US 20150186366A1

(19) **United States**

(12) **Patent Application Publication**

(10) **Pub. No.: US 2015/0186366 A1**

(43) **Pub. Date: Jul. 2, 2015**

Yan et al.

(54) **METHOD AND SYSTEM FOR DISPLAYING UNIVERSAL TAGS**

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(21) Appl. No.: **14/579,616**

(22) Filed: **Dec. 22, 2014**

Related U.S. Application Data

(60) Provisional application No. 61/922,597, filed on Dec. 31, 2013.

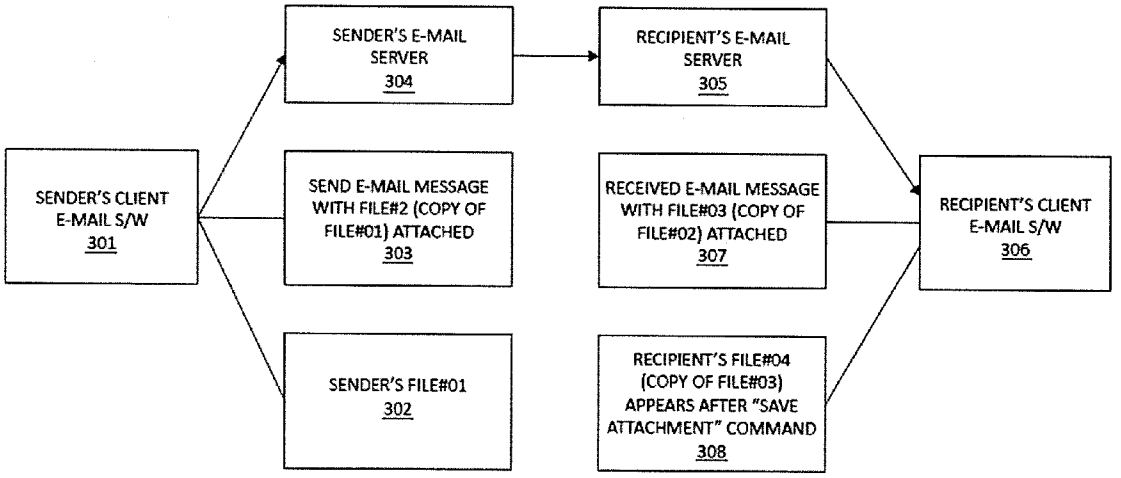
Publication Classification

(51) **Int. Cl.**
G06F 17/30 (2006.01)

(52) **U.S. Cl.**
CPC ***G06F 17/3012*** (2013.01); ***G06F 17/30106*** (2013.01)

(57) **ABSTRACT**

An illustrative method according to a set of instructions stored on a memory of a computing device includes identifying, by a processor of the computing device, a plurality of electronic files stored on a plurality of electronic devices. The plurality of electronic files includes different file types. The plurality of electronic files is also associated with a user. The method also includes determining, by the processor, metadata for the plurality of electronic files. The method also includes generating, by the processor, tags for the plurality of electronic files based on the metadata.



