender relating to additional functions to be performed by the server on the message in the transmission of the message from the server to the agent of the recipient and wherein

the server performs the additional functions on the message, in accordance with the additional information received by the server from the sender, in the transmission of the message from the server to the agent of the recipient and wherein

the indication received by the server from the sender constitutes a first coding of the message from the sender and wherein

the additional information received by the server from the sender of the additional function to be performed by the server constitutes a second coding, added to the first coding, of the message from the sender.

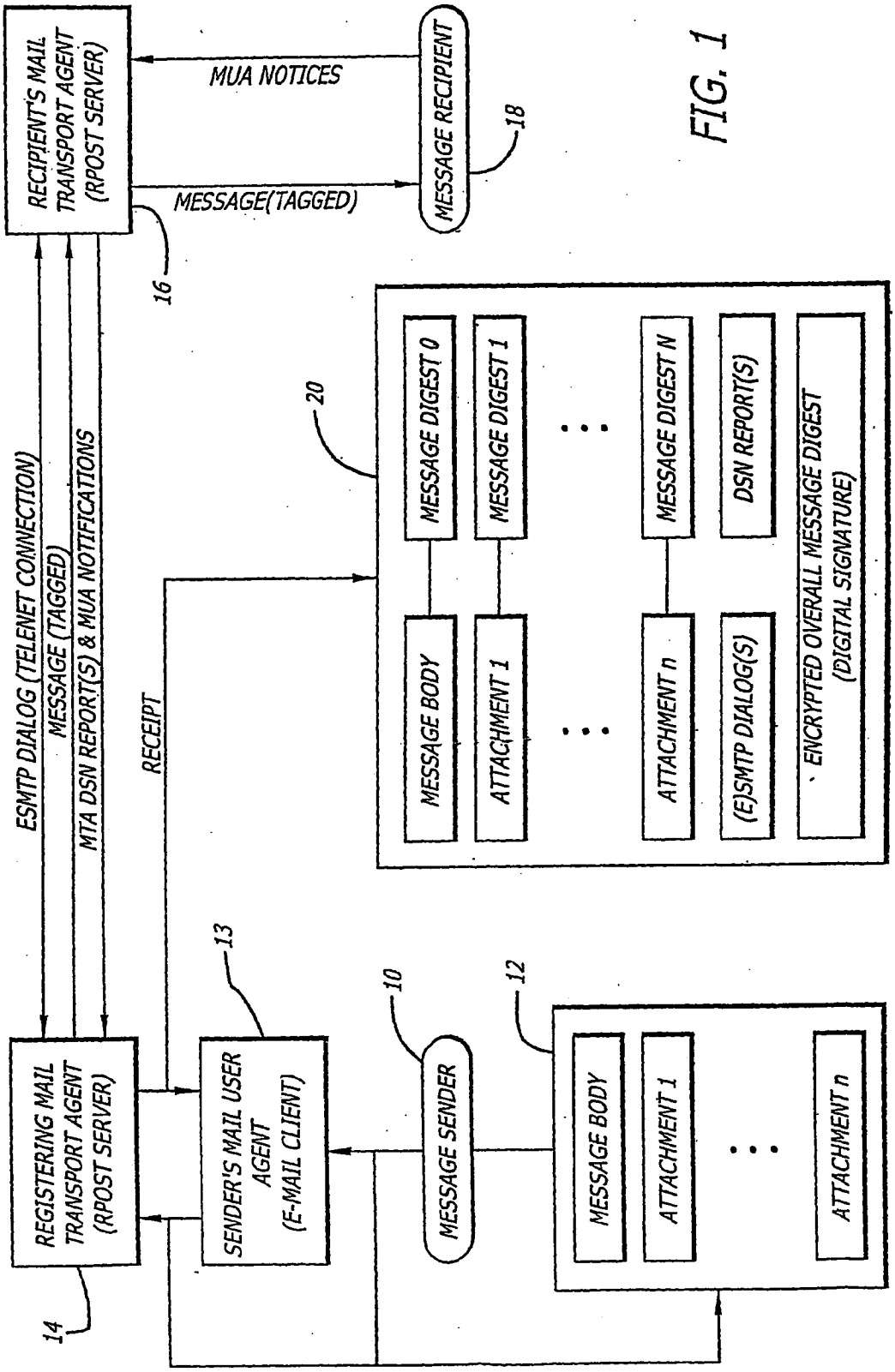

RECIPIENT'S MAIL TRANSPORT AGENT (RPOST SERVER)
MUA NOTICES
MESSAGE RECIPIENT
18
MESSAGE(TAGGED)
16
20
MESSAGE DIGEST 0
MESSAGE DIGEST 1
MESSAGE DIGEST N
DSN REPORT(S)
MESSAGE BODY
ATTACHMENT 1
ATTACHMENT n
(E)SMTP DIALOG(S)
ENCRYPTED OVERALL MESSAGE DIGEST (DIGITAL SIGNATURE)
ESMTP DIALOG (TELENET CONNECTION)
MESSAGE (TAGGED)
MTA DSN REPORT(S) & MUA NOTIFICATIONS
RECEIPT
13
10
12
REGISTERING MAIL TRANSPORT AGENT (RPOST SERVER)
SENDER'S MAIL USER AGENT (E-MAIL CLIENT)
MESSAGE SENDER
MESSAGE BODY
ATTACHMENT 1
ATTACHMENT n
14

FIG. 1

FIG. 2A

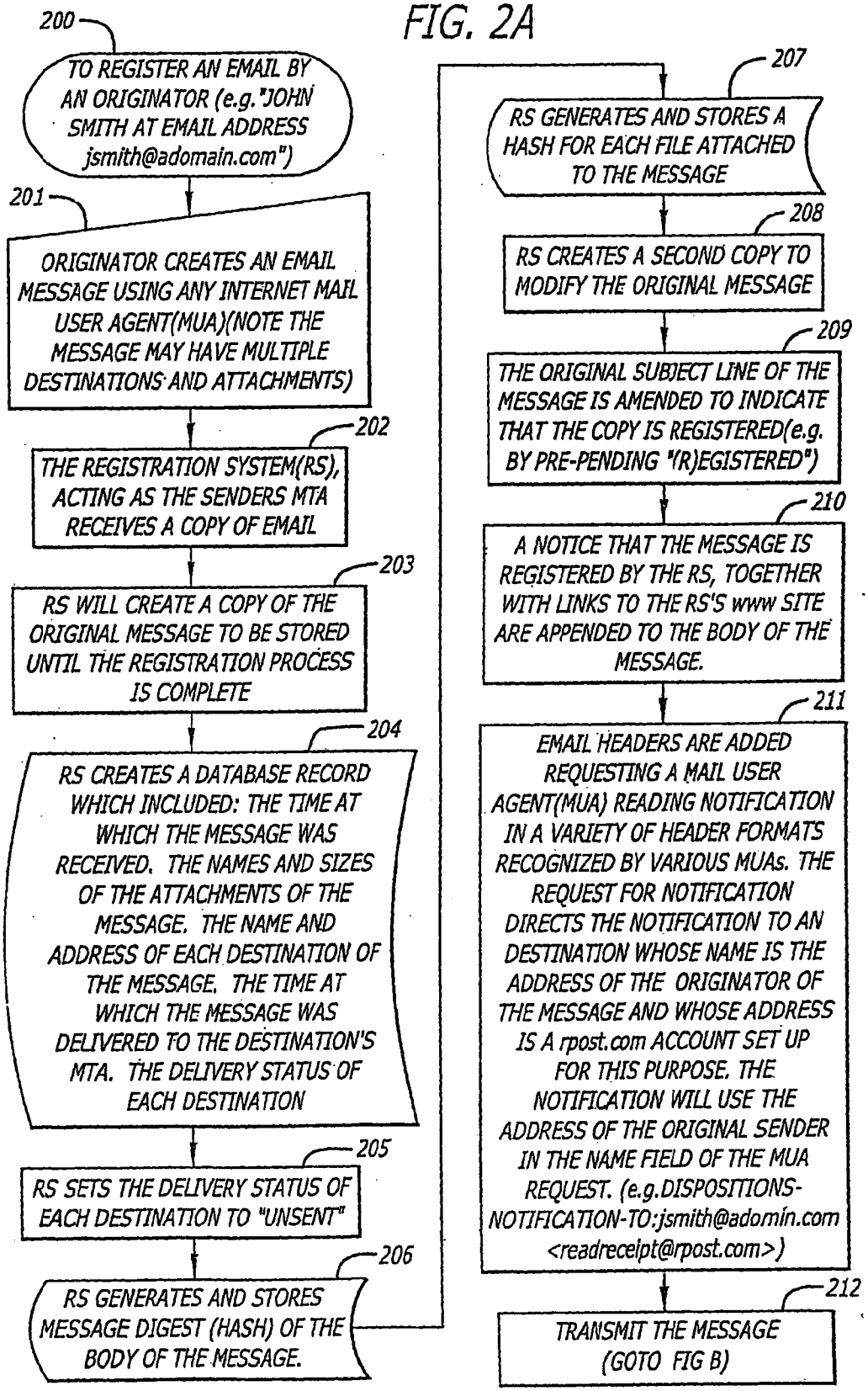
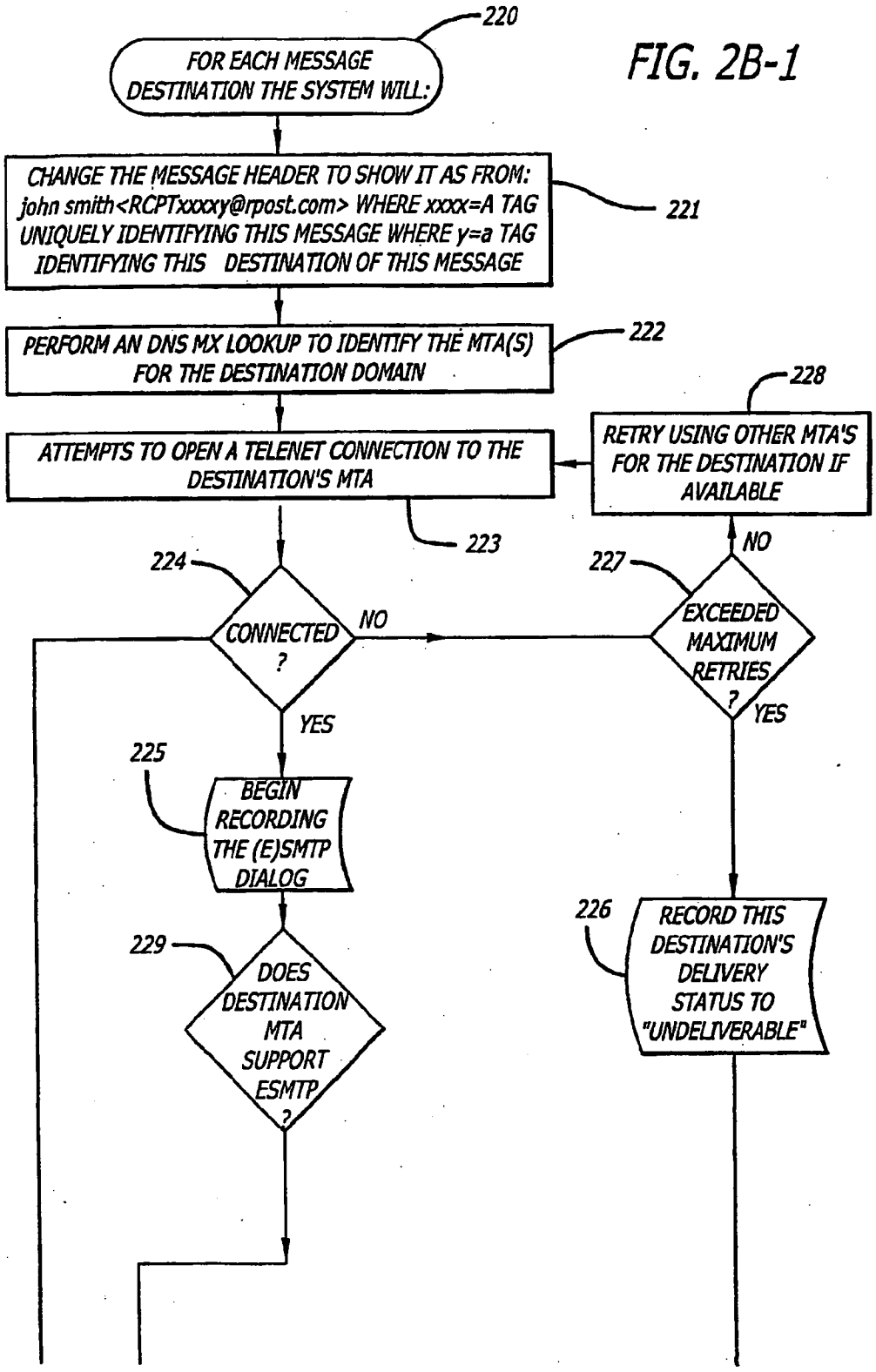

200
TO REGISTER AN EMAIL BY AN ORIGINATOR (e.g."JOHN SMITH AT EMAIL ADDRESS jsmith@adomain.com")
201
ORIGINATOR CREATES AN EMAIL MESSAGE USING ANY INTERNET MAIL USER AGENT(MUA)(NOTE THE MESSAGE MAY HAVE MULTIPLE DESTINATIONS AND ATTACHMENTS)
202
THE REGISTRATION SYSTEM(RS), ACTING AS THE SENDERS MTA RECEIVES A COPY OF EMAIL
203
RS WILL CREATE A COPY OF THE ORIGINAL MESSAGE TO BE STORED UNTIL THE REGISTRATION PROCESS IS COMPLETE
204
RS CREATES A DATABASE RECORD WHICH INCLUDED: THE TIME AT WHICH THE MESSAGE WAS RECEIVED. THE NAMES AND SIZES OF THE ATTACHMENTS OF THE MESSAGE. THE NAME AND ADDRESS OF EACH DESTINATION OF THE MESSAGE. THE TIME AT WHICH THE MESSAGE WAS DELIVERED TO THE DESTINATION'S MTA. THE DELIVERY STATUS OF EACH DESTINATION
205
RS SETS THE DELIVERY STATUS OF EACH DESTINATION TO "UNSENT"
206
RS GENERATES AND STORES MESSAGE DIGEST (HASH) OF THE BODY OF THE MESSAGE.
207
RS GENERATES AND STORES A HASH FOR EACH FILE ATTACHED TO THE MESSAGE
208
RS CREATES A SECOND COPY TO MODIFY THE ORIGINAL MESSAGE
209
THE ORIGINAL SUBJECT LINE OF THE MESSAGE IS AMENDED TO INDICATE THAT THE COPY IS REGISTERED(e.g. BY PRE-PENDING "(R)EGISTERED")
210
A NOTICE THAT THE MESSAGE IS REGISTERED BY THE RS, TOGETHER WITH LINKS TO THE RS'S www SITE ARE APPENDED TO THE BODY OF THE MESSAGE.
211
EMAIL HEADERS ARE ADDED REQUESTING A MAIL USER AGENT(MUA) READING NOTIFICATION IN A VARIETY OF HEADER FORMATS RECOGNIZED BY VARIOUS MUAs. THE REQUEST FOR NOTIFICATION DIRECTS THE NOTIFICATION TO AN DESTINATION WHOSE NAME IS THE ADDRESS OF THE ORIGINATOR OF THE MESSAGE AND WHOSE ADDRESS IS A rpost.com ACCOUNT SET UP FOR THIS PURPOSE. THE NOTIFICATION WILL USE THE ADDRESS OF THE ORIGINAL SENDER IN THE NAME FIELD OF THE MUA REQUEST. (e.g.DISPOSITIONS-NOTIFICATION-TO:jsmith@adomin.com <readreceipt@rpost.com>)
212
TRANSMIT THE MESSAGE (GOTO FIG B)

FIG. 2B-1


220
FOR EACH MESSAGE DESTINATION THE SYSTEM WILL:
CHANGE THE MESSAGE HEADER TO SHOW IT AS FROM: john smith<RCPTxxxxy@rpost.com> WHERE xxxx=A TAG UNIQUELY IDENTIFYING THIS MESSAGE WHERE y=a TAG IDENTIFYING THIS DESTINATION OF THIS MESSAGE
221
PERFORM AN DNS MX LOOKUP TO IDENTIFY THE MTA(S) FOR THE DESTINATION DOMAIN
222
ATTEMPTS TO OPEN A TELENET CONNECTION TO THE DESTINATION'S MTA
223
228
RETRY USING OTHER MTA'S FOR THE DESTINATION IF AVAILABLE
224
CONNECTED ?
NO
YES
227
EXCEEDED MAXIMUM RETRIES ?
NO
YES
225
BEGIN RECORDING THE (E)SMTP DIALOG
229
DOES DESTINATION MTA SUPPORT ESMTP ?
226
RECORD THIS DESTINATION'S DELIVERY STATUS TO "UNDELIVERABLE"

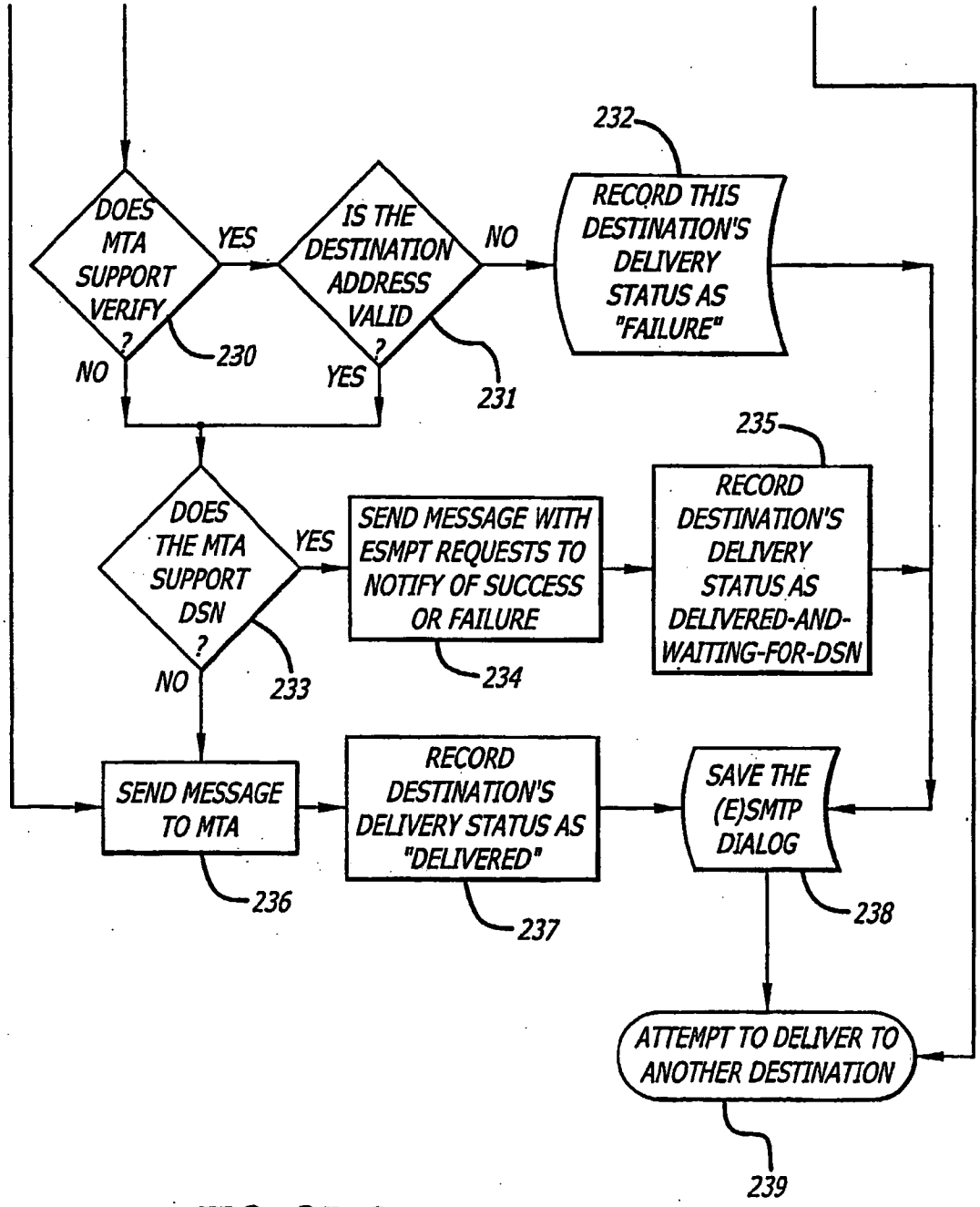

DOES MTA SUPPORT VERIFY ?
YES
NO
230
IS THE DESTINATION ADDRESS VALID ?
NO
YES
231
232
RECORD THIS DESTINATION'S DELIVERY STATUS AS "FAILURE"
DOES THE MTA SUPPORT DSN ?
YES
NO
233
SEND MESSAGE WITH ESMPT REQUESTS TO NOTIFY OF SUCCESS OR FAILURE
234
235
RECORD DESTINATION'S DELIVERY STATUS AS DELIVERED-AND-WAITING-FOR-DSN
SEND MESSAGE TO MTA
236
RECORD DESTINATION'S DELIVERY STATUS AS "DELIVERED"
237
SAVE THE (E)SMTP DIALOG
238
ATTEMPT TO DELIVER TO ANOTHER DESTINATION
239

FIG. 2B-2

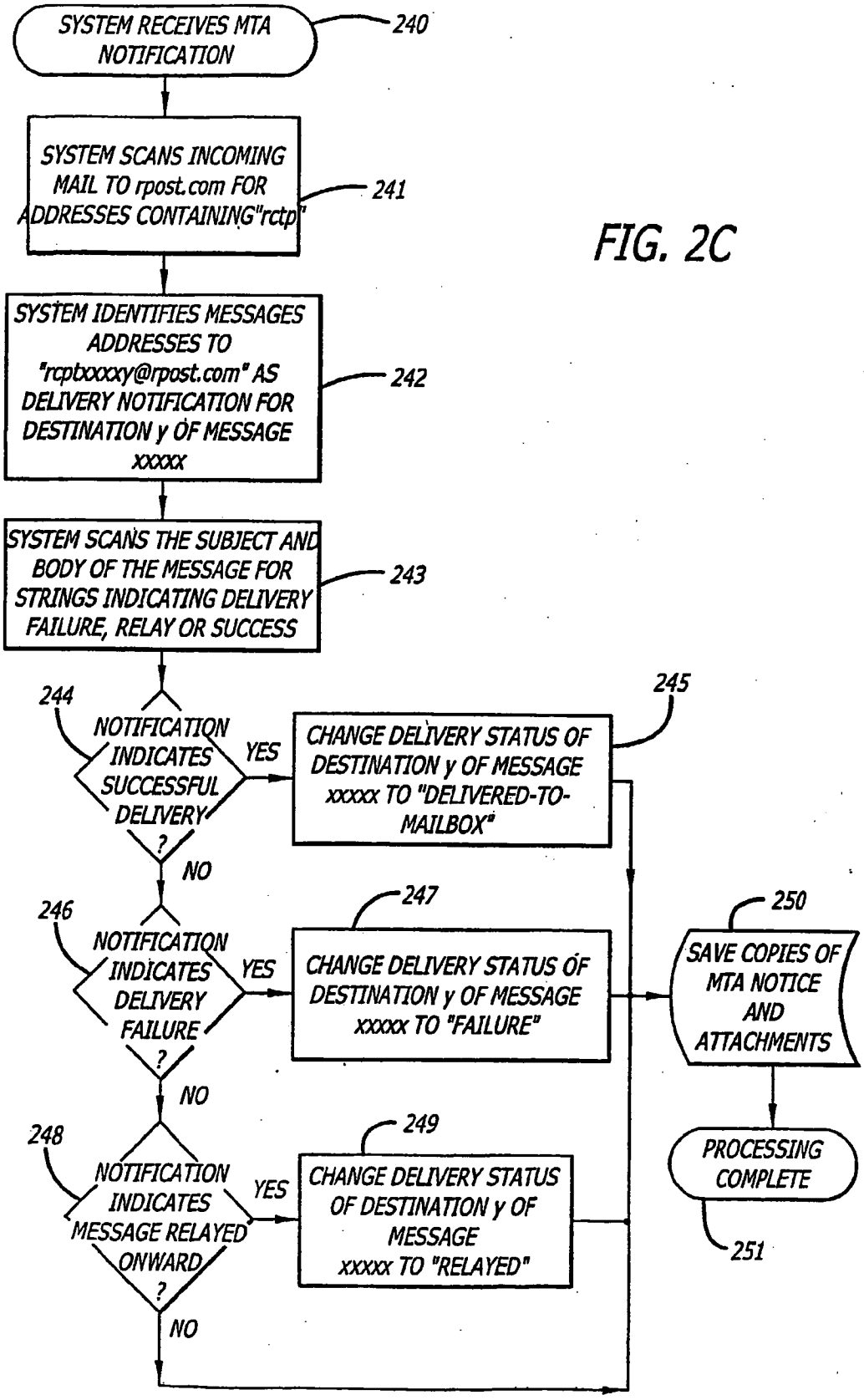

SYSTEM RECEIVES MTA NOTIFICATION
240
SYSTEM SCANS INCOMING MAIL TO rpost.com FOR ADDRESSES CONTAINING"rctp"
241
SYSTEM IDENTIFIES MESSAGES ADDRESSES TO "rcptxxxxy@rpost.com" AS DELIVERY NOTIFICATION FOR DESTINATION y OF MESSAGE xxxxx
242
SYSTEM SCANS THE SUBJECT AND BODY OF THE MESSAGE FOR STRINGS INDICATING DELIVERY FAILURE, RELAY OR SUCCESS
243
244
NOTIFICATION INDICATES SUCCESSFUL DELIVERY ?
YES
245
CHANGE DELIVERY STATUS OF DESTINATION y OF MESSAGE xxxxx TO "DELIVERED-TO-MAILBOX"
NO
246
NOTIFICATION INDICATES DELIVERY FAILURE ?
YES
247
CHANGE DELIVERY STATUS OF DESTINATION y OF MESSAGE xxxxx TO "FAILURE"
NO
248
NOTIFICATION INDICATES MESSAGE RELAYED ONWARD ?
YES
249
CHANGE DELIVERY STATUS OF DESTINATION y OF MESSAGE xxxxx TO "RELAYED"
NO
250
SAVE COPIES OF MTA NOTICE AND ATTACHMENTS
PROCESSING COMPLETE
251

FIG. 2C

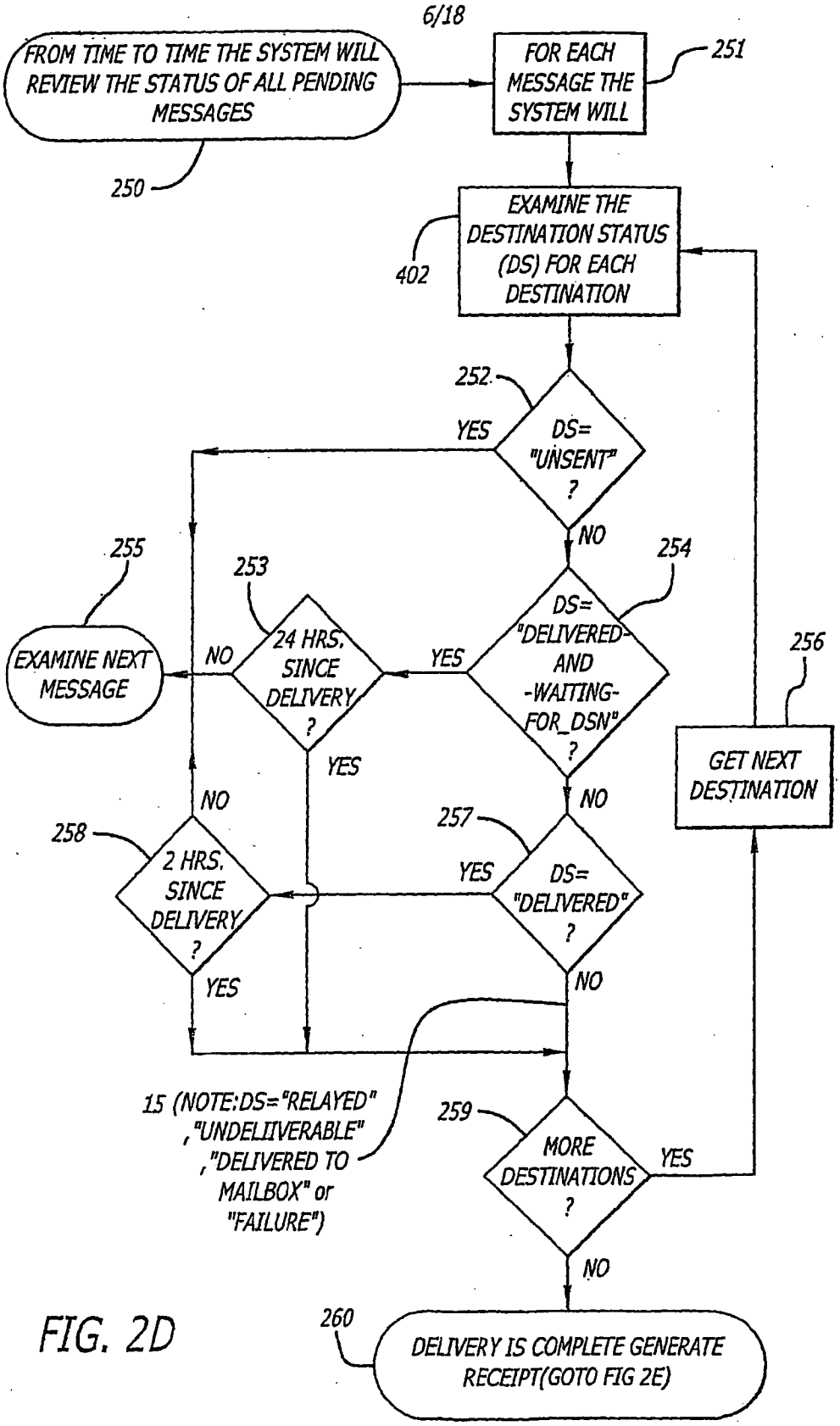
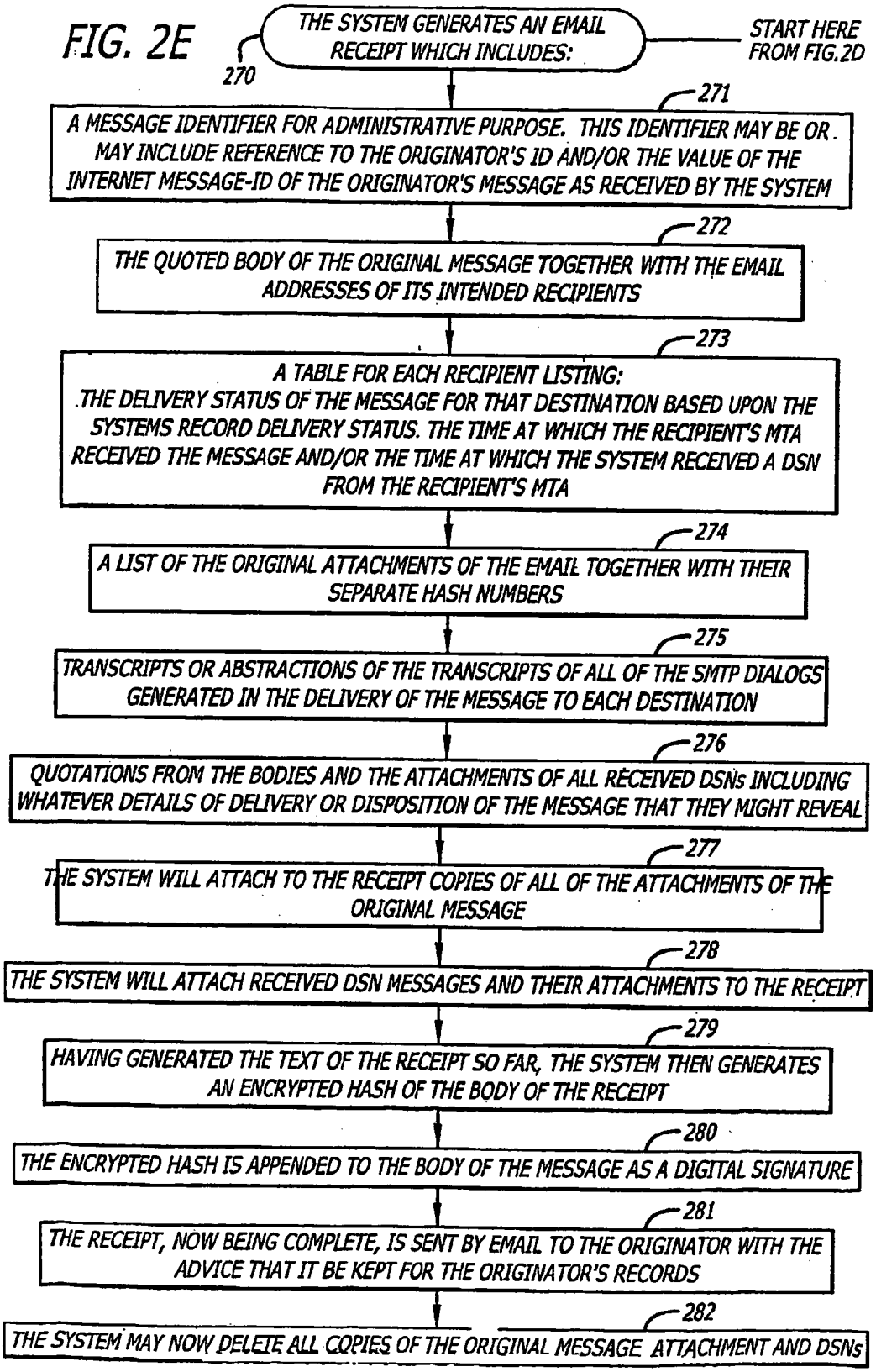

FROM TIME TO TIME THE SYSTEM WILL REVIEW THE STATUS OF ALL PENDING MESSAGES
250
FOR EACH MESSAGE THE SYSTEM WILL
251
EXAMINE THE DESTINATION STATUS (DS) FOR EACH DESTINATION
402
252
DS= "UNSENT" ?
YES
NO
254
DS= "DELIVERED-AND -WAITING-FOR_DSN" ?
YES
253
24 HRS. SINCE DELIVERY ?
NO
255
EXAMINE NEXT MESSAGE
YES
NO
257
DS= "DELIVERED" ?
YES
258
2 HRS. SINCE DELIVERY ?
YES
NO
15 (NOTE:DS="RELAYED" ,"UNDELIIVERABLE" ,"DELIVERED TO MAILBOX" or "FAILURE")
259
MORE DESTINATIONS ?
YES
NO
256
GET NEXT DESTINATION
260
DELIVERY IS COMPLETE GENERATE RECEIPT(GOTO FIG 2E)

FIG. 2D

FIG. 2E


THE SYSTEM GENERATES AN EMAIL RECEIPT WHICH INCLUDES:
START HERE FROM FIG.2D
270
271
A MESSAGE IDENTIFIER FOR ADMINISTRATIVE PURPOSE. THIS IDENTIFIER MAY BE OR MAY INCLUDE REFERENCE TO THE ORIGINATOR'S ID AND/OR THE VALUE OF THE INTERNET MESSAGE-ID OF THE ORIGINATOR'S MESSAGE AS RECEIVED BY THE SYSTEM
272
THE QUOTED BODY OF THE ORIGINAL MESSAGE TOGETHER WITH THE EMAIL ADDRESSES OF ITS INTENDED RECIPIENTS
273
A TABLE FOR EACH RECIPIENT LISTING:
.THE DELIVERY STATUS OF THE MESSAGE FOR THAT DESTINATION BASED UPON THE SYSTEMS RECORD DELIVERY STATUS. THE TIME AT WHICH THE RECIPIENT'S MTA RECEIVED THE MESSAGE AND/OR THE TIME AT WHICH THE SYSTEM RECEIVED A DSN FROM THE RECIPIENT'S MTA
274
A LIST OF THE ORIGINAL ATTACHMENTS OF THE EMAIL TOGETHER WITH THEIR SEPARATE HASH NUMBERS
275
TRANSCRIPTS OR ABSTRACTIONS OF THE TRANSCRIPTS OF ALL OF THE SMTP DIALOGS GENERATED IN THE DELIVERY OF THE MESSAGE TO EACH DESTINATION
276
QUOTATIONS FROM THE BODIES AND THE ATTACHMENTS OF ALL RECEIVED DSNs INCLUDING WHATEVER DETAILS OF DELIVERY OR DISPOSITION OF THE MESSAGE THAT THEY MIGHT REVEAL
277
THE SYSTEM WILL ATTACH TO THE RECEIPT COPIES OF ALL OF THE ATTACHMENTS OF THE ORIGINAL MESSAGE
278
THE SYSTEM WILL ATTACH RECEIVED DSN MESSAGES AND THEIR ATTACHMENTS TO THE RECEIPT
279
HAVING GENERATED THE TEXT OF THE RECEIPT SO FAR, THE SYSTEM THEN GENERATES AN ENCRYPTED HASH OF THE BODY OF THE RECEIPT
280
THE ENCRYPTED HASH IS APPENDED TO THE BODY OF THE MESSAGE AS A DIGITAL SIGNATURE
281
THE RECEIPT, NOW BEING COMPLETE, IS SENT BY EMAIL TO THE ORIGINATOR WITH THE ADVICE THAT IT BE KEPT FOR THE ORIGINATOR'S RECORDS
282
THE SYSTEM MAY NOW DELETE ALL COPIES OF THE ORIGINAL MESSAGE ATTACHMENT AND DSNs

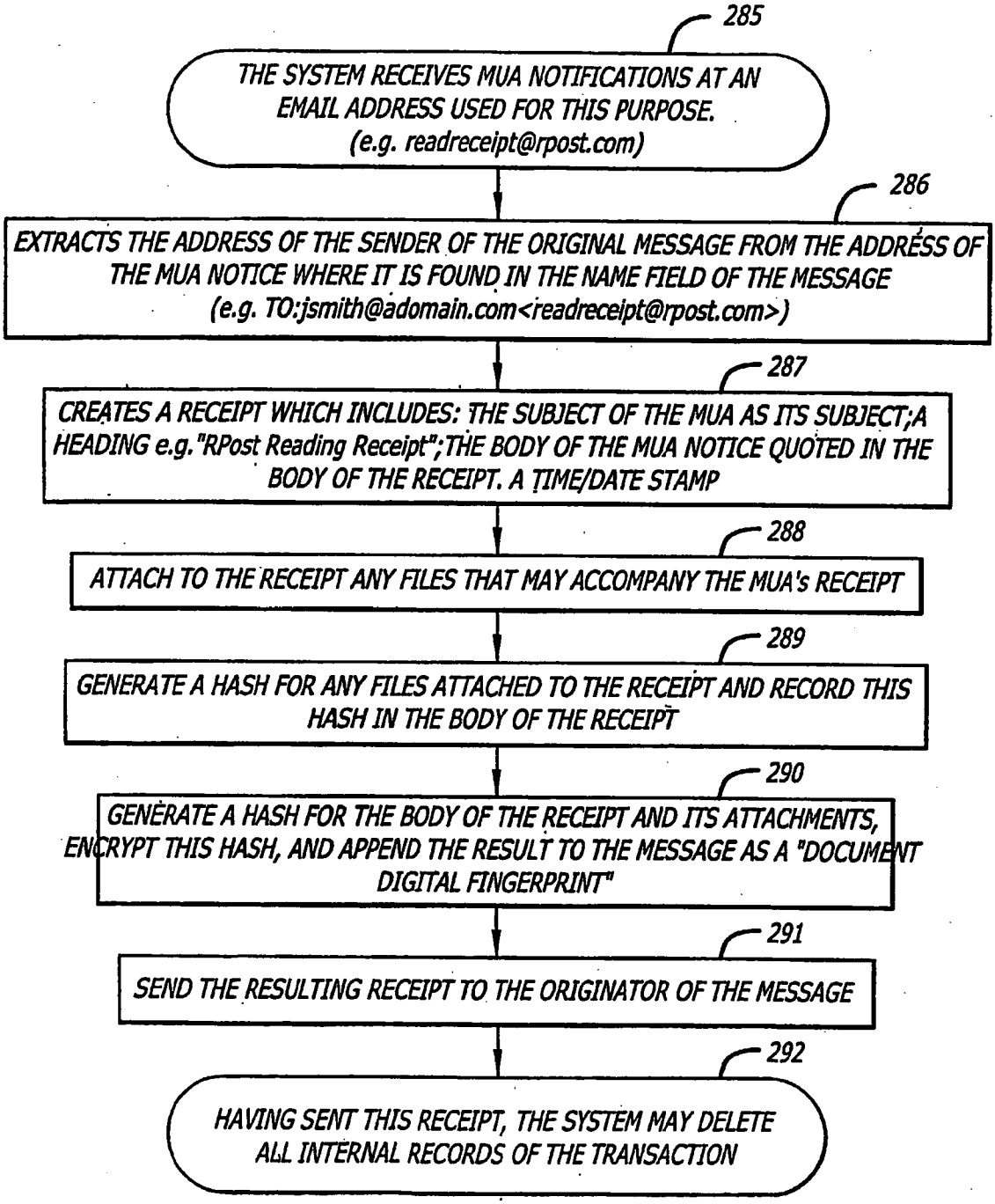

285
THE SYSTEM RECEIVES MUA NOTIFICATIONS AT AN EMAIL ADDRESS USED FOR THIS PURPOSE. (e.g. readreceipt@rpost.com)
286
EXTRACTS THE ADDRESS OF THE SENDER OF THE ORIGINAL MESSAGE FROM THE ADDRESS OF THE MUA NOTICE WHERE IT IS FOUND IN THE NAME FIELD OF THE MESSAGE (e.g. TO:jsmith@adomain.com<readreceipt@rpost.com>)
287
CREATES A RECEIPT WHICH INCLUDES: THE SUBJECT OF THE MUA AS ITS SUBJECT;A HEADING e.g."RPost Reading Receipt";THE BODY OF THE MUA NOTICE QUOTED IN THE BODY OF THE RECEIPT. A TIME/DATE STAMP
288
ATTACH TO THE RECEIPT ANY FILES THAT MAY ACCOMPANY THE MUA's RECEIPT
289
GENERATE A HASH FOR ANY FILES ATTACHED TO THE RECEIPT AND RECORD THIS HASH IN THE BODY OF THE RECEIPT
290
GENERATE A HASH FOR THE BODY OF THE RECEIPT AND ITS ATTACHMENTS, ENCRYPT THIS HASH, AND APPEND THE RESULT TO THE MESSAGE AS A "DOCUMENT DIGITAL FINGERPRINT"
291
SEND THE RESULTING RECEIPT TO THE ORIGINATOR OF THE MESSAGE
292
HAVING SENT THIS RECEIPT, THE SYSTEM MAY DELETE ALL INTERNAL RECORDS OF THE TRANSACTION

FIG. 2F

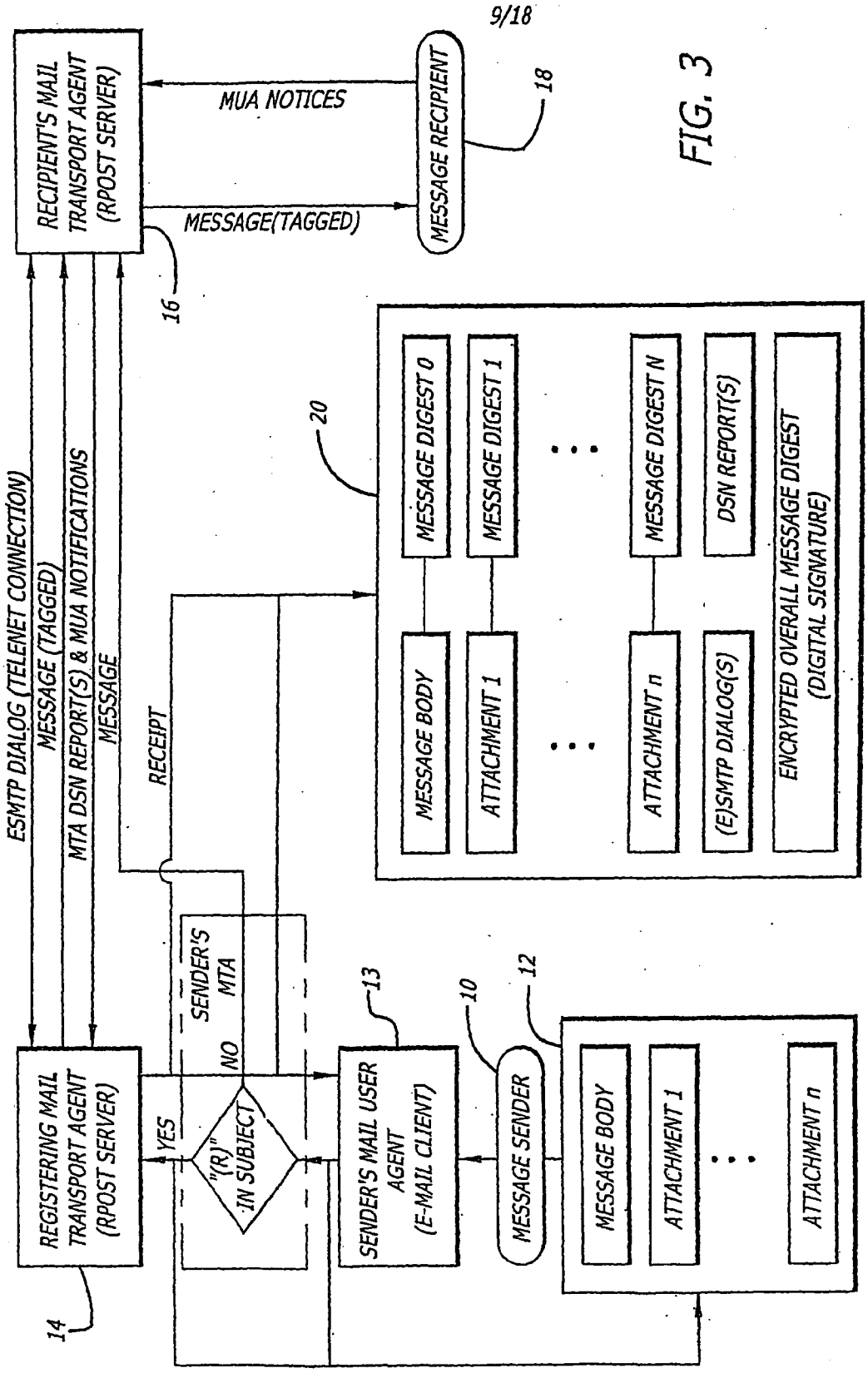

RECIPIENT'S MAIL TRANSPORT AGENT (RPOST SERVER)
MUA NOTICES
MESSAGE RECIPIENT
18
MESSAGE(TAGGED)
16
ESMTP DIALOG (TELENET CONNECTION)
MESSAGE (TAGGED)
MTA DSN REPORT(S) & MUA NOTIFICATIONS
MESSAGE
RECEIPT
20
MESSAGE DIGEST 0
MESSAGE DIGEST 1
MESSAGE DIGEST N
DSN REPORT(S)
MESSAGE BODY
ATTACHMENT 1
ATTACHMENT n
(E)SMTP DIALOG(S)
ENCRYPTED OVERALL MESSAGE DIGEST (DIGITAL SIGNATURE)
SENDER'S MTA
NO
YES
"(R)" IN SUBJECT
REGISTERING MAIL TRANSPORT AGENT (RPOST SERVER)
14
SENDER'S MAIL USER AGENT (E-MAIL CLIENT)
13
MESSAGE SENDER
10
12
MESSAGE BODY
ATTACHMENT 1
ATTACHMENT n

FIG. 3

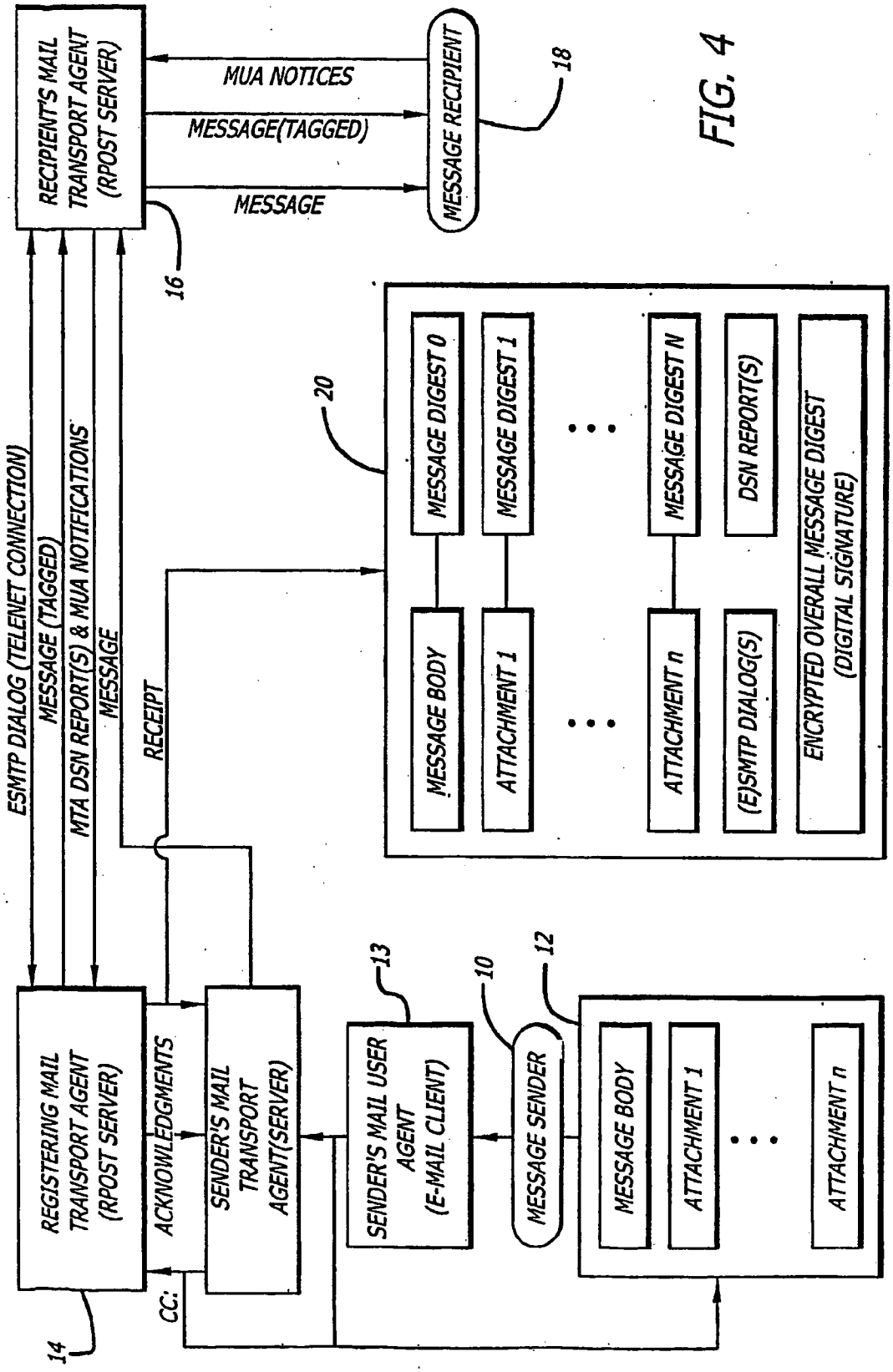

RECIPIENT'S MAIL TRANSPORT AGENT (RPOST SERVER)
MUA NOTICES
MESSAGE(TAGGED)
MESSAGE
MESSAGE RECIPIENT
18
16
20
MESSAGE DIGEST 0
MESSAGE DIGEST 1
MESSAGE DIGEST N
DSN REPORT(S)
MESSAGE BODY
ATTACHMENT 1
ATTACHMENT n
(E)SMTP DIALOG(S)
ENCRYPTED OVERALL MESSAGE DIGEST (DIGITAL SIGNATURE)
ESMTP DIALOG (TELENET CONNECTION)
MESSAGE (TAGGED)
MTA DSN REPORT(S) & MUA NOTIFICATIONS
MESSAGE
RECEIPT
REGISTERING MAIL TRANSPORT AGENT (RPOST SERVER)
ACKNOWLEDGMENTS
SENDER'S MAIL TRANSPORT AGENT(SERVER)
13
SENDER'S MAIL USER AGENT (E-MAIL CLIENT)
10
12
MESSAGE SENDER
MESSAGE BODY
ATTACHMENT 1
ATTACHMENT n
CC:
14

FIG. 4

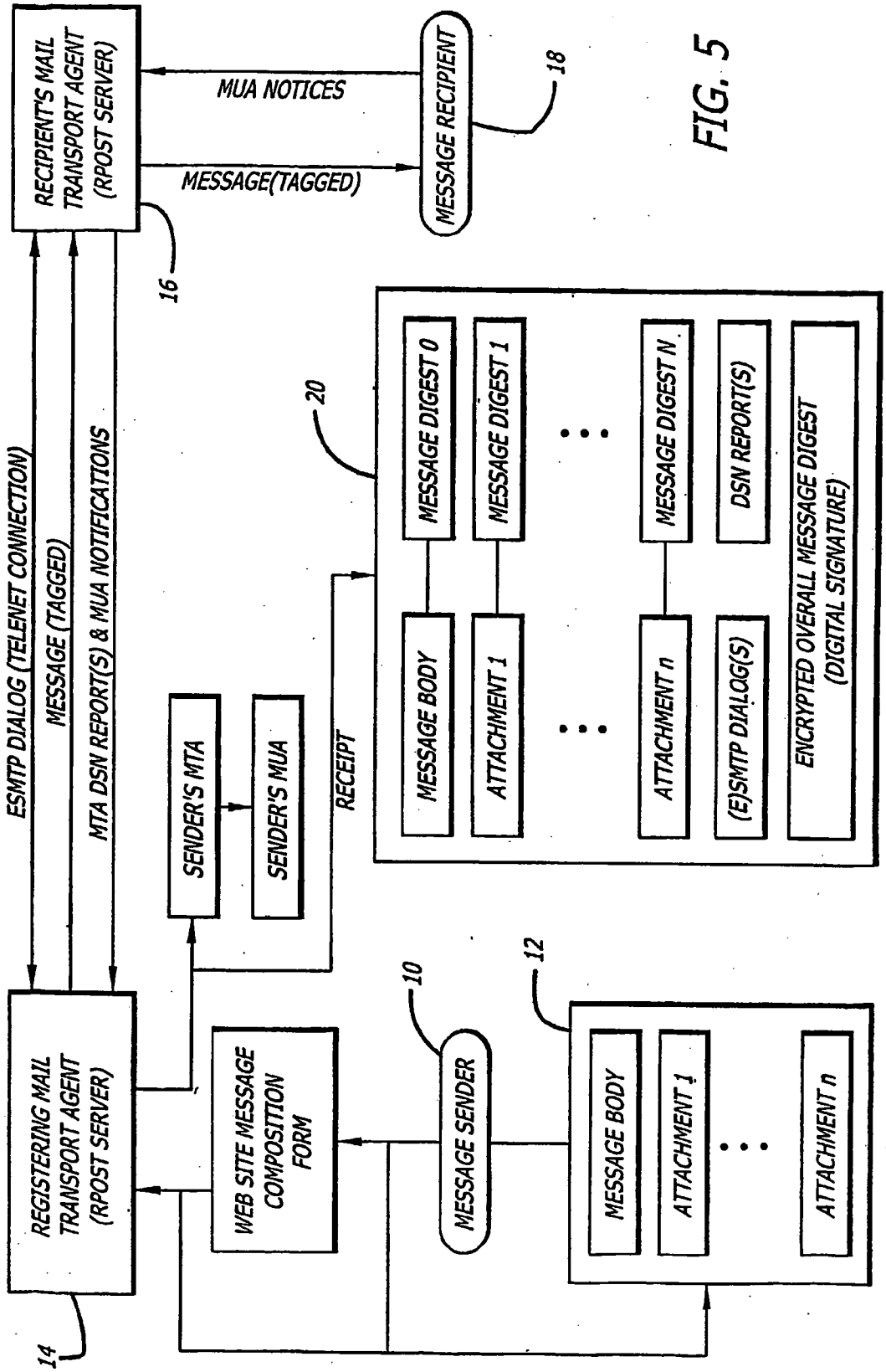

RECIPIENT'S MAIL TRANSPORT AGENT (RPOST SERVER)
MUA NOTICES
MESSAGE(TAGGED)
MESSAGE RECIPIENT
18
16
20
MESSAGE DIGEST 0
MESSAGE DIGEST 1
MESSAGE DIGEST N
DSN REPORT(S)
MESSAGE BODY
ATTACHMENT 1
ATTACHMENT n
(E)SMTP DIALOG(S)
ENCRYPTED OVERALL MESSAGE DIGEST (DIGITAL SIGNATURE)
ESMTP DIALOG (TELENET CONNECTION)
MESSAGE (TAGGED)
MTA DSN REPORT(S) & MUA NOTIFICATIONS
SENDER'S MTA
SENDER'S MUA
RECEIPT
10
12
REGISTERING MAIL TRANSPORT AGENT (RPOST SERVER)
WEB SITE MESSAGE COMPOSITION FORM
MESSAGE SENDER
MESSAGE BODY
ATTACHMENT 1
ATTACHMENT n
14

FIG. 5

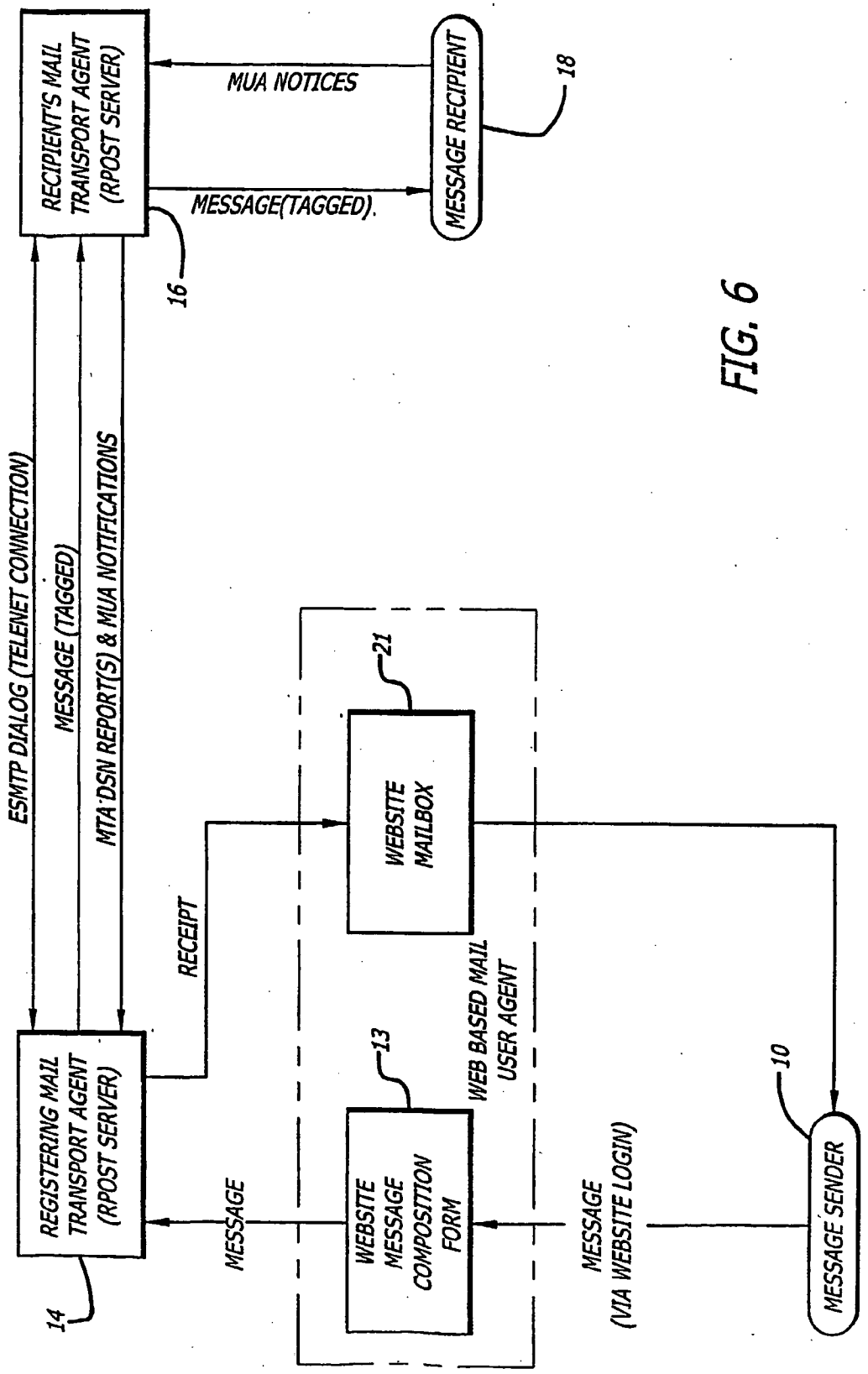

RECIPIENT'S MAIL TRANSPORT AGENT (RPOST SERVER)
MUA NOTICES
MESSAGE RECIPIENT
18
MESSAGE(TAGGED).
16
ESMTP DIALOG (TELENET CONNECTION)
MESSAGE (TAGGED)
MTA DSN REPORT(S) & MUA NOTIFICATIONS
21
WEBSITE MAILBOX
RECEIPT
WEB BASED MAIL USER AGENT
13
REGISTERING MAIL TRANSPORT AGENT (RPOST SERVER)
WEBSITE MESSAGE COMPOSITION FORM
10
MESSAGE
MESSAGE (VIA WEBSITE LOGIN)
MESSAGE SENDER
14

FIG. 6

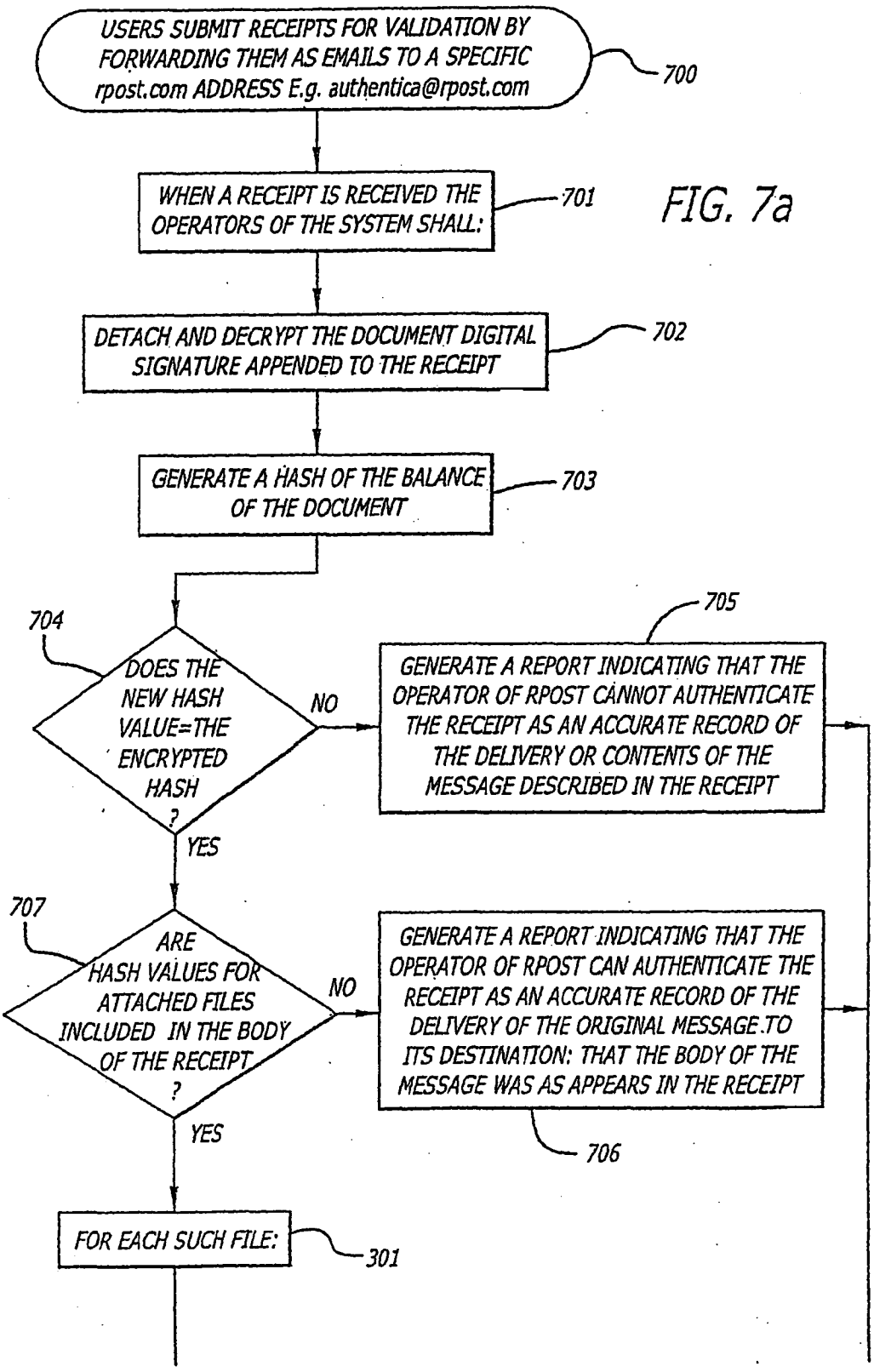

USERS SUBMIT RECEIPTS FOR VALIDATION BY FORWARDING THEM AS EMAILS TO A SPECIFIC rpost.com ADDRESS E.g. authentica@rpost.com
700
WHEN A RECEIPT IS RECEIVED THE OPERATORS OF THE SYSTEM SHALL:
701
DETACH AND DECRYPT THE DOCUMENT DIGITAL SIGNATURE APPENDED TO THE RECEIPT
702
GENERATE A HASH OF THE BALANCE OF THE DOCUMENT
703
704
DOES THE NEW HASH VALUE=THE ENCRYPTED HASH ?
NO
705
GENERATE A REPORT INDICATING THAT THE OPERATOR OF RPOST CANNOT AUTHENTICATE THE RECEIPT AS AN ACCURATE RECORD OF THE DELIVERY OR CONTENTS OF THE MESSAGE DESCRIBED IN THE RECEIPT
YES
707
ARE HASH VALUES FOR ATTACHED FILES INCLUDED IN THE BODY OF THE RECEIPT ?
NO
GENERATE A REPORT INDICATING THAT THE OPERATOR OF RPOST CAN AUTHENTICATE THE RECEIPT AS AN ACCURATE RECORD OF THE DELIVERY OF THE ORIGINAL MESSAGE TO ITS DESTINATION: THAT THE BODY OF THE MESSAGE WAS AS APPEARS IN THE RECEIPT
706
YES
FOR EACH SUCH FILE:
301

FIG. 7a

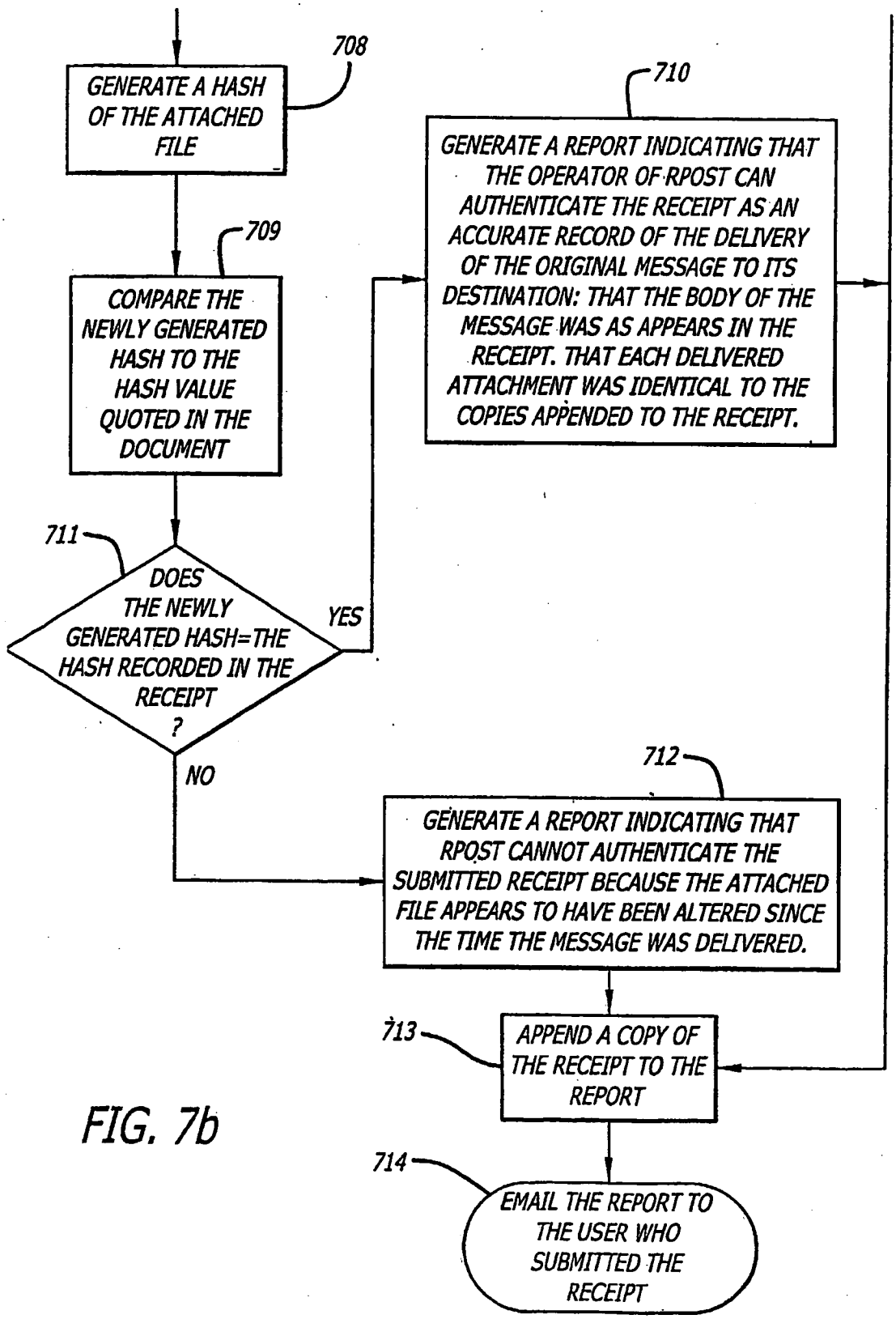

708
GENERATE A HASH OF THE ATTACHED FILE
709
COMPARE THE NEWLY GENERATED HASH TO THE HASH VALUE QUOTED IN THE DOCUMENT
711
DOES THE NEWLY GENERATED HASH=THE HASH RECORDED IN THE RECEIPT ?
YES
NO
710
GENERATE A REPORT INDICATING THAT THE OPERATOR OF RPOST CAN AUTHENTICATE THE RECEIPT AS AN ACCURATE RECORD OF THE DELIVERY OF THE ORIGINAL MESSAGE TO ITS DESTINATION: THAT THE BODY OF THE MESSAGE WAS AS APPEARS IN THE RECEIPT. THAT EACH DELIVERED ATTACHMENT WAS IDENTICAL TO THE COPIES APPENDED TO THE RECEIPT.
712
GENERATE A REPORT INDICATING THAT RPOST CANNOT AUTHENTICATE THE SUBMITTED RECEIPT BECAUSE THE ATTACHED FILE APPEARS TO HAVE BEEN ALTERED SINCE THE TIME THE MESSAGE WAS DELIVERED.
713
APPEND A COPY OF THE RECEIPT TO THE REPORT
714
EMAIL THE REPORT TO THE USER WHO SUBMITTED THE RECEIPT

FIG. 7b

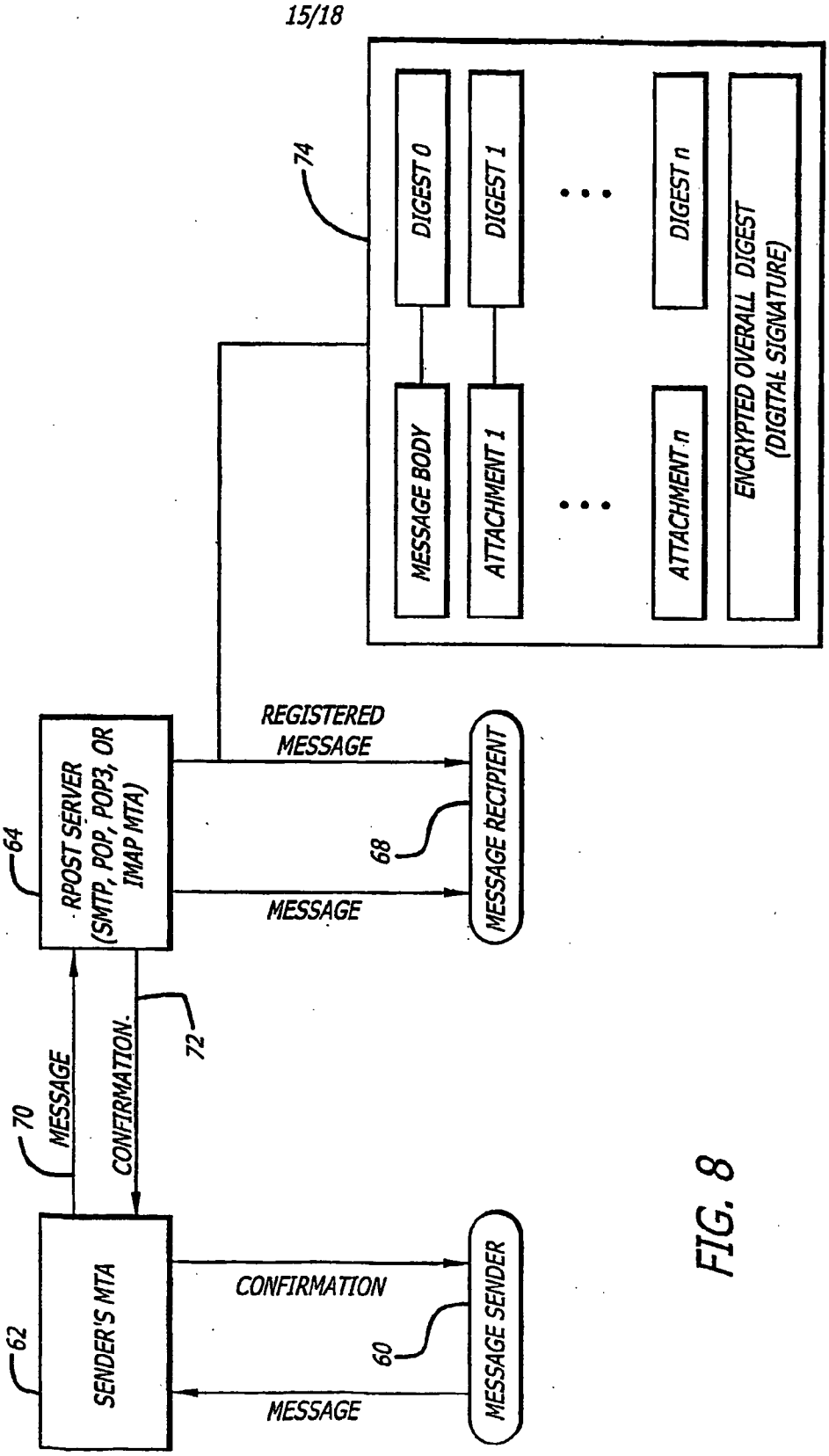
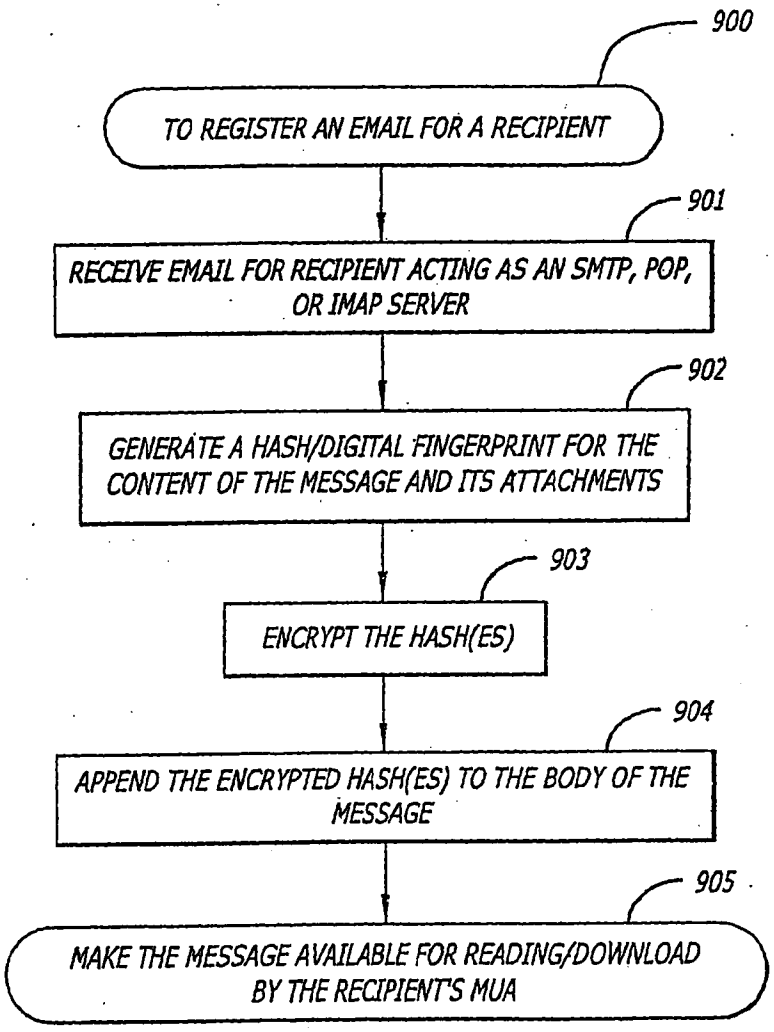

74
DIGEST 0
DIGEST 1
DIGEST n
ENCRYPTED OVERALL DIGEST (DIGITAL SIGNATURE)
MESSAGE BODY
ATTACHMENT 1
ATTACHMENT n
REGISTERED MESSAGE
64
RPOST SERVER (SMTP, POP, POP3, OR IMAP MTA)
68
MESSAGE RECIPIENT
MESSAGE
72
70
MESSAGE
CONFIRMATION
62
SENDER'S MTA
CONFIRMATION
60
MESSAGE SENDER
MESSAGE

FIG. 8

FIG. 9


900
TO REGISTER AN EMAIL FOR A RECIPIENT
901
RECEIVE EMAIL FOR RECIPIENT ACTING AS AN SMTP, POP, OR IMAP SERVER
902
GENERATE A HASH/DIGITAL FINGERPRINT FOR THE CONTENT OF THE MESSAGE AND ITS ATTACHMENTS
903
ENCRYPT THE HASH(ES)
904
APPEND THE ENCRYPTED HASH(ES) TO THE BODY OF THE MESSAGE
905
MAKE THE MESSAGE AVAILABLE FOR READING/DOWNLOAD BY THE RECIPIENT'S MUA

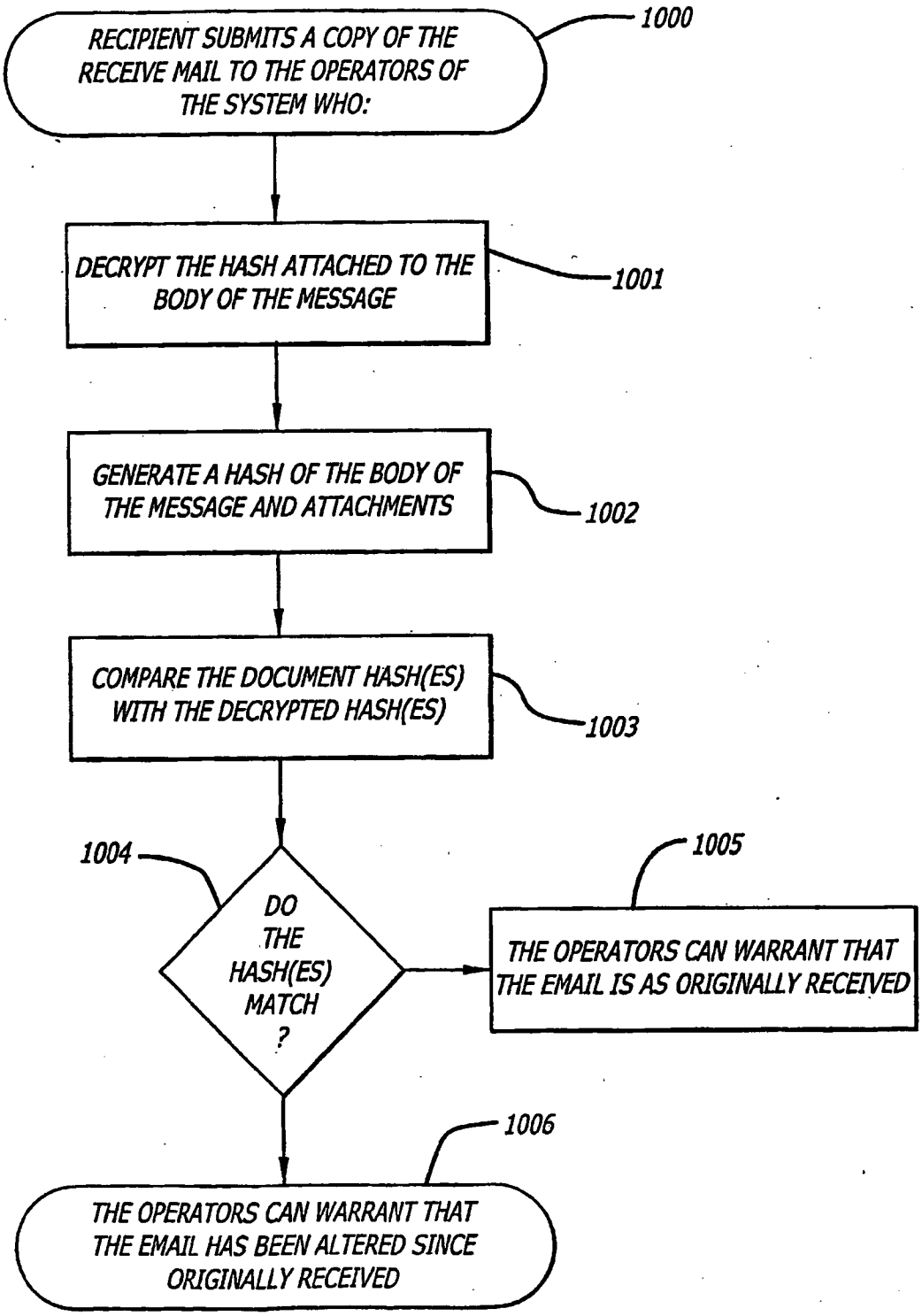

RECIPIENT SUBMITS A COPY OF THE RECEIVE MAIL TO THE OPERATORS OF THE SYSTEM WHO:
1000
DECRYPT THE HASH ATTACHED TO THE BODY OF THE MESSAGE
1001
GENERATE A HASH OF THE BODY OF THE MESSAGE AND ATTACHMENTS
1002
COMPARE THE DOCUMENT HASH(ES) WITH THE DECRYPTED HASH(ES)
1003
1004
DO THE HASH(ES) MATCH ?
1005
THE OPERATORS CAN WARRANT THAT THE EMAIL IS AS ORIGINALLY RECEIVED
1006
THE OPERATORS CAN WARRANT THAT THE EMAIL HAS BEEN ALTERED SINCE ORIGINALLY RECEIVED

FIG. 10

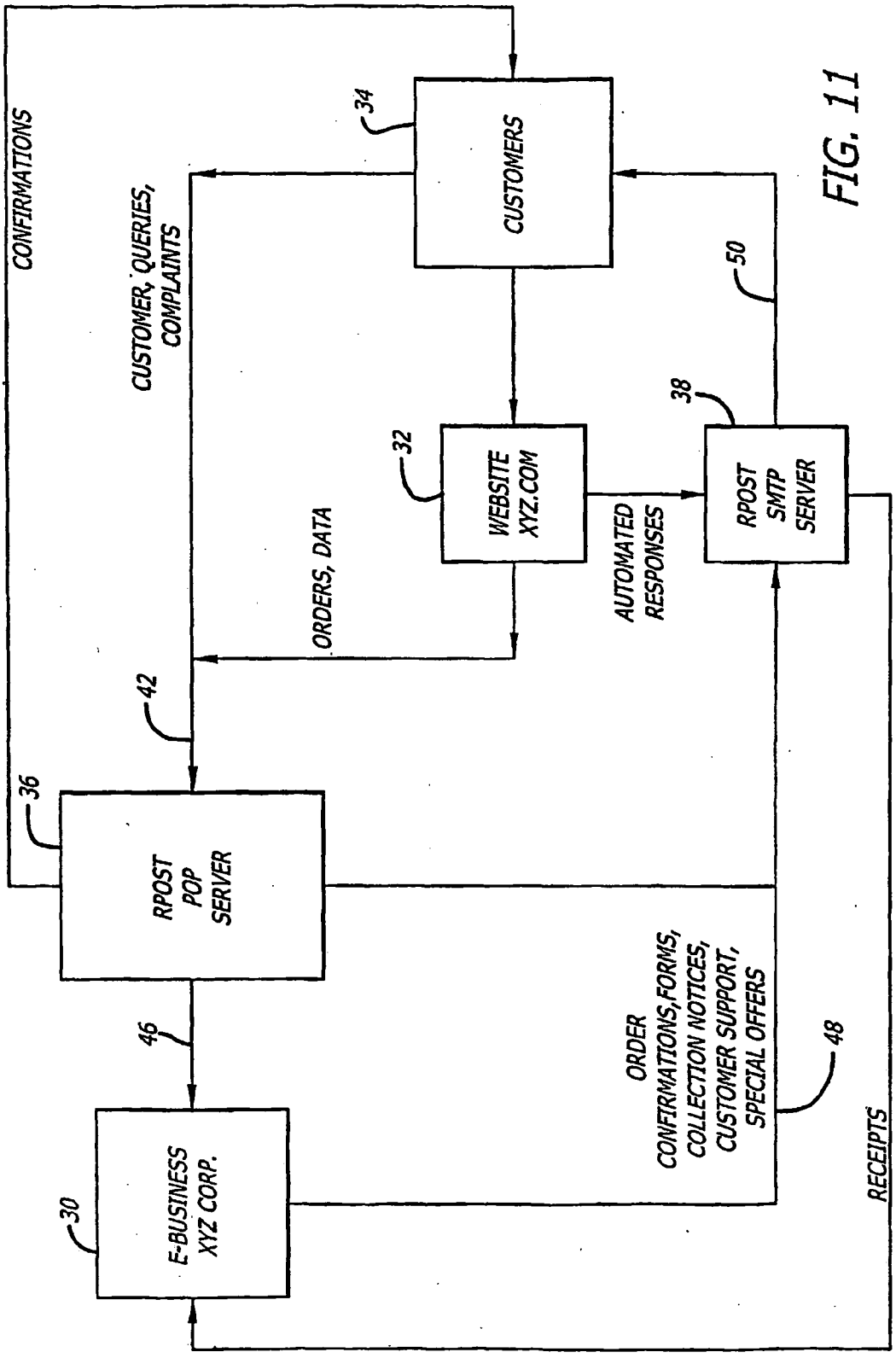

CONFIRMATIONS
CUSTOMER, QUERIES, COMPLAINTS
34
CUSTOMERS
50
38
32
WEBSITE XYZ.COM
RPOST SMTP SERVER
ORDERS, DATA
AUTOMATED RESPONSES
42
36
RPOST POP SERVER
46
ORDER CONFIRMATIONS, FORMS, COLLECTION NOTICES, CUSTOMER SUPPORT, SPECIAL OFFERS
48
30
E-BUSINESS XYZ CORP.
RECEIPTS

FIG. 11

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PCT

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(22) International Filing Date: 21 July 2003 (21.07.2003)

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03250672.7 3 February 2003 (03.02.2003) EP

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(74) Agents: EXELL, Jonathan et al.; Morley House, 26-30 Holborn Viaduct, London EC1A 2BP (GB).

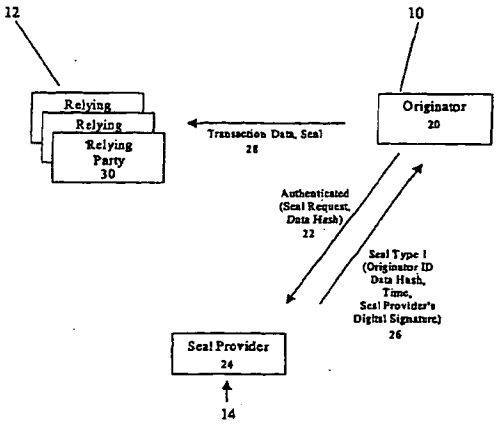
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(54) Title: ELECTRONIC SEALING FOR ELECTRONIC TRANSACTIONS



(57) Abstract: A sealing method and system based on any data originator authentication mechanism involves an originator (10) which represents the entity requiring the data to be sealed and to have itself identified as the originator of the sealed data. The relying party (12) is an entity requiring to use the sealed data as proof relating to a transaction. The seal provider (14) is an entity trusted to provide seals by the originator and relying parties. The procedure for creating a seal is as follows: the originator (10) creates a hash value or other one-way representation of the data to be sealed. The originator (10) then sends the hash value with a seal request through a secure channel which authenticates the originator (10) to the seal provider (14) and ensures the integrity of the request. The seal provider (14) then determines if the authentication of the request is correct and, if so, creates a seal which contains an identifier for the originator (10), the time of the request, the hash value and a digital signature or other similar mechanism which authenticates the data unit as coming from the seal provider (14). The preferred form of digital signature is one using public key cryptography such as specified in ITU-T X.509 or Internet RFC 2560.

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

ELECTRONIC SEALING FOR ELECTRONIC TRANSACTIONS

The present invention relates to an electronic sealing method and to an electronic registration method for use in electronic transactions.

Existing electronic signature methods are commonly based on use of public/private key (asymmetric) cryptography to create a digital signature supported by electronic certificates (e.g. as defined in ITU-T X.509). This requires use of certificate status methods such as Certificate Revocation Lists (as defined in ITU-T X.509) or on-line certificate status checking (as defined in Internet RFC 2560) to ensure the validity of certified key (revoked or not). As the validity of the certified key used to create a digital signature may change over time, it is often considered necessary to know the time at which the signature was created. This can be achieved by applying a secure time-stamp method (Internet RFC 3161, US patent RE 34,954) over the digital signature (ETSI TS 101 733).

Secure time-stamping methods (Internet RFC 3161; US patent RE 34,954) can also be used on their own (without the digital signature of the originator) to provide integrity of transaction data and proof of transaction time. This does not, however, provide any proof of the originator.

These electronic signature methods have two major disadvantages. First, it can be difficult to gain assurance of the validity of the public key used to verify the digital signature (that is the signature verification key). When verifying a signature the relying party needs to obtain information on the status of certificate used to validate the signing key. This can involve a significant overhead in obtaining the appropriate (revocation) status information. It can be particularly difficult, if not impossible, to get this status information as it applied when the signature was created when there is a significant period between the creation of the signature and its verification (as in the case of a subsequent dispute over a transaction).

Secondly, the certificate, which relates a name to a signing key, is often created by a party which is not directly involved with the business using that certificate. As the subject of the certificate is not already "known" to the authority issuing the certificate (the

certification authority), there can be difficulty in checking the subject's name. This can result in significant additional costs and also increases the probability of errors.

The present invention seeks to provide an electronic sealing and an electronic registration method for use in electronic transactions.

According to an aspect of the present invention, there is provided a sealing method for sealing the details of an electronic transaction including the step of obtaining authentication information from an originator, checking the validity of that originator's authentication at the time of the transaction and creating a sealed record related to the transaction and validity of the originator's authentication information.

Preferably, the sealed record includes details of the originator of transaction data and the time of the transaction and thereby proves the integrity of the transaction data. The seal is preferably digitally signed by a trusted seal provider. In the preferred embodiment, the transaction data itself is not revealed to the seal provider enhancing its confidentiality. The seal may include other information relating to a transaction originator such as a copy of originator's public key certified by the seal provider.

The method advantageously forms an electronic signature having non-repudiation properties. The method may use any data originator authentication mechanism or more specific form of originator authentication using digital signatures based on public key cryptography.

The preferred sealing method overcomes the first disadvantage mentioned above by checking the validity of originator's authentication information (for example signing key) at the time of the transaction. The registration method overcomes the second disadvantage mentioned above by involving a party involved in the business functions in the registration process.

According to a preferred embodiment of the present invention. The method includes the steps of:

the originator digitally signing a transaction data or other data,

transmitting the transaction data or other data or a hash value or another representation of the transaction, the digital signature and a seal request to the or a seal provider;

providing for the seal provider to determine whether the authentication of the request is correct and whether the digital signature is currently valid and if so creating a seal.

The seal may contain an identifier for the originator, the time of the request, the transaction data or other data, hash value or other one-way representation, by the originator, and at least one digital signature or other authentication of the seal as coming from the seal provider. The seal may also contain a digital signature provided by the originator which has been checked by the seal provider.

The originator may be a transaction peer. The sealed record may include a text header and binary data encoded as a text string.

The method may preferably further comprise the step of encoding the transaction data or other data and the sealed record, the encoding being arranged such that upon accessing the encoded data, the sealed record is displayed in a first area of a computer interface and the transaction data or other data is displayed in one or more other areas.

The encoding may comprise MIME and HTML encoding and the areas comprise frames.

According to another aspect of the present invention, there is provided a computer implemented transaction method comprising the steps of accepting one or more user inputs specifying a transaction, submitting authentication data and data representative of transaction data to a system operating the method of any of the preceding claims for creating a sealed record, receiving said sealed record and storing said sealed record and at least selected parts of said data representative of transaction data or the transaction data.

According to another aspect of the present invention, there is provided a system for providing a seal for sealing the details of an electronic transaction or data including means for obtaining authentication information from an originator, means for checking the validity of that originator's authentication at the time of sealing and means for creating a sealed record related to the transaction or data and validity of the originator's authentication information.

According to another aspect of the present invention, there is provided a transaction system arranged to accept one or more user inputs specifying a transaction, submit authentication data and data representative of transaction data to a system for creating a sealed record as defined above, receive said sealed record and store said sealed record and at least selected parts of said data representative of transaction data or the transaction data.

Preferably the system further comprises a client interface, the transaction system being arranged to transmit said sealed record and said at least selected parts of said data representative of transaction data or the transaction data to the client interface.

Preferably, the system further comprises a validation interface, the validation interface being arranged to accept a user input to validate an existing sealed record, the validation interface being operative to transmit said sealed record and said data representative of transaction data to a validation system for validating said sealed record, said validation system being arranged to generate at least part of a sealed record, compare it to said sealed record and output a result of said comparison to said validation interface.

The system may comprise one or more web pages.

In one embodiment, an email system may incorporate or interface with a transaction system as defined above. The email system may be arranged to receive an email message for an intended addressee, submit data from said email or data representative of data from said email to the system to obtain a sealed record, append the sealed record to the email message and transmit the email message and appended sealed record to the intended addressee.

The invention also seeks to provide a sealing method for sealing the details of an electronic transaction or data including the step of obtaining authentication information from an originator, obtaining an identification of the originator at the time of sealing and creating a sealed record related to the transaction or data and validity of the originator's identification.

In the preferred embodiment, a one-way mathematical function of the transaction data, and not the data itself, is revealed to the seal provider. This may be used to ensure that the seal applies to the data in its original form.

Embodiments of the present invention are described below, by way of example only, with reference to the accompanying drawings, in which:

Figure 1 shows an embodiment of sealing method using any originator authentication mechanism;

Figure 2a shows an embodiment of sealing method based on originator digital signatures;

Figure 2b shows an embodiment of sealing method incorporating a certified copy of the originator's public key;

Figure 3 shows an embodiment of sealing method for email transactions;

Figure 4 shows an embodiment of sealing method providing a transaction peer;

Figure 5 shows a modification to the embodiment of sealing method of Figure 4;

Figure 6 shows an embodiment of sealed registration method and in particular an originator set-up stage;

Figure 7 shows the steps of a routine for creating a sealed registration document;

Figure 8 shows a example of how a sealed document may be encoded as a text string;

Figure 9 shows a example of how a sealed document may be displayed; and

Figure 10 shows the steps of how a trusted agent may be used to validate a seal.

Referring to Figure 1, there is shown an embodiment of sealing method which is based on any data originator authentication mechanism. The scenario depicted in Figure 1 involves an originator 10 which represents the entity requiring the data to be sealed and to have itself identified as the originator of the sealed data. The relying party 12 (of which there may be more than one) is an entity requiring to use the sealed data as proof relating to a transaction. This may, for example, include the recipient of the transaction data, an arbitrator or judge in a dispute or even the originator.

The seal provider 14 is an entity trusted to provide seals by the originator and relying parties. The seal provider 14 can be a system operated by any suitable organisation, such a business specialising in the provision of security services, trade organisation or any other suitable organisation.

In this embodiment and scenario depicted in Figure 1, the procedure for creating a seal is as follows. In the first instance, at step 20, the originator 10 creates a hash value (for example, the secure hash algorithm SHA1 defined in FIPS 180-1) or other one-way representation of the data to be sealed (typically the transaction data). At step 22 the originator 10 sends the hash value with a seal request through a secure channel which authenticates the originator 10 to the seal provider 14 and ensures the integrity of the request.

At step 24, the seal provider determines if the authentication and integrity of the request are correct. If so, the seal provider 14 creates a data unit, conveniently referred to

in this description as a seal, which, in this embodiment, contains an identifier for the originator 10, the time of the request, the hash value and a digital signature or other similar mechanism which authenticates the data unit as coming from the seal provider 14. The preferred form of digital signature is one using public key cryptography such as specified in ITU-T X.509 or Internet RFC 2560. The seal provider 14 may also copy the data forming the seal into an audit log file to provide an additional mechanism for assuring the validity of the transaction.

At step 26, the seal is returned to the originator 10. At step 28, the transaction data with its seal is passed to each relying party 12, either directly or indirectly.

At step 30, any relying party 12 which trusts the seal provider 14 can verify the seal and the integrity of the transaction data to which the seal is applied by verifying the digital signature in the seal. Thus, the relying party 12 is provided with proof of the originator of the transaction data, the time of transaction and the integrity of the transaction data.

Figure 2 shows an embodiment of sealing method which is based on a digital signature from the originator and still provides the scenario of one originator 10, one or more relying parties 12 and a seal provider 14.

In this scenario, the preferred procedure for creating a seal involves the following steps. At step 40 the originator 10 digitally signs a transaction data and creates a hash value or other one-way representation of that transaction data. At step 42 the originator 10 sends the hash value and the digital signature(s), with a seal request, through a secure channel which authenticates the originator 10 to the seal provider 14 and ensures the integrity of the request. In this embodiment, the request need not necessarily be authenticated. If the request is not authenticated, the digital signature is used to authenticate the originator 10. Other parties may later submit the signed data for sealing but the seal with the earliest time can be taken as the one representing the time of the original transaction.

At step 44 the seal provider 14 determines whether the authentication and integrity of the request is correct and also whether the digital signature is currently valid, using the signature verification key of the originator 10. If this is the case, the seal provider 14 creates a data unit called a seal which, in this example, contains: an identifier for the originator 10, the time of the request, the hash value, the digital signature provided by the originator 10, and at least one digital signature or other similar mechanism which authenticates the data unit as coming from the seal provider 14. The seal provider 14 may also copy the data forming the seal into an audit log file to provide an additional mechanism of assuring the validity of the transaction.

At step 46 the seal is returned to the originator 10. At step 48 the transaction data with its seal is passed to each relying party 12.

At step 50, any relying party 12 which trusts the seal provider 14 can verify the seal and the integrity of the transaction data to which the seal is applied by verifying the digital signature(s) in the seal. Thus, each relying party 12 is provided with proof of the originator 10 of the transaction data, the time of transaction, the integrity of the transaction data and the validity of the digital signature which the originator 10 applied to the transaction data at that given time. In this embodiment, as is depicted in Figure 2a, two digital signatures may be provided, the originator's digital signature and the seal provider's digital signature.

A variation for the sealing method based on digital signatures, as shown in Figure 2b, is one providing a public key that is certified by the sealing authority as being valid at the time of the transaction. In this variation, the originator 10 includes a request for its public key be certified in the seal request 42b to the seal provider 14. The seal provider checks that the originator's public key is valid 44b, for example by checking the validity period in the originator's current X.509 identity certificate and the revocation status of that certificate. If the originator's public key is valid then this is included in the seal certifying the validity of the key at the time of the transaction 46b. The originator sends this seal along with the digital signature to the relying party 48b. The relying party verifies the

digital signature using the public key in the seal 50b that the sealing authority certifies as being valid at the time of the transaction.

This form of seal (i.e. one including the public key) may be used as an alternative a public key certificate (such as defined in X.509) with the validity only for a specific transaction (i.e. a transaction certificate). Furthermore, a seal may be used as a "qualified certificate" meeting the requirements identified in the European Directive 1999/93/EC on a "Community framework for electronic signatures" as described in the following table.

EU Electronic Signature Directive 1999/93/EC – Annex I Requirement on Qualified Certificate Content	Qualified Seal
(a) an indication that the certificate is issued as a qualified certificate;	Additional transaction attribute indicating that the seal is a form of qualified certificate;
(b) the identification of the certification-service-provider and the State in which it is established;	Already identified through the Sealing Authority certificate. This could be repeated as in an additional transaction attribute.
(c) the name of the signatory or a pseudonym, which shall be identified as such;	Already included in user name.
(d) provision for a specific attribute of the signatory to be included if relevant, depending on the purpose for which the certificate is intended;	Additional transaction attribute
(e) signature-verification data which correspond to signature-creation data under the control of the signatory;	Additional transaction attribute containing user public key

(f) an indication of the beginning and end of the period of validity of the certificate;	Validity period is for a single transaction at the time already given in the time-stamp.
(g) the identity code of the certificate;	Already in time-stamp serial number
(h) the advanced electronic signature of the certification-service-provider issuing it;	Already in the time-stamp signature
(i) limitations on the scope of use of the certificate, if applicable; and	Additional transaction attribute
(j) limits on the value of transactions for which the certificate can be used, if applicable.	Additional transaction attribute

This further enhanced seal, which is called herein a "qualified seal", has additional advantages over an X.509 based certificate in that:

1) This qualified seal may be used to provide an electronic signature that under the European Directive 1999/93/EC article 5.1 "satisfy the legal requirements of a signature in relation to data in electronic form in the same manner as a hand-written signature satisfies those requirements in relation to paper-based data".

2) A user who already has conventional X.509 certificate, which does not meet the above legal requirements, can use that certificate to obtain a "qualified seal", which does meet these requirements.

3) As the "qualified seal" is valid only for a particular transaction uncertainty over the validity of the certificate as the time of the transaction is minimised.

4) As the "qualified seal" applies to a single transaction the issuing authority has much greater control over its liability.

A variation to the sealing methods described above with respect to Figures 1, 2a and 2b is shown in Figure 3 and, in this example, relates to email transaction environments.

As illustrated in Figure 3, a seal request is passed to the seal provider 14 at step 60, which is then to be subsequently forwarded to the recipient(s) 12 identified in the recipient list. The transaction data is passed to the seal provider 14 together with the seal request and then is forwarded, at step 62, with the resulting seal to the identified recipient(s) 12.

Figure 4 shows another scenario of sealing method for use with transaction peers. As illustrated in Figure 4, at step 70 a seal request from the originator 10 is passed through the peer 15 with whom the originator 10 is carrying out the transaction. The seal request is passed, at step 72, to the seal provider 14 only if the transaction peer 15 agrees with the transaction. At step 74 the seal is returned by the seal provider 14 to the transaction peer 15 and subsequently, at step 76, passed to the originator 10.

Figure 5 shows another scenario of sealing method for with transaction passing through the seal provider. As illustrated in Figure 5, at step 80 references to the originator and transaction data (for example a universal Resource Identifier, see Internet RFC 2396) is passed from the originator 10 to the transaction peer 15. The preferred form of the reference to the transaction data is that the reference value is unpredictable, to avoid unauthorised access to the transaction data. The transaction peer 15 then sends these references to the seal provider 14 at step 82. The seal provider 14 then requests the transaction data from the originator 10 at step 84, which returns with the transaction data through a secure channel which authenticates the originator 10 at step 86. The seal provider 14 then creates the seal which it passes, along with the transaction data, to the transaction peer 15 at step 88. The seal may also be sent back to the originator 10, with the reference to the transaction data, at step 90.

The preferred embodiments of seal registration methods provide two forms of identification, the first being a security system identifier and the second being a business identifier.

The preferred seal registration method is a technique for securely binding a security system identifier to a business identifier.

The security system identifier is allocated and authenticated by a security system, such as one of the implementations of sealing method described above. When allocated, this identifier is unrelated to any "real world" identification but can be used with a security system for identification purposes. A security system identifier may, for example, be a number pair allocated by a seal provider 14 to an originator of sealed data. One number of the number pair identifies a community of users, the other number identifies the user within the community. The number pair is unique within the set of identifiers allocated by the seal provider.

The business identifier provides a set of attributes used by the business to identify an entity (such as a customer) for the purposes of transacting business therewith. This may include, for example, references used within the business (such as a customer reference number) and/or information used to identify the entity more generally (such as the customer's name and home address). The business identifier is agreed between the subject and a registration authority. Some attributes may be allocated by the registration authority (for example, customer number), others may be provided by the subject (for example, first name, surname and address). The registration would either be a system operated by or on behalf of the business with which the subject is trading, or the registration authority would be operated by a third party business whose function is to check information concerning the user.

When being set up to use one of the sealing methods described above, a sealed data originator 21 is allocated a security system identifier by a seal provider 14, as shown in Figure 6. Before allocating a security system to the originator identifier, the seal provider proves ownership of some means for authentication. In the embodiment using public key techniques this involves proof of possession of a private signing key.

Having set up two seal originators 21 which are to be parties in a business transaction, such as a business and its customer, a sealed registration document is created. One party (for example the business) acts as a registration authority for the other party (for example, the customer). The customer acts as a subject of the registration. Between them,

these two parties create a sealed registration document which binds the subject identifier to the business identifier.

In the preferred embodiment, the sealed registration document is allocated a document reference (for example a Universal Resource Identifier, see Internet RFC 2396) by the registration authority. This registration document reference can later be used in subsequent sealed documents produced by the subject, thereby providing reference to its authenticated business identifier.

In the preferred embodiment, the sealed registration document contains:

(a) the business identifier,

(b) the registration document reference or some other information that may be used to identify the registration for a particular business purpose,

(c) a seal from the subject which includes its security system identifier and which indicates the subject's agreement that the business identifier is correct for itself,

(d) a seal from the registration authority which indicates the registration authority's agreement that the business identifier is correct for the subject which created the seal in step (c) above.

An embodiment of routine for creating such a sealed registration document between a business acting as the registration authority and a customer acting as a subject of the registration is shown in Figure 7.

The procedure of the example of Figure 7 is as follows. At step 100, the subject 17 and the registration authority 19 establish the attributes required for the business identifier of the subject 17, such as name, address, customer identifier and so on.

At step 102, the registration authority 19 allocates the registration a reference (for example a Universal Resource Identifier) which is sent to the subject 17. At step 104, the subject 17 sends to the registration authority 19 a sealed document containing the business identifier and the registration document reference. The seal indicates the entity identified

with the security system identifier in the seal and agrees that the business identifier is applicable to itself.

At step 106, if the registration authority 19 has also agreed that the business identifier is applicable to the subject 17 which sent the sealed document, it will add its own seal. This sealed registration document is stored by the registration authority 19 and, if required, also passed to the subject 17 for later use in verifying a claim of identity.

Any sealed document can then include the appropriate registration reference to authenticate the identity of the originator.

The business operating as a registration authority 19 may similarly obtain a sealed registration with the seal provider 14 which, in turn, acts as another registration authority for the business registration authority.

It will be appreciated that the various embodiments described above can be combined with one another, as required in any particular implementation of the systems described herein.

It will also be appreciated that the embodiments described can provide a method of sealing data by a trusted third party to provide independent proof of: the originator, of the transaction data, the time of transaction, and the transaction data. The sealing method produces a form of electronic signature, which has non-repudiation properties and avoids the need for certificate revocation or other authentication status checking. The preferred sealing method builds on existing secure time-stamping methods.

A method of encoding a seal provides a text string containing a descriptive header and binary protection data encoded in Base64 as defined in Internet RFC 2045. The header includes information on: the identity of the sealing authority, the originator's identity (system security identity and business identity) and the time of the transaction. The binary protection data includes binary encoding of the sealing authorities digital signature against a hash of the transaction data with the originator's identity and the time of the transaction.

An example of a text string encoding is given in Figure 8. An alternative encoding is to encode the data as described above in XML as defined in World Wide Web Consortium (W3C) specification Extensible Markup Language (XML) (reference http://www.w3.org/TR/REC-xml).

A method of encoding the transaction data with the seal uses the encoding defined in Internet RFC 2045 to RFC 2049 (commonly called MIME) combined with code for viewing hypertext in multiple frames such as defined in the World Wide Web Consortium (W3C) HTML 4.01 Specification (reference: http://www.w3.org/TR/html4/). The seal itself, encoded as described above, is shown in one frame as a text string, only the header need be immediately visible. The sealed document is in the other frame or frames. This enables sealed documents, including documents incorporating text, images, voice or video, to be viewed through any suitably MIME enabled Web Browser. An example of a sealed document is given in Figure 9.

Referring to Figure 10, an embodiment of routine illustrating how a trusted agent may be used to validate a seal is shown. At step 120 the seal provider 14 issues a seal to the originator 10, which in turn, at step 122, provides the data and seal to the relying party 12. At step 124 the relying party 12 forwards the hash of the data together with the seal to a seal validator 23 which, at step 125, determines whether the seal is valid. At step 126 the seal validator 23 returns to the relying party 12 a valid/invalid reply.

The embodiments described above provide a number of features for the creation of a secure seal for subsequent use. First, the seal protects the authenticity of a data such as a document or transaction. This protection applies to the data both when communicated between systems and in storage. The seal can be applied to a hash of data along with the time and authenticated identity of the data originator. The authenticity is certified using, for example, the digital signature of the seal provider.

The seal provides long term authenticity of the data and in a form which cannot be repudiated, for example by claiming compromise of authentication keys subsequent to the seal being applied. Thus, a seal is provided which establishes the authenticity of the

parties and seals the transaction data in a manner which maintains its integrity over time. A copy of the seal can be kept by the seal provider in an audit log to provide further proof of authenticity. As the seal only contains a hash of the data being sealed, from which the original data cannot be re-created, the privacy of the data is maintained.

The seal can be used by the originator and any other party relying on the authenticity of data to validate its authenticity. Any party that trusts the seal provider and has a means of authenticating the seal (e.g. using the seal providers public key) can verify the validity of the seal. The hash value within the seal can be checked against a recalculated hash value to check that the seal applies to the given data and that the data has been unchanged. Further assurance of the validity of a seal can be achieved by requesting a copy of the seal from the seal provider's audit log.

In this embodiment, once a transaction record and receipt (seal) has been generated, as well as the seal to the appropriate party, a copy is saved at the seal provider or at a secure location controlled by the seal provider.

In some embodiments, such as those involving a transaction sequence a seal can be applied to each stage of the transaction proving the timing sequence of the transactions. For example, in a transaction involving an offer and an acceptance, data relating to the offer and also to the acceptance can be each be sealed proving the time relationship between the offer and acceptance. This can, for example, have particular application in trading in shares.

It is also envisaged that in some embodiments the generation of the seal also stores data relating to a single event. For example, the event might be the creation of documents or data by an identified originator at a given time. The seal, therefore, would provide evidence of that event.

Thus, in the preferred embodiments, the seal is issued by a trusted authority (the seal provider) which authenticates the document originator, provides proof of time of creation of the document linked to a hash code representing the document and is protected

by a cryptographic code which proves the authenticity of the seal and which can detect any changes in the sealed information. The seal, along with the data it authenticates, can be sent to any party relying on the authenticity of that data.

In this regard, a seal can be checked for validity by the relying party or an agent trusted by the relying party to validate seals (seal validator). As shown in figure 10, the trusted agent can be used to validate a seal simply by forwarding the seal and a recalculated hash of the data to that party (124). This can be initiated, for example, by the relying party clicking on a button or icon displayed as part of the seal. If the seal validator knows and trusts the sealing authority and has the key necessary to verify the cryptographic code (e.g. the sealing authority's public key) it can check the validity of the seal and confirm that the hash in the seal matches that recalculated by the relying party. If the seal is valid and the data hash is the same, the validator would respond by indicating that the sealed document provided by the relying party is valid (126). On the other hand, if there has been any change in the seal, the cryptographic code was not created a trusted sealing authority or the hash in the seal does not match the recalculated hash, the seal provider would indicate that that seal has become invalid.

Thus, the preferred embodiment can provide a seal which is a form of certificate, specific to each transaction which incorporates attributes. This seal certifies the user's signing key, as well as providing a time stamp for relating to the transaction or event. This seal provides a form of certificate which is bound to the transaction, i.e. is transaction specific.

The seals can also be used for voice and video data and indeed can be applied to any digitised media such as web pages, video files, audio files, digital photographs and so on. In the preferred embodiment, the seals are simple to view and verify using, for example, an Internet browsing software. Furthermore, the seals can enable disputes to be resolved quickly, saving time and money. It can also protect all parties against denial of the existence or content of a document or event and can provide evidence of a transaction or data when the information is contested, even years after the event.

Three variations of the sealing method have been described, one using originator authentication, the second adding originator digital signatures, the third adding public keys certified to be valid at the time of the transaction. Further variations of the sealing methods are envisaged for alternative transaction environments including but not limited to e-mail, requests passed via transaction peers and transaction data passing through the seal provider.

There is also described a method for registration that applies the sealing method to the registration of a business identity between business partners. The registration method can be used as an alternative to existing electronic certification methods. The registration method enables alternative business related registrations to be applied to the same entity for different business applications.

CLAIMS

1. A sealing method for sealing the details of an electronic transaction or data including the step of obtaining authentication information from an originator , checking the validity of that originator's authentication at the time of sealing and creating a sealed record related to the transaction or data and validity of the originator's authentication information.

2. A method according to claim 1, wherein the sealed record includes details of the originator of the transaction or data and the time of sealing.

3. A method according to claim 1 or 2, including the step of digitally signing the seal.

4. A method according to claim 3, wherein the step of digitally signing the seal is carried out by a trusted seal provider.

5. A method according to claim 4, wherein the transaction data or other data itself is not revealed to the seal provider.

6. A method according to any preceding claim, wherein a result of a one-way mathematical function applied to the data, is revealed to the seal provider.

7. A method according to any preceding claim, including the step of storing a copy of the data forming the seal into an audit log file held remotely from parties to the transaction or involved in the data.

8. A method according to any preceding claim, wherein the seal is passed to a relying party directly or indirectly.

9. A method according to any preceding claim, including the step of providing for checking of a seal, and that it belongs to data which is identical to that to which the seal was originally applied, by a relying party or an agent trusted by the relying party.

10. A method according to any preceding claim, including the steps of:

the originator digitally signing a transaction data or other data,

transmitting the transaction data or other data or a hash value or another representation of the transaction, the digital signature and a seal request to the or a seal provider;

providing for the seal provider to determine whether the authentication of the request is correct and whether the digital signature is currently valid and if so creating a seal.

11. A method according to claim 10, wherein the seal contains: an identifier for the originator, the time of the request, the transaction data or other data, hash value or other one-way representation, by the originator, and at least one digital signature or other authentication of the seal as coming from the seal provider.

12. A method according to claim 11, wherein the seal also contains a digital signature provided by the originator which has been checked by the seal provider.

13. A method according to any preceding claim, wherein the originator is a transaction peer.

14. A method according to claim 13, wherein the sealed record includes a text header and binary data encoded as a text string.

15. A method according to any preceding claim, further comprising the step of encoding the transaction data or other data and the sealed record, the encoding being arranged such that upon accessing the encoded data, the sealed record is displayed in a first area of a computer interface and the transaction data or other data is displayed in one or more other areas.

16. A method as claimed in claim 15, wherein the encoding comprises MIME and HTML encoding and the areas comprise frames.

17. A computer implemented transaction method comprising the steps of accepting one or more user inputs specifying a transaction, submitting authentication data and data representative of transaction data to a system operating the method of any of the preceding claims for creating a sealed record, receiving said sealed record and storing said sealed record and at least selected parts of said data representative of transaction data or the transaction data.

18. A computer program comprising computer program code means for performing all of the steps of any of claims 1 to 17 when said program is run on a computer.

19. A computer program as claimed in claim 18 embodied on a computer readable medium.

20. A system for providing a seal for sealing the details of an electronic transaction or data including means for obtaining authentication information from an originator (10), means for checking the validity of that originator's authentication at the time of sealing and means for creating a sealed record related to the transaction or data and validity of the originator's authentication information.

21. A transaction system arranged to accept one or more user inputs specifying a transaction, submit authentication data and data representative of transaction data to a system for creating a sealed record according to claim 20, receive said sealed record and store said sealed record and at least selected parts of said data representative of transaction data or the transaction data.

22. A transaction system according to claim 21, further comprising a client interface, the transaction system being arranged to transmit said sealed record and said at

least selected parts of said data representative of transaction data or the transaction data to the client interface.

23. A transaction system according to claim 21 or 22, further comprising a validation interface, the validation interface being arranged to accept a user input to validate an existing sealed record, the validation interface being operative to transmit said sealed record and said data representative of transaction data to a validation system for validating said sealed record, said validation system being arranged to generate at least part of a sealed record, compare it to said sealed record and output a result of said comparison to said validation interface.

24. A transaction system according to any of claims 21 to 23 comprising one or more web pages.

25. An email system including a system according to any of claims 20 to 24, the email system being arranged to receive an email message for an intended addressee, submit data from said email or data representative of data from said email to the system to obtain a sealed record, append the sealed record to the email message and transmit the email message and appended sealed record to the intended addressee.

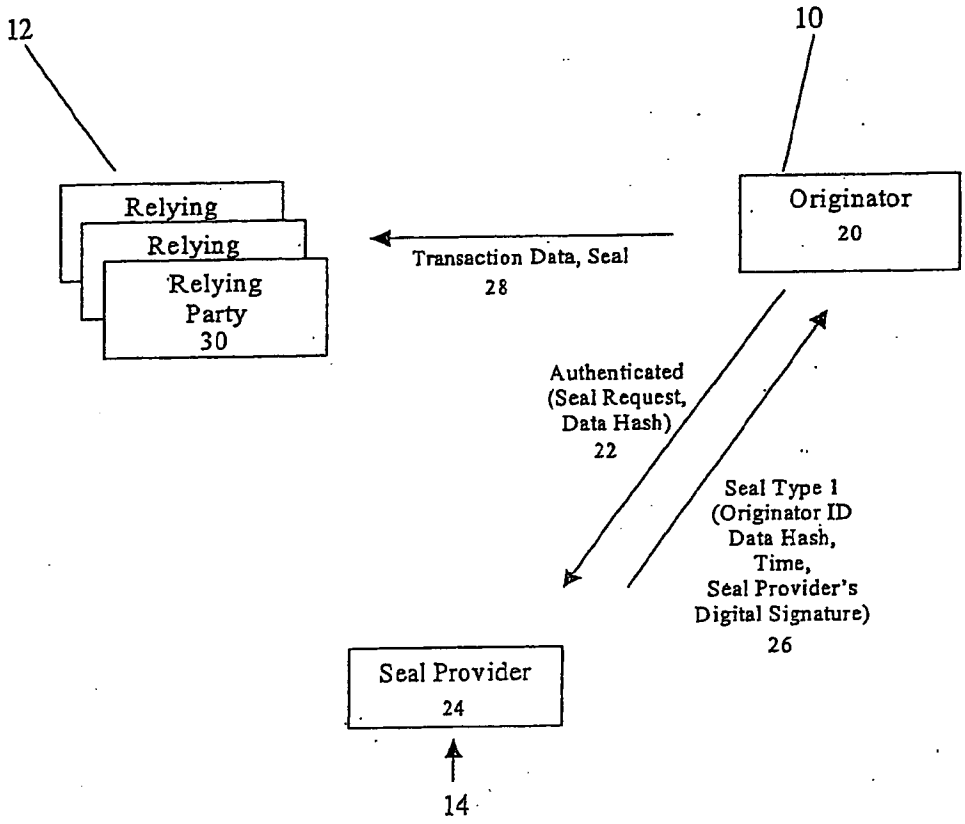

12
10
Relying
Relying
Relying
Party
30
Originator
20
Transaction Data, Seal
28
Authenticated
(Seal Request,
Data Hash)
22
Seal Type 1
(Originator ID
Data Hash,
Time,
Seal Provider's
Digital Signature)
26
Seal Provider
24
14

Figure 1

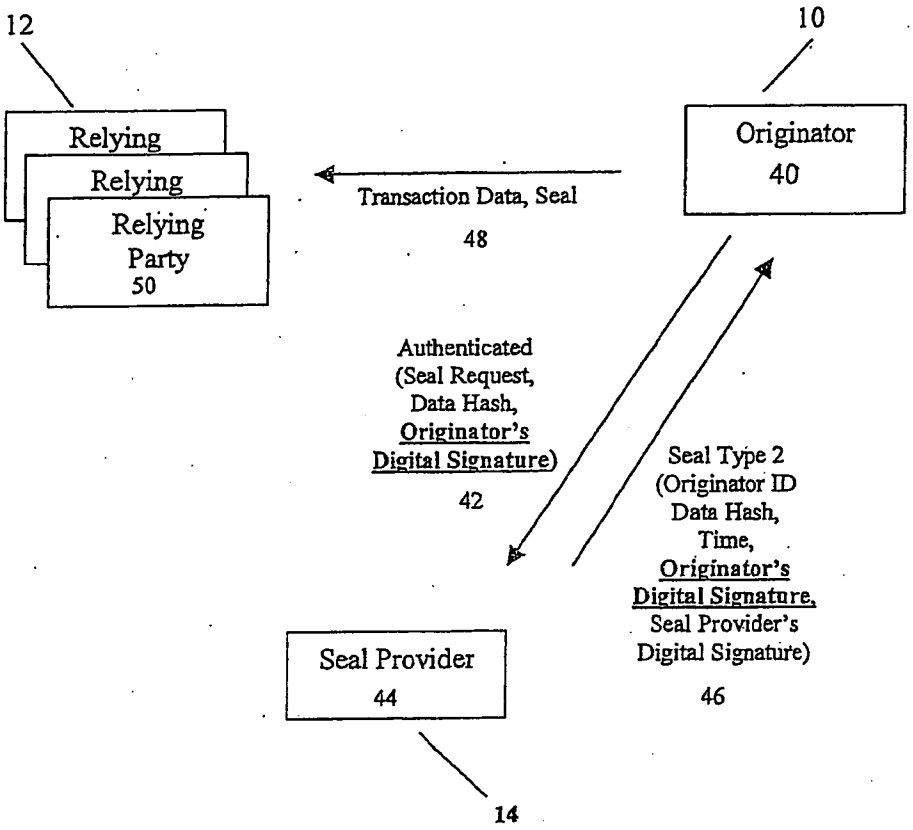

12
10
Relying
Relying
Relying Party
50
Originator
40
Transaction Data, Seal
48
Authenticated (Seal Request, Data Hash, Originator's Digital Signature)
42
Seal Type 2 (Originator ID Data Hash, Time, Originator's Digital Signature, Seal Provider's Digital Signature)
46
Seal Provider
44
14

Figure 2 a

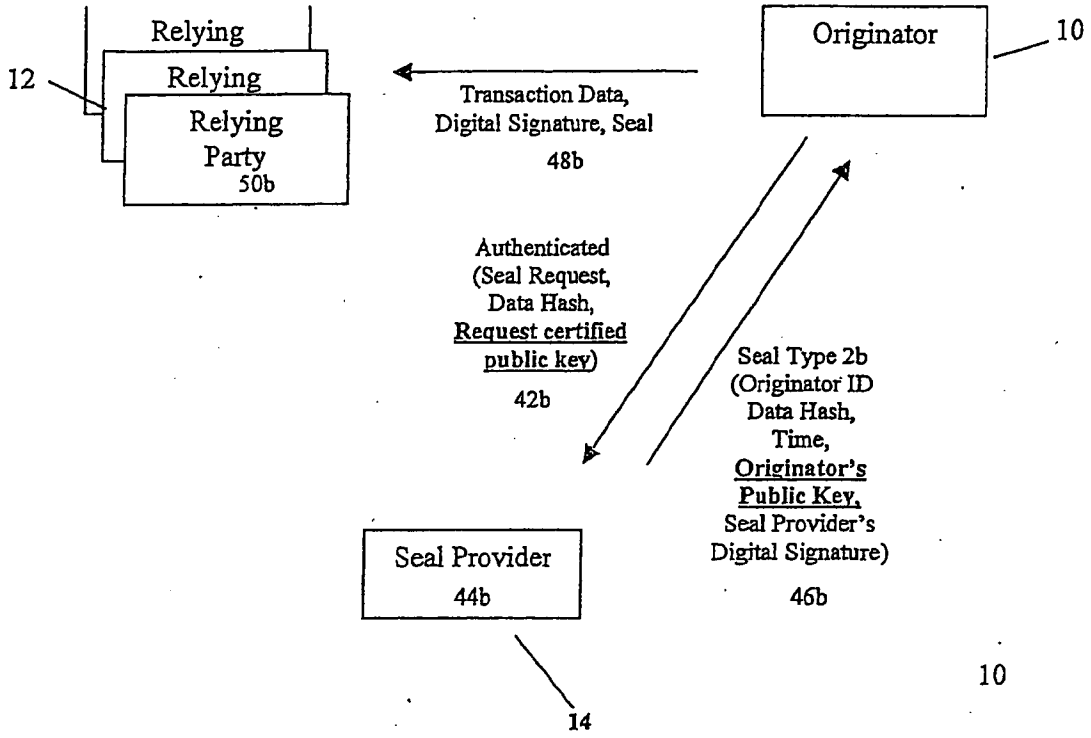

Relying
Relying
Relying Party
50b
12
Transaction Data, Digital Signature, Seal
48b
Originator
10
Authenticated (Seal Request, Data Hash, Request certified public key)
42b
Seal Type 2b (Originator ID Data Hash, Time, Originator's Public Key, Seal Provider's Digital Signature)
46b
Seal Provider
44b
14
10

Figure 2b

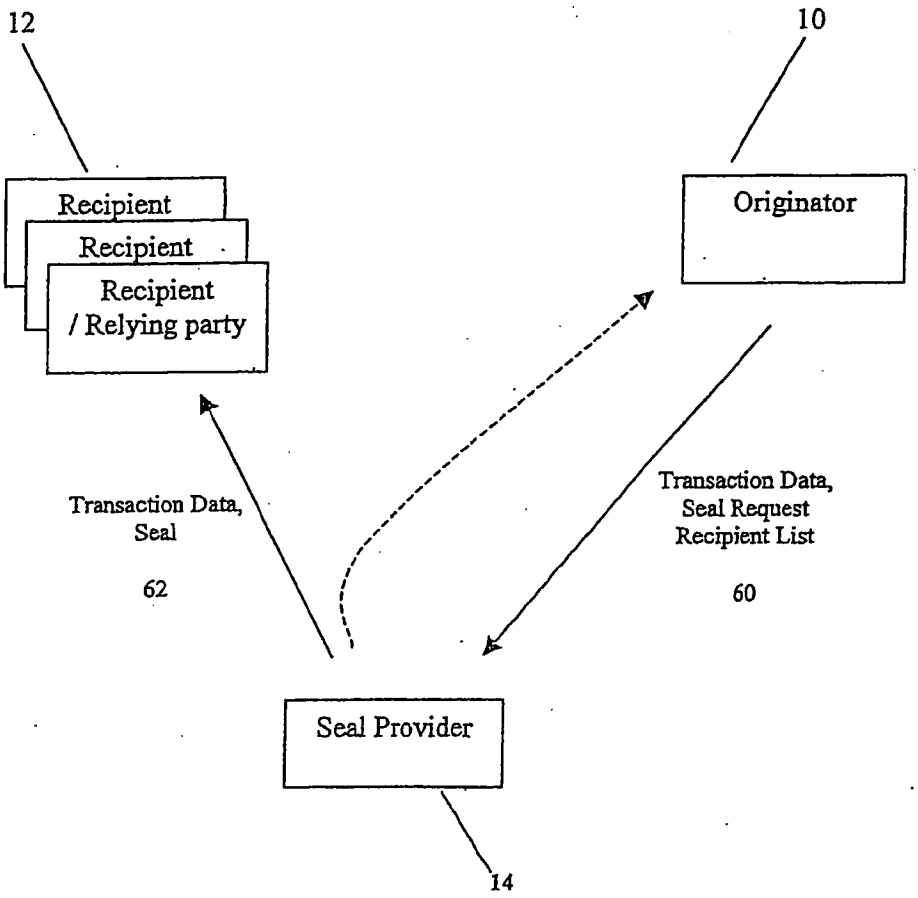

12
10
Recipient
Recipient
Recipient
/ Relying party
Originator
Transaction Data,
Seal
62
Transaction Data,
Seal Request
Recipient List
60
Seal Provider
14

Figure 3

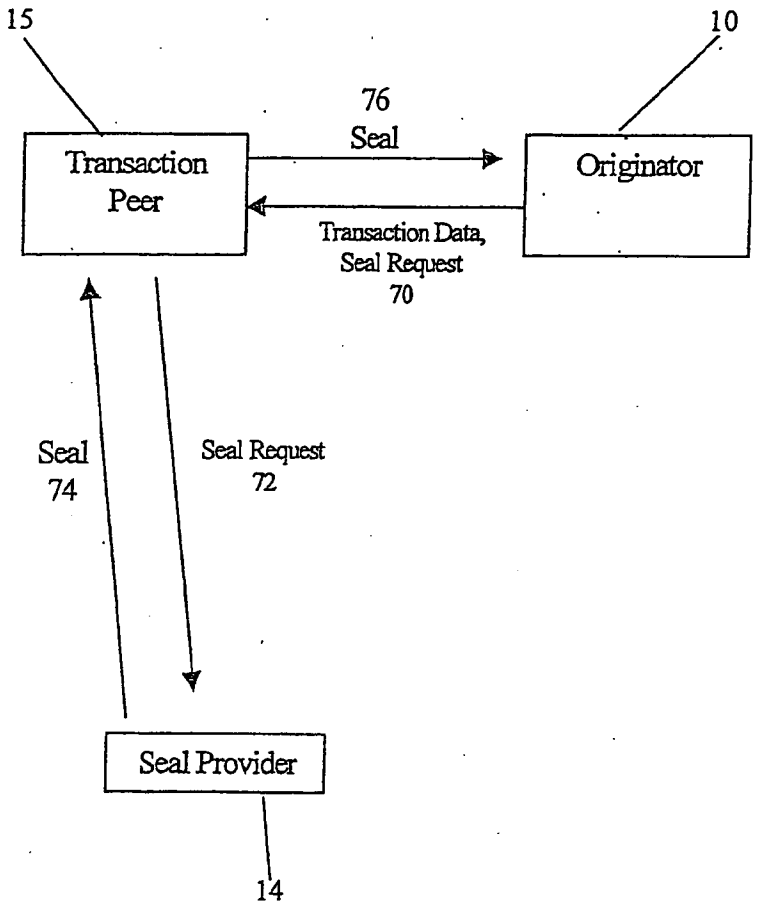

15
10
76
Seal
Transaction Peer
Originator
Transaction Data, Seal Request 70
Seal 74
Seal Request 72
Seal Provider
14

Figure 4

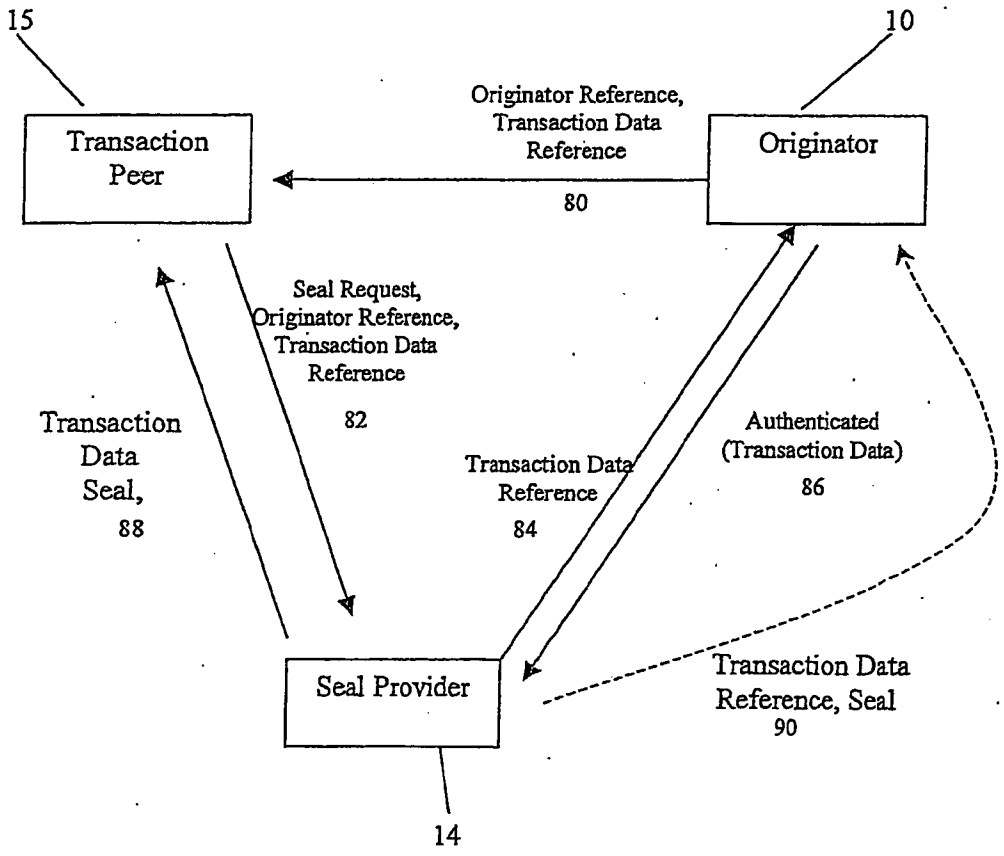

15
10
Transaction Peer
Originator Reference, Transaction Data Reference
80
Originator
Seal Request, Originator Reference, Transaction Data Reference
82
Transaction Data Seal,
88
Transaction Data Reference
84
Authenticated (Transaction Data)
86
Seal Provider
Transaction Data Reference, Seal
90
14

Figure 5

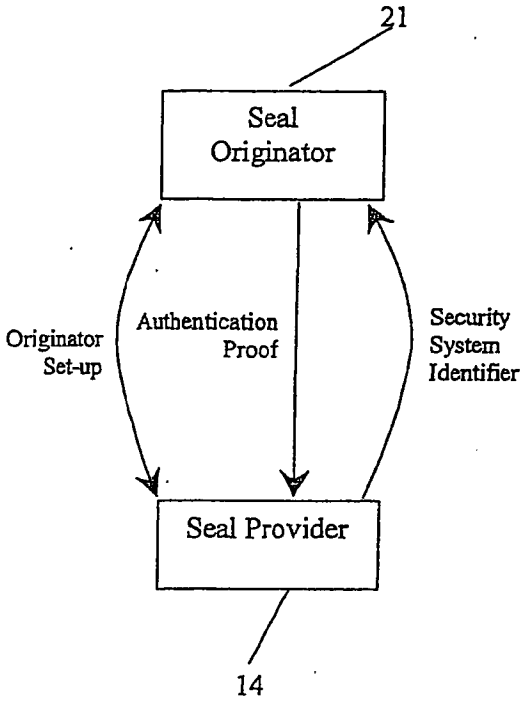

21
Seal Originator
Originator Set-up
Authentication Proof
Security System Identifier
Seal Provider
14

Figure 6

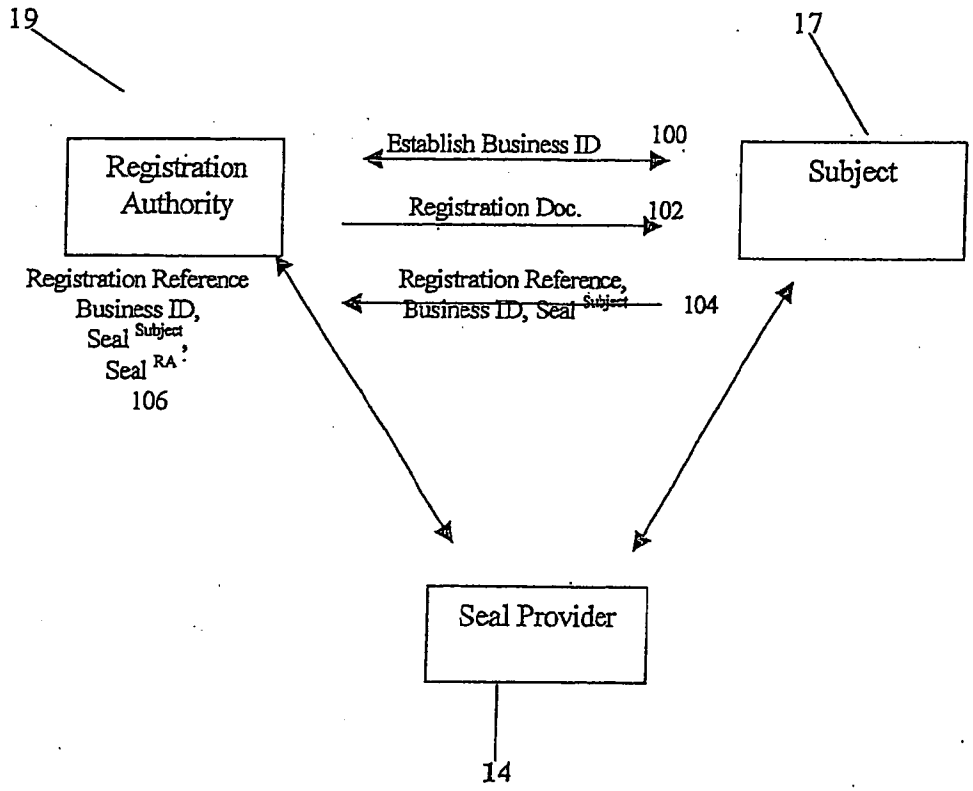

19
17
Registration Authority
Establish Business ID
100
Subject
Registration Doc.
102
Registration Reference Business ID, Seal Subject, Seal RA
106
Registration Reference, Business ID, Seal Subject
104
Seal Provider
14

Figure 7

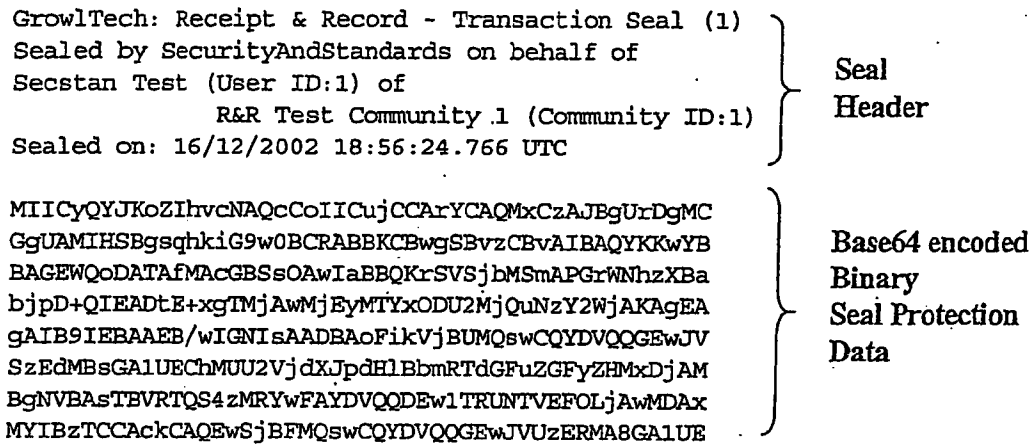

GrowlTech: Receipt & Record - Transaction Seal (1)
Sealed by SecurityAndStandards on behalf of
Secstan Test (User ID:1) of
R&R Test Community 1 (Community ID:1)
Sealed on: 16/12/2002 18:56:24.766 UTC
Seal Header
MIICyQYJKoZIhvcNAQcCoIICujCCArYCAQMxCzAJBgUrDgMC
GgUAMIHSBgsqhkiG9w0BCRABBKCBwgSBvzCBvAIBAQYKKwYB
BAGEWQoDATAfMAcGBSsOAwIaBBQKrSVSjbMSmAPGrWNhzXBa
bjpD+QIEADtE+xgTMjAwMjEyMTYxODU2MjQuNzY2WjAKAgEA
gAIB9IEBAAEB/wIGNIsAADBAoFikVjBUMQswCQYDVQQGEwJV
SzEdMBsGA1UEChMUU2VjdXJpdHlBbmRTdGFuZGFyZHMxDjAM
BgNVBAsTBVRTQS4zMRYwFAYDVQQDEw1TRUNTVEFOLjAwMDAx
MYIBzTCCAckCAQEwSjBFMQswCQYDVQQGEwJVUzERMA8GA1UE
Base64 encoded Binary Seal Protection Data

Figure 8

BEST AVAILABLE COPY

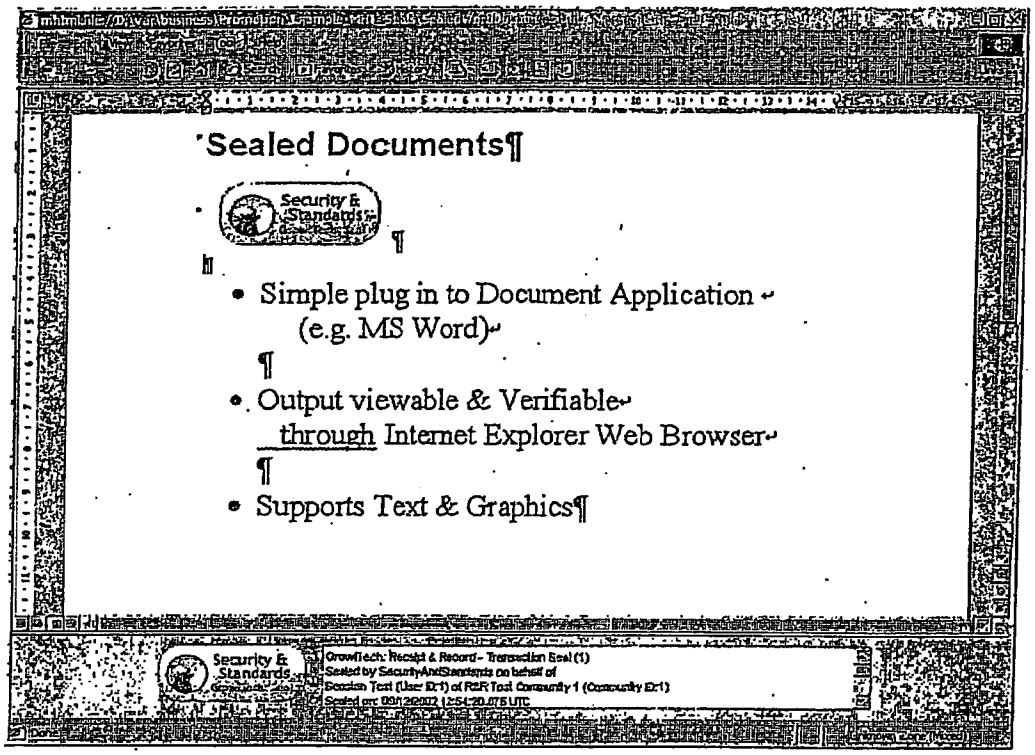


Figure 9

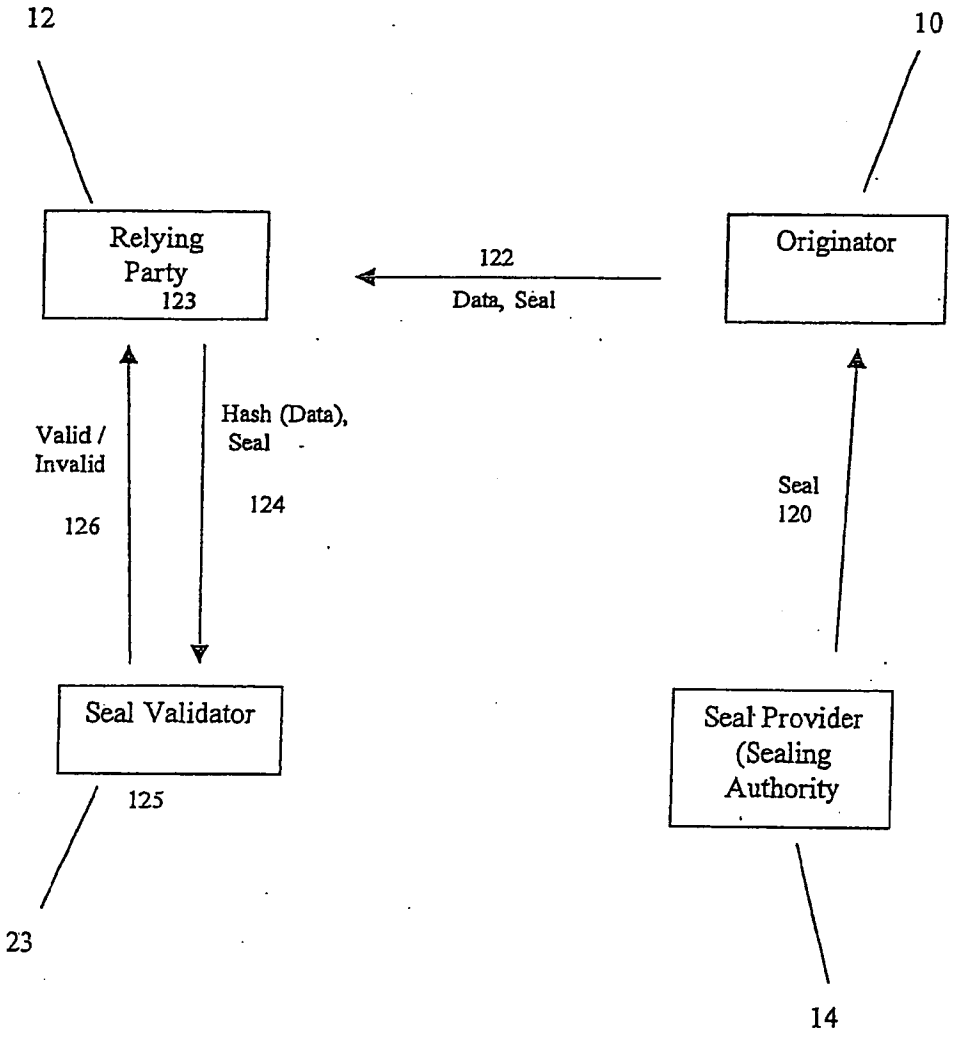

12
10
Relying Party
123
122
Data, Seal
Originator
Valid / Invalid
126
Hash (Data), Seal
124
Seal
120
Seal Validator
125
Seal Provider (Sealing Authority
23
14

Figure 10

INTERNATIONAL SEARCH REPORT

Internatio pplication No
PCT/GB 03/03243

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04L29/06 H04L12/58 G06F1/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H04L G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	ZIXMAIL: "Zixmail technology" INTERNET CITATION, 'Online! 6 September 2000 (2000-09-06), XP002260773 Retrieved from the Internet: <URL:http://www.zixmail.com/zixmail.pdf> 'retrieved on 2003-11-07! the whole document	1-25
X	US 2002/032865 A1 (CHOU CHENG-FU ET AL) 14 March 2002 (2002-03-14) abstract paragraph '0061! - paragraph '0065!; figures 4,5	1-25

-/--

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

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"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
27 November 2003	12/12/2003

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Bertolissi, E

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
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P,X	US 2002/143710 A1 (LIU GARY) 3 October 2002 (2002-10-03) paragraph '0069! - paragraph '0090!; figures 3,4A,4B	1-25
A	US 6 393 566 B1 (LEVINE JUDAH) 21 May 2002 (2002-05-21) abstract column 2, line 8 -column 3, line 3; figures 1-5	1-25
A	WO 99 35785 A (KONINKL PHILIPS ELECTRONICS NV ;PHILIPS SVENSKA AB (SE)) 15 July 1999 (1999-07-15) abstract	1-25
A	PATENT ABSTRACTS OF JAPAN vol. 013, no. 477 (M-885), 27 October 1989 (1989-10-27) -& JP 01 188322 A (TOYOBO CO LTD;OTHERS: 01), 27 July 1989 (1989-07-27) abstract	1-25

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INTERNATIONAL SEARCH REPORT

Information on patent family members

Internati Application No
PCT/GB 03/03243

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		WO 0248848 A2	20-06-2002
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		WO 9935785 A2	15-07-1999
		JP 2001515612 T	18-09-2001
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		JP 7106599 B	15-11-1995

Form PCT/ISA/210 (patent family annex) (July 1992)

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

Complete if Known	
Application No.	11/623,653
Filing Date	January 16, 2009
First Named Inventor	Justin Marston
Art Unit	2158
Examiner Name	John P. Hocker
Attorney Docket Number	23682-12381

Sheet	1	of	4

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Examiner Initials*	Cite No.[1]	Document No. Number – Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
	A1	US-2007/0038942 A1	02-15-2007	Chen et al.
	A2	US-2006/0168029 A1	07-27-2006	Fitzpatrick et al.
	A3	US-2005/0149498 A1	07-07-2005	Lawrence et al.
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				Filing Date	January 16, 2009
				First Named Inventor	Justin Marston
				Art Unit	2158
				Examiner Name	John P. Hocker
Sheet	2	of	4	Attorney Docket Number	23682-12381

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Examiner Initials*	Cite No.[1]	Number – Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
	A29	US-6,553,413 B1	04-22-2003	Leighton et al.
	A30	US-6,502,125 B1	12-31-2002	Kenner et al.
	A31	US-6,484,143 B1	11-19-2002	Swildens et al.
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	A53	US-5,938,732	08-17-1999	Lim et al.
	A54	US-6,003,030	12-14-1999	Kenner et al.

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				Filing Date	January 16, 2009
				First Named Inventor	Justin Marston
				Art Unit	2158
				Examiner Name	John P. Hocker
Sheet	3	of	4	Attorney Docket Number	23682-12381

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	B1	EP 0739115 A2	10-23-1996	AT&T IPM CORP	
	B2	WO 03/036492 A1	05-01-2001	Idetic, Inc.	
	B3	WO 03/073711 A2	09-04-2003	RPOST International Limited	
	B4	WO 04/012415 A1	02-05-2004	Security and Standards Limited	

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]
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	C2	DAVISON, BRIAN, "Brian Davison's Web-Caching Bibliography", Department of Computer Science, Rutgers, the State University, New Jersey, June 28, 2000, pp. 1-16.	
	C3	GOLDSZMIDT, GERMAN et al., "Load Distribution for Scalable Web Servers: Summer Olympics 1996 – A Case Study", In Proceedings of the 8th IFIP/IEEE International Workshop on Distributed Systems: Operations and Management, Sydney, Australia, October 1997, pp. 1-10.	
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	C9	PCT International Preliminary Report on Patentability and Written Opinion, PCT/GB2005/001845, November 29, 2006, 6 pages.	
	C10	International Search Report and Written Opinion, PCT/GB2005/001845, August 24, 2005, 8 Pages.	
	C11	International Search Report and Written Opinion, PCT/GB2004/004609, February 22, 2005, 9 pages.	

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.

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

Substitute for form 1449A/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application No.**	11/623,653
				Filing Date	January 16, 2009
				First Named Inventor	Justin Marston
				Art Unit	2158
				Examiner Name	John P. Hocker
Sheet	4	of	4	Attorney Docket Number	23682-12381

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]
	C12	International Search Report and Written Opinion, PCT/GB2004/000805, June 4, 2004, 9 pages.	
	C13	International Search Report and Written Opinion, PCT/GB2005/001868, August 19, 2005, 8 pages.	
	C14	FADEN, G., "Solaris Trusted Extensions," Architectural Overview, Sun Microsystems, April 2006, [online] [Retrieved on December 19, 2008] Retrieved from the internet <URL:http://www.opensolaris.org/os/community/security/projects/tx/TrustedExtensionsArch.pdf>.	
	C15	FADEN, G., "Multilevel Filesystems in Solaris Trusted Extensions," SACMAT'07, June 20-22, 2007, [online] [Retrieved on December 19, 2008] Retrieved from the internet URL:http://www.opensolaris.org/os/community/security/projects/tx/sacmat04s-faden-1.pdf>.	

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.

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

Electronic Acknowledgement Receipt

EFS ID:	6825236
Application Number:	11623653
International Application Number:	
Confirmation Number:	5243
Title of Invention:	DETERMINING RELEVANCE OF ELECTRONIC CONTENT
First Named Inventor/Applicant Name:	Justin Marston
Customer Number:	00758
Filer:	Christopher-Charles P. King
Filer Authorized By:	
Attorney Docket Number:	23682-12381
Receipt Date:	15-JAN-2010
Filing Date:	16-JAN-2007
Time Stamp:	20:37:17
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$810
RAM confirmation Number	6204
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	Transmittal Letter	12381_US_SIDS.pdf	120875 5495a67da980afe3a25a81006cf9791167b78b6b	no	3
Warnings:					
Information:					
2	Information Disclosure Statement (IDS) Filed (SB/08)	12381_US_Form_8A.pdf	120241 bca4d8eeef4986f1296dd0c59687de304c60c057	no	4
Warnings:					
Information:					
This is not an USPTO supplied IDS fillable form					
3	Foreign Reference	EP0739115A2.pdf	555991 1012edfab308d2481bef5317eaf883f4b924ffad	no	11
Warnings:					
Information:					
4	Foreign Reference	WO03036492.pdf	970290 6102512a795f0cb7f6ab38e41d3dccb1f29d5983	no	23
Warnings:					
Information:					
5	Foreign Reference	WO03073711.pdf	3493479 20600ade67f102900b1212aedc9f660df4767b4e	no	83
Warnings:					
Information:					
6	Foreign Reference	WO04012415.pdf	1251182 cfd34db6792e60f90a4ec1c70f81be3a8e398933	no	38
Warnings:					
Information:					
7	NPL Documents	BRUSSEE.pdf	4542578 c557a47b79808b024f41d85c331711bf57299662	no	95
Warnings:					
Information:					

8	NPL Documents	DAVISON.pdf	1086831 897dc23b35b9318115fd6c730049ece2933c24c6	no	16
Warnings:					
Information:					
9	NPL Documents	Gertzman.pdf	374704 aa93cdd9f2f08c77621cd90b373c4550cc2fb963	no	5
Warnings:					
Information:					
10	NPL Documents	Gupta.pdf	1153687 5f4eb3d5ab5247dcadf13a384e044ae84a40354d	no	11
Warnings:					
Information:					
11	NPL Documents	Mambo.pdf	949113 08df5666d79890f9aae3c7ee641e6331233d613a	no	10
Warnings:					
Information:					
12	NPL Documents	STANFORD.pdf	902308 9d3f774175c63f4436280f3e810321575bb8797a	no	12
Warnings:					
Information:					
13	NPL Documents	VAN.pdf	712776 2caef54496d07146d1fe10db86476d6c425bb57a	no	13
Warnings:					
Information:					
14	NPL Documents	Faden_Multilevel.pdf	240650 4e524223efb2138d6d4cca37349f2c746da5df17	no	6
Warnings:					
Information:					
15	NPL Documents	Faden_Solaris.pdf	810277 56c918c30aba0ba2b0f7e58e691cd0689bc0e5be	no	11
Warnings:					
Information:					
16	NPL Documents	PCT001845IPRP.pdf	217844 f6c9bab0964f6ea030b1b23e8d4a07fa496a0832	no	6
Warnings:					
Information:					

17	NPL Documents	PCT001845ISRWO.pdf	280295 9a8a637d096800f68f0d01c8eebd67d0a0554d8e	no	8
Warnings:					
Information:					
18	NPL Documents	PCT004609.pdf	345969 26bd088fc6fa392c5cd61f5021b6b4228f7c397a	no	9
Warnings:					
Information:					
19	NPL Documents	PCT000805.pdf	323336 d541a4c516657c044aa2a9d67619b1f072fbf9a5	no	9
Warnings:					
Information:					
20	NPL Documents	PCT001868.pdf	331961 a0fc52ebbc65a4b375d62154602d9017d88df781	no	8
Warnings:					
Information:					
21	NPL Documents	GOLDSZMIDT.pdf	757578 22e6840517320265b21806033eaa2f73e5d6534c	no	10
Warnings:					
Information:					
22	Request for Continued Examination (RCE)	12381_RCE.pdf	697436 d9fc8dce5aac195e2fce37b3e400e64bf999aed6	no	3
Warnings:					
Information:					
23		12381_AmendmentC.pdf	86957 38af5aae82aae6d6530942cd7325776b96adefbc	yes	11

Multipart Description/PDF files in .zip description

Document Description	Start	End
Amendment Submitted/Entered with Filing of CPA/RCE	1	1
Claims	2	9
Applicant Arguments/Remarks Made in an Amendment	10	11

Warnings:

Information:

24	Fee Worksheet (PTO-875)	fee-info.pdf	30199 8921a11391001abc7fd60ec80f0c219a1b27f782	no	2

Warnings:	
Information:	
Total Files Size (in bytes):	20356557

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.

New Applications Under 35 U.S.C. 111

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.

National Stage of an International Application under 35 U.S.C. 371

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.

New International Application Filed with the USPTO as a Receiving Office

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.

PTO/SB/30EFS (12-08)
Approved for use through 01/31/2009. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	11/623,653	Filing Date	2007-01-16	Docket Number (if applicable)	23682-12381	Art Unit	2158
First Named Inventor	Justin Marston			Examiner Name	John P. Hocker		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

- ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
- ☐ Other _____

☒ Enclosed

- ☒ Amendment/Reply
- ☒ Information Disclosure Statement (IDS)
- ☐ Affidavit(s)/ Declaration(s)
- ☐ Other _____

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____ (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

☒ **The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.**
The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 192555

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

☐ Applicant Signature

PTO/SB/30EFS (12-08)
Approved for use through 01/31/2009. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Signature of Registered U.S. Patent Practitioner			
Signature	/Christopher King/	Date (YYYY-MM-DD)	2010-01-15
Name	Christopher-Charles P. King	Registration Number	60985

This collection of information is required by 37 CFR 1.114. 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 1.11 and 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.

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

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

REMARKS

Claims 1-22 were finally rejected in a Final Office Action mailed May 12, 2009. A Notice of Appeal and Pre-Appeal Request for Review was filed on August 12, 2009. A Notice of Panel Decision from Pre-Appeal Brief Review was mailed on December 15, 2009. This amendment is filed with a Request for Continued Examination and thus reopens prosecution under 37 C.F.R. §1.114(d).

Applicants are amending claims 1, 7, 8, 11, and 17. Claims 2-6, 12-16, and 18-22 (15 claims total) are canceled, and claims 23-37 (also 15 claims) are added. In making these amendments, Applicants do not concede that the subject matter of such claims was in fact disclosed or taught by the cited prior art. Rather, Applicants reserve the right to pursue such protection at a later point in time and merely seek to pursue protection for the subject matter presented in this submission.

Applicants' representative spoke with Examiner Hocker on January 14 and January 15, 2010, in order to expedite prosecution of the case. Examiner Hocker agreed that claim 1, as amended herein, contains features not found in the prior art and is allowable. Accordingly, although not agreeing that the claims in their prior state were unpatentable over the cited prior art, Applicants are amending the claims herein in order to expedite allowance.

Applicants request the Examiner to contact Applicants' representative at the number provided below if any further issues arise prior to allowance.

Respectfully submitted,

Dated: January 15, 2010

By: /Christopher King/

Christopher P. King, Reg. No. 60,985
Attorney for Applicant
Fenwick & West LLP
801 California Street
Mountain View, CA 94041
Tel.: (650) 335-7633
Fax: (650) 938-5200

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT:	Justin Marston
APPLICATION NO.:	11/623,653
FILING DATE:	January 16, 2007
TITLE:	DETERMINING RELEVANCE OF ELECTRONIC CONTENT
EXAMINER:	John P. Hocker
GROUP ART UNIT:	2158
ATTY. DKT. NO.:	23682-12381

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: __January 15, 2010_____ By: _____/Christopher King/_____

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

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 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 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.

☐ 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).

☐ 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).

Respectfully submitted,

Dated: January 15, 2010

/Christopher King/

Christopher P. King, Reg. No. 60,985
Attorney for Applicant
Fenwick & West LLP
801 California Street
Mountain View, CA 94041
Tel.: (650) 335-7633
Fax: (650) 938-5200

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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	Filing Date	☐ To be Mailed
11/623,653	01/16/2007	

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY ☒ RATE ($)	SMALL ENTITY ☒ FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
☐ 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), (i), 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(i))	minus 20 =	*	X $ =		OR	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

AMENDMENT 01/15/2010	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 22	Minus	** 22	= 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))									
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	

AMENDMENT	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)	OR	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))									
☐ 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.

Legal Instrument Examiner:
/FREDERICK E. BRISCOE/

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.

Notice of References Cited	Application/Control No. 11/623,653	Applicant(s)/Patent Under Reexamination MARSTON ET AL.	
	Examiner JOHN P. HOCKER	Art Unit 2158	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-2003/0074409 A1	04-2003	Bentley, Richard M.	709/206
*	B	US-2003/0126120 A1	07-2003	Faybishenko et al.	707/3
*	C	US-2004/0078447 A1	04-2004	Malik et al.	709/206
*	D	US-2007/0100806 A1	05-2007	Ramer et al.	707/003
*	E	US-2007/0100650 A1	05-2007	Ramer et al.	705/001
*	F	US-2007/0244867 A1	10-2007	Malandain et al.	707/3
*	G	US-2009/0216696 A1	08-2009	Downs et al.	706/20
	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.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

Sheet	1	of	4

Complete if Known	
Application No.	11/623,653
Filing Date	January 16, 2009
First Named Inventor	Justin Marston
Art Unit	2158
Examiner Name	John P. Hocker
Attorney Docket Number	23682-12381

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document No. Number – Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
	A1	US-2007/0038942 A1	02-15-2007	Chen et al.
	A2	US-2006/0168029 A1	07-27-2006	Fitzpatrick et al.
	A3	US-2005/0149498 A1	07-07-2005	Lawrence et al.
	A4	US-2005/0086340 A1	04-21-2005	Kang et al.
	A5	US-2005/0054334 A1	03-10-2005	Brown et al.
	A6	US-2004/0260761 A1	12-23-2004	Leaute et al.
	A7	US-2004/0177271 A1	09-09-2004	Arnold et al.
	A8	US-2004/0153515 A1	08-05-2004	Touboul et al.
	A9	US-2004/0064515 A1	04-01-2004	Hockey
	A10	US-2004/0054498 A1	03-18-2004	Shipp
	A11	US-2003/0140223 A1	07-24-2003	Desideri
	A12	US-2003/0055907 A1	03-20-2003	Stiers
	A13	US-2003/0009595 A1	01-09-2003	Collins
	A14	US-2002/0144154 A1	10-03-2002	Tomkow
	A15	US-2002/0007453 A1	01-17-2002	Nemovicher
	A16	US-7,412,437 B2	08-12-2008	Moody et al.
	A17	US-7,233,954	06-19-2007	Horvitz
	A18	US-7,103,794	09-05-2006	Malcolm
	A19	US-7,058,687	06-06-2006	Kucherawy
	A20	US-6,970,913	11-29-2005	Albert et al.
	A21	US-6,959,382	10-25-2005	Kinnis et al.
	A22	US-6,850,968	02-01-2005	Pfeffer et al.
	A23	US-6,789,107 B1	09-07-2004	Bates et al.
	A24	US-6,704,772	03-09-2004	Ahmed et al.
	A25	US-6,704,768	03-09-2004	Zombek
	A26	US-6,694,358 B1	02-17-2004	Swildens et al.
	A27	US-6,581,090 B1	06-17-2003	Lindbo et al.
	A28	US-6,578,076 B1	06-10-2003	Putzolu

Examiner Signature	/John Hocker/	Date Considered	01/30/2010

*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.

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

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /J.H./

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

Sheet	2	of	4

Complete if Known	
Application No.	11/623,653
Filing Date	January 16, 2009
First Named Inventor	Justin Marston
Art Unit	2158
Examiner Name	John P. Hocker
Attorney Docket Number	23682-12381

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document No. Number – Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document
	A29	US-6,553,413 B1	04-22-2003	Leighton et al.
	A30	US-6,502,125 B1	12-31-2002	Kenner et al.
	A31	US-6,484,143 B1	11-19-2002	Swildens et al.
	A32	US-6,480,893 B2	11-12-2002	Kriegsman
	A33	US-6,314,565 B1	11-06-2001	Kenner et al.
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	A35	US-6,421,726 B1	07-16-2002	Kenner et al.
	A36	US-6,415,280 B1	07-02-2002	Farber et al.
	A37	US-6,405,252 B1	06-11-2002	Gupta et al.
	A38	US-6,370,571 B1	04-09-2002	Medin, Jr.
	A39	US-6,185,598 B1	02-06-2001	Farber et al.
	A40	US-6,185,551	02-06-2001	Birell et al.
	A41	US-6,182,136	01-30-2001	Ramanathan et al.
	A42	US-6,181,867 B1	01-30-2001	Kenner et al.
	A43	US-6,178,160 B1	01-23-2001	Bolton et al.
	A44	US-6,154,744	11-28-2000	Kenner et al.
	A45	US-6,134,582 A	10-17-2000	Kennedy
	A46	US-6,134,598 A	10-17-2000	Raman
	A47	US-6,122,632 A	09-19-2000	Botts et al.
	A48	US-6,112,239	08-29-2000	Kenner et al.
	A49	US-6,035,327	03-07-2000	Buckley et al.
	A50	US-6,029,175	02-22-2000	Chow et al.
	A51	US-6,009,462	12-28-1999	Birrell et al.
	A52	US-5,938,735	08-17-1999	Malik
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	A54	US-6,003,030	12-14-1999	Kenner et al.

Examiner Signature	/John Hocker/	Date Considered	01/30/2010

*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.

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

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /J.H./

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

Complete if Known	
Application No.	11/623,653
Filing Date	January 16, 2009
First Named Inventor	Justin Marston
Art Unit	2158
Examiner Name	John P. Hocker
Attorney Docket Number	23682-12381

Sheet 3 of 4

FOREIGN PATENT DOCUMENTS					
		Foreign Patent Document			
Examiner Initials*	Cite No.[1]	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]
	B1	EP 0739115 A2	10-23-1996	AT&T IPM CORP	
	B2	WO 03/036492 A1	05-01-2001	Idetic, Inc.	
	B3	WO 03/073711 A2	09-04-2003	RPOST International Limited	
	B4	WO 04/012415 A1	02-05-2004	Security and Standards Limited	

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	BRUSSEE, ROGIER et al, "Content Distribution Networks", Telematica Institute, June 1, 2001, pp. V-IX and 1-88.	
	C2	DAVISON, BRIAN, "Brian Davison's Web-Caching Bibliography", Department of Computer Science, Rutgers, the State University, New Jersey, June 28, 2000, pp. 1-16.	
	C3	GOLDSZMIDT, GERMAN et al., "Load Distribution for Scalable Web Servers: Summer Olympics 1996 – A Case Study", In Proceedings of the 8th IFIP/IEEE International Workshop on Distributed Systems: Operations and Management, Sydney, Australia, October 1997, pp. 1-10.	
	C4	GWERTZMAN, JAMES et al., "The Case for Geographical Push-Caching", *In* Proceedings of the Fifth Workshop on Hot Topics in Operating Systems, IEEE Computer Society, Orcas Island, WA , May 1995, pp. 51-55.	
	C5	GUPTA, G., et al., "Digital Forensics Analysis of E-Mails: A Trusted E-Mail Protocol," International Journal of Digital Evidence, Spring 2004, Vol. 2, Is. 4, 11 Pages.	
	C6	MAMBO, M., et al., "Proxy Signatures for Delegating Signing Operation," Conference on Computer and Communications Security, Proceedings of the 3rd ACM conference on Computer and Communications Security, 1996, Pages 48-57.	
	C7	STANFORD-CLARK, ANDY, "Atlanta Olympics WOMplex", Presented at Get Connected Technical Interchange '96, IBM, Hursley, U.K., October 1996, pp. IBM 000026-000037.	
	C8	VAN STEEN, MAARTEN et al, "Locating Objects in Wide-Area Systems", IEEE Communications Magazine Vo 36, No. 1, Jan. 1998, pp. 104-109.	
	C9	PCT International Preliminary Report on Patentability and Written Opinion, PCT/GB2005/001845, November 29, 2006, 6 pages.	
	C10	International Search Report and Written Opinion, PCT/GB2005/001845, August 24, 2005, 8 Pages.	
	C11	International Search Report and Written Opinion, PCT/GB2004/004609, February 22, 2005, 9 pages.	

Examiner Signature	/John Hocker/	Date Considered	01/30/2010

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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /J.H./

Substitute for form 1449A/PTO				Complete if Known	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT				**Application No.**	11/623,653
				Filing Date	January 16, 2009
				First Named Inventor	Justin Marston
				Art Unit	2158
				Examiner Name	John P. Hocker
Sheet	4	of	4	Attorney Docket Number	23682-12381

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]
	C12	International Search Report and Written Opinion, PCT/GB2004/000805, June 4, 2004, 9 pages.	
	C13	International Search Report and Written Opinion, PCT/GB2005/001868, August 19, 2005, 8 pages.	
	C14	FADEN, G., "Solaris Trusted Extensions," Architectural Overview, Sun Microsystems, April 2006, [online] [Retrieved on December 19, 2008] Retrieved from the internet <URL:http://www.opensolaris.org/os/community/security/projects/tx/TrustedExtensionsArch.pdf>.	
	C15	FADEN, G., "Multilevel Filesystems in Solaris Trusted Extensions," SACMAT'07, June 20-22, 2007, [online] [Retrieved on December 19, 2008] Retrieved from the internet URL:http://www.opensolaris.org/os/community/security/projects/tx/sacmat04s-faden-1.pdf>.	

Examiner Signature	/John Hocker/	Date Considered	01/30/2010

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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /J.H./

Interview Summary	Application No.	Applicant(s)	
	11/623,653	MARSTON ET AL.	
	Examiner	Art Unit	
	JOHN P. HOCKER	2158	

All participants (applicant, applicant's representative, PTO personnel):

(1) *JOHN P. HOCKER*. (3)_____.

(2) *Chris King*. (4)_____.

Date of Interview: *Januaroy 14th, 201*.

Type: a)☒ Telephonic b)☐ Video Conference
c)☐ Personal [copy given to: 1)☐ applicant 2)☐ applicant's representative]

Exhibit shown or demonstration conducted: d)☐ Yes e)☐ No.
If Yes, brief description: _____.

Claim(s) discussed: *Claims 1, 11 and 17 (and all their dependents)*.

Identification of prior art discussed: *Malik*.

Agreement with respect to the claims f)☒ was reached. g)☐ was not reached. h)☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: *Examiner and Applicant successfully negotiated claim lanuage that embodied the applicant's claimed inventive concept, and at the same time was distinguishable over the prior art. A preliminary agreement was reached that the proposed amended claims were allowable (as amended. Examiner stated an updated search would be performed prior to allowance.)*.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

. /JPH/ (Art Unit: 2158)	/Mohammad Ali/ Supervisory Patent Examiner, Art Unit 2158

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record
A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews
Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.
All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

1) A brief description of the nature of any exhibit shown or any demonstration conducted,
2) an identification of the claims discussed,
3) an identification of the specific prior art discussed,
4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
5) a brief identification of the general thrust of the principal arguments presented to the examiner,
   (The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
6) a general indication of any other pertinent matters discussed, and
7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11623653	MARSTON ET AL.
	Examiner	Art Unit
	JOHN P HOCKER	2158

✓	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	11/09/2008	05/07/2009	01/30/2010						
	1	✓	✓	=						
	2	✓	✓	-						
	3	✓	✓	-						
	4	✓	✓	-						
	5	✓	✓	-						
	6	✓	✓	-						
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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11623653	MARSTON ET AL.
	Examiner	**Art Unit**
	JOHN P HOCKER	2158

✓	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	11/09/2008	05/07/2009	01/30/2010						
	37			=						

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11623653	MARSTON ET AL.
	Examiner	**Art Unit**
	JOHN P HOCKER	2158

ORIGINAL		INTERNATIONAL CLASSIFICATION	
CLASS	SUBCLASS	CLAIMED	NON-CLAIMED
707	728	G 0 6 F 7 / 00 (2006.01)	

CROSS REFERENCE(S)

CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
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	15	16	31												
	16	17	32												

/JOHN P HOCKER/ Examiner.Art Unit 2158 (Assistant Examiner)	(Date)	**Total Claims Allowed:** 22	
/MOHAMMAD ALI/ Supervisory Patent Examiner.Art Unit 2158 (Primary Examiner)	01/31/2010 (Date)	O.G. Print Claim(s) 1 (1)1	O.G. Print Figure 1

UNITED STATES PATENT AND TRADEMARK OFFICE

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NOTICE OF ALLOWANCE AND FEE(S) DUE

758 7590 02/12/2010

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

EXAMINER	
HOCKER, JOHN P	
ART UNIT	PAPER NUMBER
2158	

DATE MAILED: 02/12/2010

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/623,653	01/16/2007	Justin Marston	23682-12381	5243

TITLE OF INVENTION: DETERMINING RELEVANCE OF ELECTRONIC CONTENT

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$755	$300	$0	$1055	05/12/2010

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

758 7590 02/12/2010

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

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

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11/623,653	01/16/2007	Justin Marston	23682-12381	5243

TITLE OF INVENTION: DETERMINING RELEVANCE OF ELECTRONIC CONTENT

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$755	$300	$0	$1055	05/12/2010

EXAMINER	ART UNIT	CLASS-SUBCLASS
HOCKER, JOHN P	2158	707-002000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:

❑ Issue Fee

❑ Publication Fee (No small entity discount permitted)

❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**

❑ A check is enclosed.

❑ Payment by credit card. Form PTO-2038 is attached.

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

❑ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

❑ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. 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, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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.

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United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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www.uspto.gov

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11/623,653	01/16/2007	Justin Marston	23682-12381	5243

758 7590 02/12/2010

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HOCKER, JOHN P	
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Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 184 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 184 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Notice of Allowability	Application No.	Applicant(s)	
	11/623,653	MARSTON ET AL.	
	Examiner	Art Unit	
	JOHN P. HOCKER	2158	

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

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *Interview and RCE(filed: 01/15/2010)*.

2. ☒ The allowed claim(s) is/are *Claims 1, 7 – 11, 17 and 23 – 37 are allowed (Renumbered as claims 1 – 22)*..

3. ☐ 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 the:
      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)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date 01/15/2010
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date *01/2010* .
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/JPH/ (Art Unit:2158)	/Mohammad Ali/ Supervisory Patent Examiner, Art Unit 2158

DETAILED ACTION

1. Prior to allowance, an updated search was performed by Examiner.

2. Claims 2 – 6, 12 – 16 and 18 – 22 are cancelled.

3. Claims 1, 7 – 11, 17 and 23 – 37 are allowed (Renumbered as claims 1 – 22).

Information Disclosure Statement

The information disclosure statements (IDS) submitted on 01/15/2010 has been considered by examiner. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Reasons for Allowance

Claims 1, 7 – 11, 17 and 23 – 37 are allowed (Renumbered as claims 1 – 22).

The following is an examiner's statement of reasons for allowance:

The closest prior art cited is: "Malik" (US Publication No. 2004/0078447)

Malik discloses a system and program (see fig 1,2A and 2B), comprising:

Although Malik teaches the general state of the art in "relevany" determinations, specifically that a: **(i) a monitoring module configured to track actions by a plurality of users associated with an application for managing electronic content, (ii) a relevance analysis module coupled to the monitoring module and configured to determine a relevance to a user of a received piece of electronic content, (iii) the relevance being determined dependent on: a measure of a relevance of the piece of electronic content as determined dependent on one or more actions of the user on the piece of electronic content and (iv) a measure of a relevance of the piece of electronic content as determined dependent on one or more actions of at least one other of the plurality of users that is a recipient of the piece of electronic content** is known in the art

The prior art of record does not teach alone nor reasonably suggest in combination all of the limitations together with independent claims 1, 11 and 17 (and therefore dependent claims also). Malik does not teach alone nor reasonably suggest each and every limitation of claims 1, 11 and 17. For more complete explanation of the teachings of Liang in light of the claims please see entire prosecution history for US application no. 11/623653.

The closest prior art is Malik

Malik teaches a computer method, comprising::

(i) a monitoring module configured to track actions by a plurality of users associated with an application for managing electronic content (see para [0035] and [0045]),

(ii) a relevance analysis module coupled to the monitoring module and configured to determine a relevance to a user of a received piece of electronic content (user(s) profile, see abstract and para [0013], [0014], [0040]-[0046], [0072-0074] and [0079 – 0080]),

(iii) the relevance being determined dependent on: a measure of a relevance of the piece of electronic content as determined dependent on one or more actions of the user on the piece of electronic content (see para [0013], [0014], [0040]-[0046], [0072-0074] and [0079] - 0080),

and (iv) a measure of a relevance of the piece of electronic content as determined dependent on one or more actions of at least one other of the plurality of users that is a recipient of the piece of electronic content (see para [0013], [0014], [0040]-[0046], [0072-0074] and [0079 - 0080]).

Examiner's Note: Although Malik teaches the general state of the art, Malik does not teach each and every limitation in claims 1, 11 and 17. Please see entire prosecution history for complete details on the prior art of record. Malik at least differ from claim 1 because claim 1 teaches:

a first relevance measurement module coupled to the monitoring module and configured to determine a first measure of [[a]] relevance of the piece of electronic content as determined dependent on one or more actions of the user on the piece of electronic content;~~, and~~

a second relevance measurement module coupled to the monitoring module and configured to:

identify at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user, and

determine a second measure of [[a]] relevance of the piece of electronic content as determined dependent at least in part on one or more measures derived from the group consisting of: a local importance describing an importance of the sender to the user, a global importance describing an importance of the sender within an organization with which the plurality of users are associated, a content relevance determined responsive to content of the piece of electronic content, and

one or more actions on the piece of electronic content of the at least one other of the plurality of users that is a recipient of the piece of electronic content and that is cognate to the user; and a relevance analysis module configured to determine the relevance score of the piece of electronic content sent from the sender to the user, the relevance score being determined based at least in part on the first determined measure of relevance and on the second determined measure of relevance.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue

fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John P. Hocker whose telephone number is 5712705004. The examiner can normally be reached on Mon - Fri 10:30 - 3:00 EST (Alternating Fridays Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ali can be reached on 571-272-4105. 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.

/Mohammad Ali/

Supervisory Patent Examiner, Art Unit 2158

/JPH/ Art Unit 2158

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11623653	MARSTON ET AL.
	Examiner	Art Unit
	JOHN P HOCKER	2169

SEARCHED

Class	Subclass	Date	Examiner
707	1-3	11/09/2008 & 01/30/2010	JPH
707	726, 749	11/09/2008 & 01/30/2010	JPH

SEARCH NOTES

Search Notes	Date	Examiner
Inventive concept: " User Profiles for electronic content viewing (e.g. email)"	11/09/2008 & 01/30/2010	JPH
1: IDS Reviewed for Prior Art.	11/09/2008 & 01/30/2010	JPH
2: Examiner performed inventor name search.	11/09/2008 & 01/30/2010	JPH
3: Examiner searched 'Computer Technology' NPL (e.g. IEEE (Institute of Electrical and Electronics Engineers), Association for Computing Machinery, Wikipedia and/or Google Scholar)	11/09/2008 & 01/30/2010	JPH
4: Examiner searched International Technical & Patent Databases(US-PGPUB, USPAT, USOCR, FPRS, EPO, JPO, DERWENT and IBM_TDB).	11/09/2008 & 01/30/2010	JPH
During Patent Searches, Examiner searched class/subclasses (as listed above) combined with text of the inventive concept. Please see East Search History for text searched.	11/09/2008 & 01/30/2010	JPH

INTERFERENCE SEARCH

Class	Subclass	Date	Examiner
707	1-3	11/09/2008 & 01/30/2010	JPH
707	726, 749	11/09/2008 & 01/30/2010	JPH

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	23790	(707/1-3).ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/30 22:49
L2	2246	second with (relevancy or relevance)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/30 22:58
L3	408	1 and 2	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/30 22:58
L4	227	3 and (score or scoring)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/30 22:58
L5	87	4 and (global)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/30 22:58
L6	82	5 and (content or mail)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/30 22:59
L7	151958	(email or (electronic adj3 mail))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2010/01/30 22:59

L8	937	based with (other or another) with (action or read or forward or reply or delete)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/30 22:59
L9	212	7 and 8	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/30 22:59
L10	0	9 and 6	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/30 23:00
L11	0	9 and 3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/30 23:00
L12	24	7 and 5	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/30 23:00
L13	24	7 and 6	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/30 23:00
S1	0	("20040078447").PN.	USPAT; USOCR	OR	OFF	2008/11/09 11:58
S2	2	"20040078447"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/11/09 11:58
S3	19391	(707/1-3).ccls.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/11/09 15:27

S4	3609	S3 and (email or (electronic adj3 mail))	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/11/09 15:28
S5	1159	S4 and (profile)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/11/09 15:28
S6	1151	S5 and user	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/11/09 15:29
S7	757	S6 and (user near5 profile)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/11/09 15:29
S8	656	S7 and (search)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2008/11/09 15:29
S9	404	S8 and (track or tracking)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/09 15:30
S10	8	("20020122543" | "20020136279" | "20030191806" | "20040133645").PN.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2008/11/09 15:31
S11	56467	relevance	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/04/19 13:56

S12	659	(relevance with action)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/04/19 13:56
S13	240	S12 and (based with action)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/04/19 13:57
S14	240	S12 and S13	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/04/19 13:57
S15	8	"user action" with relevance with based	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/04/19 13:58
S16	2	"20080288533"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/05/31 13:40
S17	2	"20080288457"	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2009/05/31 13:45
S18	86589	("other" or "group" or another) with (action)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/04 14:44
S19	98	S18 same (relevance)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/04 14:45

S20	196524	("other" or "group" or another) with (read or forward or send or action)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/04 14:47
S21	146	S20 same (relevance)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/04 14:47
S22	196528	("other" or "group" or another) with ("based on" or read or forward or send or action)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/04 14:53
S23	84191	S22 and (importance or important or relevant or relevance)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/04 14:53
S24	36443	based with (other or another)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/04 14:54
S25	3371	S23 and S24	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/04 14:54
S26	930	based with (other or another) with (action or read or forward or reply or delete)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/04 14:54
S27	578	S23 and S26	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/04 14:54

S28	219	S27 and (email or mail)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/04 14:54
S29	34	S26 same (importance or important or relevant or relevance)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2010/01/04 14:55

1/30/2010 11:02:43 PM
C:\Documents and Settings\jhocker\My Documents\EAST\Workspaces\Hocker Workspaces\11623653.wsp

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

758 7590 02/12/2010

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

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/623,653	01/16/2007	Justin Marston	23682-12381	5243

TITLE OF INVENTION: DETERMINING RELEVANCE OF ELECTRONIC CONTENT

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$755	$300	$0	$1055	05/12/2010

EXAMINER	ART UNIT	CLASS-SUBCLASS
HOCKER, JOHN P	2158	707-002000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 Fenwick & West LLP
2
3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: Bluespace Software Corporation

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Austin, Texas

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

☒ Issue Fee

☒ Publication Fee (No small entity discount permitted)

☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**

☐ A check is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number 192555 (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature /Christopher King/ Date March 18, 2010

Typed or printed name Christopher-Charles P. King Registration No. 60,985

This collection of information is required by 37 CFR 1.311. 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, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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.

Electronic Acknowledgement Receipt

EFS ID:	7240069
Application Number:	11623653
International Application Number:	
Confirmation Number:	5243
Title of Invention:	DETERMINING RELEVANCE OF ELECTRONIC CONTENT
First Named Inventor/Applicant Name:	Justin Marston
Customer Number:	00758
Filer:	Christopher-Charles P. King
Filer Authorized By:	
Attorney Docket Number:	23682-12381
Receipt Date:	18-MAR-2010
Filing Date:	16-JAN-2007
Time Stamp:	17:31:18
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$1055
RAM confirmation Number	3890
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	Issue Fee Payment (PTO-85B)	12381_IssueFee.pdf	91250 16237d95c801a7f6825e095db38eaa91987739d6	no	1
Warnings:					
Information:					
2	Fee Worksheet (PTO-875)	fee-info.pdf	31707 22774afef7ce5690b85f13787a5ff03863182ae9	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	122957		

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.

New Applications Under 35 U.S.C. 111
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.

National Stage of an International Application under 35 U.S.C. 371
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.

New International Application Filed with the USPTO as a Receiving Office
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.

Electronic Patent Application Fee Transmittal

Application Number:	11623653
Filing Date:	16-Jan-2007
Title of Invention:	DETERMINING RELEVANCE OF ELECTRONIC CONTENT
First Named Inventor/Applicant Name:	Justin Marston
Filer:	Christopher-Charles P. King/Linda Carlson
Attorney Docket Number:	23682-12381

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:				
Utility Appl issue fee	2501	1	755	755
Publ. Fee- early, voluntary, or normal	1504	1	300	300

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**1055**

UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/623,653	05/11/2010	7716217	23682-12381	5243

758 7590 04/21/2010

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

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 184 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Justin Marston, Austin, TX;
Paul Marston, Lancashire, UNITED KINGDOM;

IN THE UNITED STATES

PATENT AND TRADEMARK OFFICE

APPLICANT:	Justin Marston et al.
PATENT NO.:	7,716,217 B2
ISSUE DATE:	May 11, 2010
SERIAL NO:	11/623,653
FILING DATE:	January 16, 2007
TITLE:	Determining Relevance of Electronic Content
ATTY. DKT. NO.:	23682-12381

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: July 9, 2010 By: /Christopher King/
Christopher P. King, Reg. No. 60,985

COMMISSIONER FOR PATENTS
P.O. BOX 1450
ALEXANDRIA, VA 22313-1450
ATTENTION: CERTIFICATE OF CORRECTION BRANCH

REQUEST FOR CERTIFICATE OF CORRECTION

SIR:

The following error, as more fully described below, appears in this patent.

Column 47, line 47, after "content," delete --as --.

Attached hereto is Form PTO-1050.

☒ No fee is due for the correction, since the errors were made by the Patent and Trademark Office.

Respectfully submitted,

Dated: July 9, 2010

By: /Christopher King/

Christopher P. King, Reg. No. 60,985
Attorney for Applicant
Fenwick & West LLP
801 California Street
Mountain View, CA 94041
Tel.: (650) 335-7633
Fax: (650) 938-5200

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 7,716,217 B2

DATED : May 11, 2010

INVENTORS : Justin Marston et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 47, line 47, after "content," delete --as--.

Electronic Acknowledgement Receipt

EFS ID:	7985833
Application Number:	11623653
International Application Number:	
Confirmation Number:	5243
Title of Invention:	DETERMINING RELEVANCE OF ELECTRONIC CONTENT
First Named Inventor/Applicant Name:	Justin Marston
Customer Number:	00758
Filer:	Christopher-Charles P. King
Filer Authorized By:	
Attorney Docket Number:	23682-12381
Receipt Date:	09-JUL-2010
Filing Date:	16-JAN-2007
Time Stamp:	16:28:43
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Certificate of Correction	12381_RequestCertificateofCorrection.pdf	76104 5432b0c78ad98ba1174bdebc9333df03cba7fd5f	no	3

Warnings:	
Information:	

Total Files Size (in bytes):	76104

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.

New Applications Under 35 U.S.C. 111
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.

National Stage of an International Application under 35 U.S.C. 371
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.

New International Application Filed with the USPTO as a Receiving Office
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

CERTIFICATE OF CORRECTION

PATENT NO. : 7,716,217 B2
APPLICATION NO. : 11/623653
DATED : May 11, 2010
INVENTOR(S) : Justin Marston et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 47, line 47, after "content," delete "as".

Signed and Sealed this

Twenty-fourth Day of August, 2010

David J. Kappos

David J. Kappos
Director of the United States Patent and Trademark Office

Electronic Acknowledgement Receipt

EFS ID:	44946585
Application Number:	11623653
International Application Number:	
Confirmation Number:	5243
Title of Invention:	DETERMINING RELEVANCE OF ELECTRONIC CONTENT
First Named Inventor/Applicant Name:	Justin Marston
Customer Number:	758
Filer:	Brendan Bennett Dix/Jason Wormstadt
Filer Authorized By:	Brendan Bennett Dix
Attorney Docket Number:	23682-12381
Receipt Date:	08-FEB-2022
Filing Date:	16-JAN-2007
Time Stamp:	17:04:10
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	US7716217aia0081a.pdf	200449 7a210ad86aaa1b229cf48c89202ea57aebe3bfc0	no	2

Warnings:

Information:	
Total Files Size (in bytes):	200449

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.

New Applications Under 35 U.S.C. 111

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.

National Stage of an International Application under 35 U.S.C. 371

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.

New International Application Filed with the USPTO as a Receiving Office

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.

PTO/AIA/81A (02-15)
Approved for use through 03/31/2021. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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 - POWER OF ATTORNEY OR REVOCATION OF POWER OF ATTORNEY WITH A NEW POWER OF ATTORNEY AND CHANGE OF CORRESPONDENCE ADDRESS

Patent Number	7716217
Issue Date	05/11/2010
First Named Inventor	Justin Marston
Title	Determining Relevance Of Electronic Content
Attorney Docket No.	

I hereby revoke all previous powers of attorney given in the above-identified patent.

☐ A Power of Attorney is submitted herewith.

OR

☒ I hereby appoint Practitioner(s) associated with the Customer Number identified in the box at right as my/our attorney(s) or agent(s) with respect to the patent identified above, and to transact all business in the United States Patent and Trademark Office connected therewith: 44088

OR

☐ I hereby appoint Practitioner(s) named below as my/our attorney(s) or agent(s) with respect to the patent identified above, and to transact all business in the United States Patent and Trademark Office connected therewith:

Practitioner(s) Name	Registration Number

Please recognize or change the correspondence address for the above-identified patent to:

☒ The address associated with the above-identified Customer Number.

OR

☐ The address associated with the Customer Number identified in the box at right:

OR

☐ Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the:

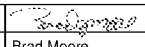
☐ Applicant.

OR

☒ Patent owner.

Statement under 37 CFR 3.73(c) (Form PTO/AIA/96) submitted herewith or filed on 10-28-2014.

SIGNATURE of Applicant or Patent Owner

Signature		Date	01/24/2022
Name	Brad Moore	Telephone	
Title and Company	CEO Sterling Computers Corporation		

NOTE: Signatures of all the applicants or patent owners of the entire interest or their representative(s) are required. If more than one signature is required, submit multiple forms, check the box below, and identify the total number of forms submitted in the blank below.

☐ A total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.31, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public, which is to update (and by the USPTO to process) the file of a patent or reexamination proceeding. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 3 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.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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
11/623,653	01/16/2007	Justin Marston	23682-12381

CONFIRMATION NO. 5243

IMPROPER CPOA LETTER

758
FENWICK & WEST LLP
SILICON VALLEY CENTER
801 CALIFORNIA STREET
MOUNTAIN VIEW, CA 94041

OC00000013183767 1

Date Mailed: 02/16/2022

NOTICE REGARDING POWER OF ATTORNEY

This is in response to the power of attorney filed 02/08/2022. The power of attorney in this application is not accepted for the reason(s) listed below:

- The power of attorney is from an assignee and the statement required by 37 CFR 3.73(c) has not been received.

/dgela/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

44088
KAUFHOLD DIX PATENT LAW
P. O. BOX 89626
SIOUX FALLS, SD 57109
UNITED STATES

Electronic Acknowledgement Receipt

EFS ID:	45053566
Application Number:	11623653
International Application Number:	
Confirmation Number:	5243
Title of Invention:	DETERMINING RELEVANCE OF ELECTRONIC CONTENT
First Named Inventor/Applicant Name:	Justin Marston
Customer Number:	758
Filer:	Brendan Bennett Dix/Jason Wormstadt
Filer Authorized By:	Brendan Bennett Dix
Attorney Docket Number:	23682-12381
Receipt Date:	22-FEB-2022
Filing Date:	16-JAN-2007
Time Stamp:	15:00:37
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	US7716217aia0081a.pdf	200449 7a210ad86aaa1b229cf48c89202ea57aebe3bfc0	no	2

Warnings:

Information:					
2	Assignee showing of ownership per 37 CFR 3.73	us7716217sb0096.pdf	175055 d53de78fe2bd05b5d2d883ebb17874a8407f70b5	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	375504	

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New Applications Under 35 U.S.C. 111

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.

National Stage of an International Application under 35 U.S.C. 371

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.

New International Application Filed with the USPTO as a Receiving Office

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.

PTO/AIA/81A (02-15)
Approved for use through 03/31/2021. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT - POWER OF ATTORNEY OR REVOCATION OF POWER OF ATTORNEY WITH A NEW POWER OF ATTORNEY AND CHANGE OF CORRESPONDENCE ADDRESS

Patent Number	7716217
Issue Date	05/11/2010
First Named Inventor	Justin Marston
Title	Determining Relevance Of Electronic Content
Attorney Docket No.	

I hereby revoke all previous powers of attorney given in the above-identified patent.

☐ A Power of Attorney is submitted herewith.

OR

☒ I hereby appoint Practitioner(s) associated with the Customer Number identified in the box at right as my/our attorney(s) or agent(s) with respect to the patent identified above, and to transact all business in the United States Patent and Trademark Office connected therewith: 44088

OR

☐ I hereby appoint Practitioner(s) named below as my/our attorney(s) or agent(s) with respect to the patent identified above, and to transact all business in the United States Patent and Trademark Office connected therewith:

Practitioner(s) Name	Registration Number

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OR

☐ Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the:

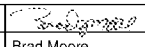
☐ Applicant.

OR

☒ Patent owner.

Statement under 37 CFR 3.73(c) (Form PTO/AIA/96) submitted herewith or filed on 10-28-2014.

SIGNATURE of Applicant or Patent Owner

Signature		Date	01/24/2022
Name	Brad Moore	Telephone	
Title and Company	CEO Sterling Computers Corporation		

NOTE: Signatures of all the applicants or patent owners of the entire interest or their representative(s) are required. If more than one signature is required, submit multiple forms, check the box below, and identify the total number of forms submitted in the blank below.

☐ A total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.31, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public, which is to update (and by the USPTO to process) the file of a patent or reexamination proceeding. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 3 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.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PTO/SB/96 (11-18)
Approved for use through 11/30/2020. OMB 0651-0031
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STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: Sterling Computer Corporation

Application No./Patent No.: 7716217 Filed/Issue Date: 05-11-2010

Titled:
Determining Relevance of Electronic Content

Sterling Computer Corporation, a Corporation

(Name of Assignee) (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 in;

2. ☐ an assignee of less than the entire right, title, and interest in
(The extent (by percentage) of its ownership interest is _____ %); or

3. ☐ the assignee of an undivided interest in the entirety of (a complete assignment from one of the joint inventors was made)

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 a copy* is attached.

OR

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

1. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel_____, Frame_____, or a copy* is attached.

2. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel_____, Frame_____, or a copy* is attached.

3. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at
Reel_____, Frame_____, or a copy* is attached.

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

☐ *As required by 37 CFR 3.73(b)(1)(i), if a copy/copies is/are attached, the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (*i.e.*, a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.]

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

/brendanbdix/ 02/22/2022
Signature Date

Brendan B. Dix 37313
Printed or Typed Name Title or Registration Number

This collection of information is required by 37 CFR 3.73(b). 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 1.11 and 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.**

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United States Patent and Trademark Office
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www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/623,653	01/16/2007	Justin Marston	23682-12381

CONFIRMATION NO. 5243

IMPROPER CPOA LETTER

758
FENWICK & WEST LLP
SILICON VALLEY CENTER
801 CALIFORNIA STREET
MOUNTAIN VIEW, CA 94041

OC00000132071345

Date Mailed: 03/01/2022

NOTICE REGARDING POWER OF ATTORNEY

This is in response to the power of attorney filed 02/22/2022. The power of attorney in this application is not accepted for the reason(s) listed below:

- The power of attorney is from an assignee and the statement required by 37 CFR 3.73(c) has not been received.

/hteffera/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

44088
KAUFHOLD DIX PATENT LAW
P. O. BOX 89626
SIOUX FALLS, SD 57109
UNITED STATES

PTO/AIA/123 (08-12)
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CHANGE OF CORRESPONDENCE ADDRESS
Patent

Address to:
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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Patent Number	7716217
Issue Date	05/11/2010
Application Number	11/623,653
Filing Date	01/16/2007
First Named Inventor	Justin Marston
Attorney Docket Number	

Please change the Correspondence Address for the above-identified patent to:

☑ The address associated with Customer Number: 44088

OR

☐ **Firm *or* Individual Name**

Address

City	**State**	**ZIP**

Country

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I am the:

☐ Patentee.

☐ If the Patentee was not the applicant for patent (37 CFR 1.42), then a Statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is enclosed or was filed on _____. See 37 CFR 3.71.

☐ Attorney or agent of record. Registration Number 37313.

☑ Patent practitioner acting in a representative capacity whose correspondence address is the correspondence address of record. Notice has been given to the patentee or owner. Registration Number 37313.

Signature	/brendanbdix/
Typed or Printed Name	Brendan B. Dix
Date 07/28/2022	Telephone 605-334-1571

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.

☑ *Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.33. 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 1.11 and 1.14. This collection is estimated to take 3 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: Mail Stop Post Issue, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Electronic Acknowledgement Receipt

EFS ID:	46295551
Application Number:	11623653
International Application Number:	
Confirmation Number:	5243
Title of Invention:	DETERMINING RELEVANCE OF ELECTRONIC CONTENT
First Named Inventor/Applicant Name:	Justin Marston
Customer Number:	758
Filer:	Brendan Bennett Dix/Jason Wormstadt
Filer Authorized By:	Brendan Bennett Dix
Attorney Docket Number:	23682-12381
Receipt Date:	28-JUL-2022
Filing Date:	16-JAN-2007
Time Stamp:	15:29:02
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Change of Address	us7716217aia0123.pdf	269067 569a167e1c2d2872c55c5a98ce6b3d9115e22d4d	no	2

Warnings:

Information:	
Total Files Size (in bytes):	269067

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New Applications Under 35 U.S.C. 111

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New International Application Filed with the USPTO as a Receiving Office

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PATENT AND TRADEMARK OFFICE

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Alexandria, VA 22313 - 1450
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ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #	RECEIPT DATE / TIME	ATTORNEY DOCKET #
11/623,653	**12/17/2024 10:20:44 AM Z ET**	**23682-12381**

Title of Invention

DETERMINING RELEVANCE OF ELECTRONIC CONTENT

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	7716217
CONFIRMATION #	5243	FILED BY	Stacy Brooks
PATENT CENTER #	68399409	FILING DATE	01/16/2007
CUSTOMER #	44088	FIRST NAMED INVENTOR	Justin Marston
CORRESPONDENCE ADDRESS	-	AUTHORIZED BY	Michelle Dawson

Documents

TOTAL DOCUMENTS: 2

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
326.00902 Executed Power of Attorney Patent No. 7716217.pdf	2	Power of Attorney	162 KB
326.00902 Statement under 3.73 as filed 121724.pdf	3	Assignee showing of ownership per 37 CFR 3.73	233 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
326.00902 Executed Power of Attorney Patent No. 7716217.pdf	E42CF6DB08A554674615851DA6437C7B732FDB62A2C9DE8D 62C493110B5F3A6731174F2FE49D565AD2EE95BBE897E1AE4 CA9D8829B0C06868876099C4F613C61

326.00902 Statement under 3.73 as filed 121724.pdf

05FBA55454777855E45DF0366B7BD0F8173542F6817EC20111
9A4DF5C5F417177BB6AD5157F270D7FA6B19A4E697D9D89D
281894ED2E9502C60758AC6882AE78

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PATENT - POWER OF ATTORNEY OR REVOCATION OF POWER OF ATTORNEY WITH A NEW POWER OF ATTORNEY AND CHANGE OF CORRESPONDENCE ADDRESS

Patent Number	7,716,217
Issue Date	05/11/2010
First Named Inventor	Justin Marston
Title	DETERMINING RELEVANCE OF ELECTRONIC CONTENT
Attorney Docket No.	326.00964

I hereby revoke all previous powers of attorney given in the above-identified patent.

☐ A Power of Attorney is submitted herewith.

OR

☒ I hereby appoint Practitioner(s) associated with the Customer Number identified in the box at right as my/our attorney(s) or agent(s) with respect to the patent identified above, and to transact all business in the United States Patent and Trademark Office connected therewith: 157954

OR

☐ I hereby appoint Practitioner(s) named below as my/our attorney(s) or agent(s) with respect to the patent identified above, and to transact all business in the United States Patent and Trademark Office connected therewith:

Practitioner(s) Name	Registration Number

Please recognize or change the correspondence address for the above-identified patent to:

☒ The address associated with the above-identified Customer Number.

OR

☐ The address associated with the Customer Number identified in the box at right:

OR

☐ Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the:

☐ Applicant.

OR

☒ Patent owner.

Statement under 37 CFR 3.73(c) (Form PTO/AIA/96) submitted herewith or filed on _____.

SIGNATURE of Applicant or Patent Owner

Signature	Paige Marks	Date	December 16, 2024
Name	Paige Marks	Telephone	520-414-4195
Title and Company	Associate Counsel- Sterling Computers Corporation		

NOTE: Signatures of all the applicants or patent owners of the entire interest or their representative(s) are required. If more than one signature is required, submit multiple forms, check the box below, and identify the total number of forms submitted in the blank below.

☑ A total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.31, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public, which is to update (and by the USPTO to process) the file of a patent or reexamination proceeding. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 3 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.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

STATEMENT UNDER 37 CFR 3.73(c)

First Named Inventor/Patent Owner: Sterling Computers Corporation

Application No./Patent No.: 7,716,217 Filed/Issue Date: 05/11/2010

Titled: DETERMINING RELEVANCE OF ELECTRONIC CONTENT

Sterling Computers Corporation, a corporation

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

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

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*.

B. ☑ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Marston, Justin and Marston, Paul To: Bluespace Software Corporation

   The document was recorded in the United States Patent and Trademark Office at
   Reel 019142, Frame 0251, or for which a copy thereof is attached*.

2. From: Bluespace Software Corp. and Bluespace Federal Corp. To: Sterling Computers Corporation

   The document was recorded in the United States Patent and Trademark Office at
   Reel 034055, Frame 0491, or for which a copy thereof is attached*.

A Federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with an information collection subject to the requirements of the Paperwork Reduction Act of 1995, unless the information collection has a currently valid OMB Control Number. The OMB Control Number for this information collection is 0651-0031. Public burden for this form is estimated to average 12 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection. Send comments regarding this burden estimate or any other aspect of this information collection, including suggestions for reducing this burden to the Chief Administrative Officer, United States Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450 or email InformationCollection@uspto.gov. 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.

PTO/AIA/96 (11-23)
Approved for use through 05/31/2024. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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.

STATEMENT UNDER 37 CFR 3.73(c)

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*.

4. 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*.

5. 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*.

6. 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(s).

☑ *As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment 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.

/Michelle Dawson/	12/17/2024
Signature	Date
Michelle Dawson	62,319
Printed or Typed Name	Title or Registration Number

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. The United States Patent and Trademark Office (USPTO) collects the information in this record under authority of 35 U.S.C. 2. The USPTO's system of records is used to manage all applicant and owner information including name, citizenship, residence, post office address, and other information with respect to inventors and their legal representatives pertaining to the applicant's/owner's activities in connection with the invention for which a patent is sought or has been granted. The applicable Privacy Act System of Records Notice for the information collected in this form is COMMERCE/PAT-TM-7 Patent Application Files, available in the Federal Register at 78 FR 19243 (March 29, 2013). https://www.govinfo.gov/content/pkg/FR-2013-03-29/pdf/2013-07341.pdf

Routine uses of the information in this record may include disclosure to:

1) law enforcement, in the event that the system of records indicates a violation or potential violation of law;

2) a federal, state, local, or international agency, in response to its request;

3) a contractor of the USPTO having need for the information in order to perform a contract;

4) the Department of Justice for determination of whether the Freedom of Information Act (FOIA) requires disclosure of the record;

5) a Member of Congress submitting a request involving an individual to whom the record pertains, when the individual has requested the Member's assistance with respect to the subject matter of the record;

6) a court, magistrate, or administrative tribunal, in the course of presenting evidence, including disclosures to opposing counsel in the course of settlement negotiations;

7) the Administrator, General Services Administration (GSA), or their designee, during an inspection of records conducted by GSA under authority of 44 U.S.C. 2904 and 2906, in accordance with the GSA regulations and any other relevant (i.e., GSA or Commerce) directive, where such disclosure shall not be used to make determinations about individuals;

8) another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c));

9) the Office of Personnel Management (OPM) for personnel research purposes; and

10) the Office of Management and Budget (OMB) for legislative coordination and clearance.

If you do not furnish the information requested on this form, the USPTO may not be able to process and/or examine your submission, which may result in termination of proceedings, abandonment of the application, and/or expiration of the patent.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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
11/623,653	01/16/2007	Justin Marston	23682-12381

CONFIRMATION NO. 5243

44088
KAUFHOLD DIX PATENT LAW
P. O. BOX 89626
SIOUX FALLS, SD 57109

POWER OF ATTORNEY NOTICE

OC000000082174900

Date Mailed: 12/23/2024

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 12/17/2024.

- The Power of Attorney to you in this application has been revoked by the applicant. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/sltorres/

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/623,653	01/16/2007	Justin Marston	23682-12381

CONFIRMATION NO. 5243

157954
Padda Law Group
9800 Shelard Parkway
Suite 120
Minneapolis, MN 55441

POA ACCEPTANCE LETTER

OC000000082174933

Date Mailed: 12/23/2024

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 12/17/2024.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/sltorres/

IN THE UNITED STATES

PATENT AND TRADEMARK OFFICE

APPLICANT:	Justin Marston et al
SERIAL NO.:	11/623,653
FILING DATE:	January 16, 2007
TITLE:	Determining Relevance of Electronic Content
EXAMINER:	John P. Hocker
GROUP ART UNIT:	2169
ATTY. DKT. NO.:	23682-12381

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: August 12, 2009

By: /Christopher King/
Christopher P. King, Reg. No.: 60,985

NOTICE OF APPEAL

SIR:

Applicant hereby appeals to the Board of Patent Appeals and Interferences from the decision of the Examiner in the Final Office Action of May 12, 2009, finally rejecting claims 1-22.

The Commissioner is hereby authorized to charge to Deposit Account No. 19-2555 the required fee under 37 CFR § 41.20(b)(1 and any additional charges or fees as applicable for the payment of the filing of the Notice of Appeal, and the Pre-Appeal Brief Request for Review.

Dated: August 12, 2009

By: /Christopher King/
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Fenwick & West LLP
Silicon Valley Center
801 California Street
Mountain View, CA 94041
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