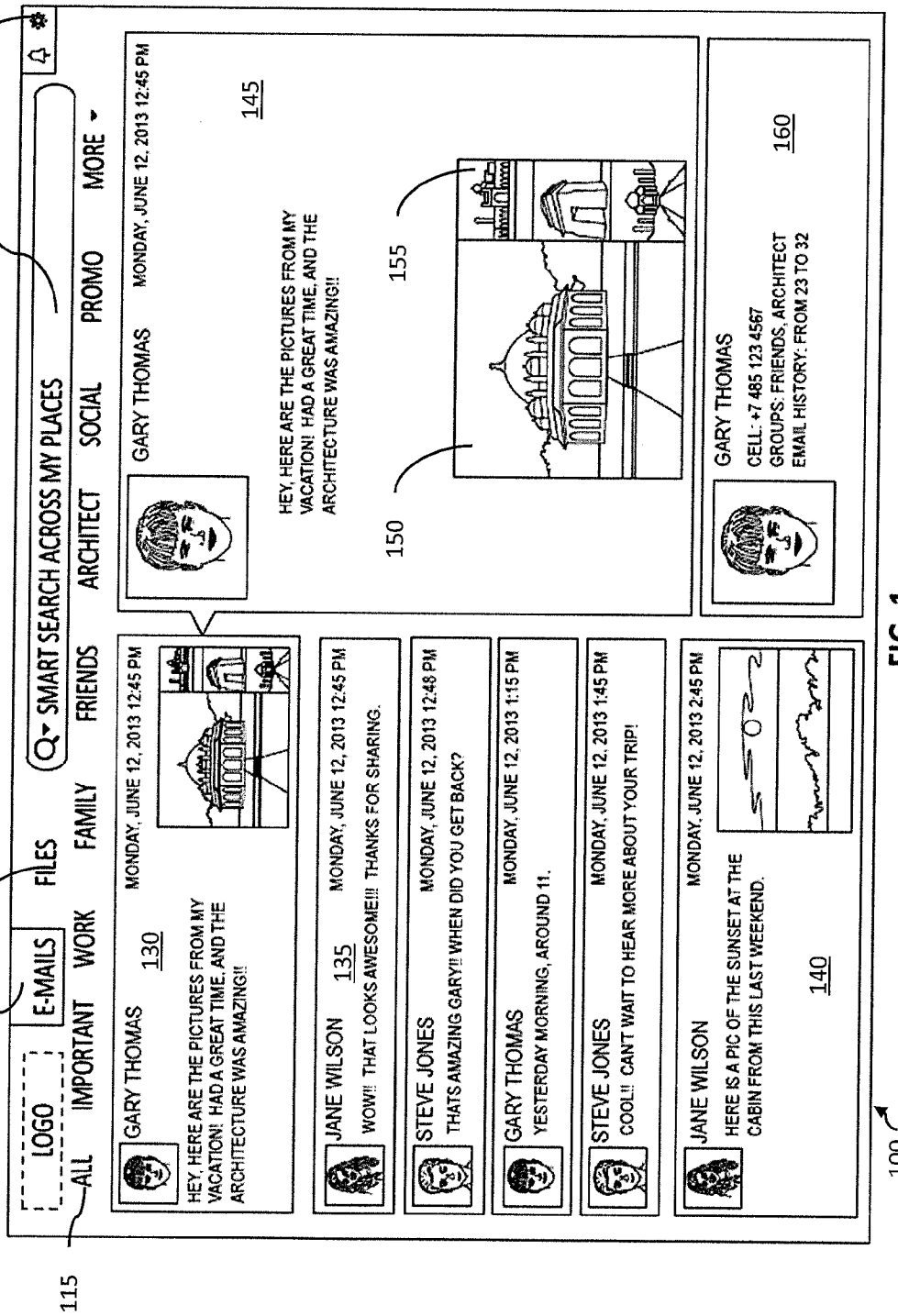

105
110
120
125
LOGO
E-MAILS
FILES
SMART SEARCH ACROSS MY PLACES
ALL
IMPORTANT
WORK
FAMILY
FRIENDS
ARCHITECT
SOCIAL
PROMO
MORE
115
GARY THOMAS
MONDAY, JUNE 12, 2013 12:45 PM
130
HEY, HERE ARE THE PICTURES FROM MY VACATION! HAD A GREAT TIME, AND THE ARCHITECTURE WAS AMAZING!!!
JANE WILSON
135
MONDAY, JUNE 12, 2013 12:45 PM
WOW!! THAT LOOKS AWESOME!!! THANKS FOR SHARING.
STEVE JONES
MONDAY, JUNE 12, 2013 12:46 PM
THATS AMAZING GARY!!! WHEN DID YOU GET BACK?
GARY THOMAS
MONDAY, JUNE 12, 2013 1:15 PM
YESTERDAY MORNING, AROUND 11.
STEVE JONES
MONDAY, JUNE 12, 2013 1:45 PM
COOL!!! CANT WAIT TO HEAR MORE ABOUT YOUR TRIP!
JANE WILSON
MONDAY, JUNE 12, 2013 2:45 PM
HERE IS A PIC OF THE SUNSET AT THE CABIN FROM THIS LAST WEEKEND.
140
GARY THOMAS
MONDAY, JUNE 12, 2013 12:45 PM
145
HEY, HERE ARE THE PICTURES FROM MY VACATION! HAD A GREAT TIME, AND THE ARCHITECTURE WAS AMAZING!!!
150
155
GARY THOMAS
CELL: +7 485 123 4567
GROUPS: FRIENDS, ARCHITECT
EMAIL HISTORY: FROM 23 TO 32
160
100

FIG. 1

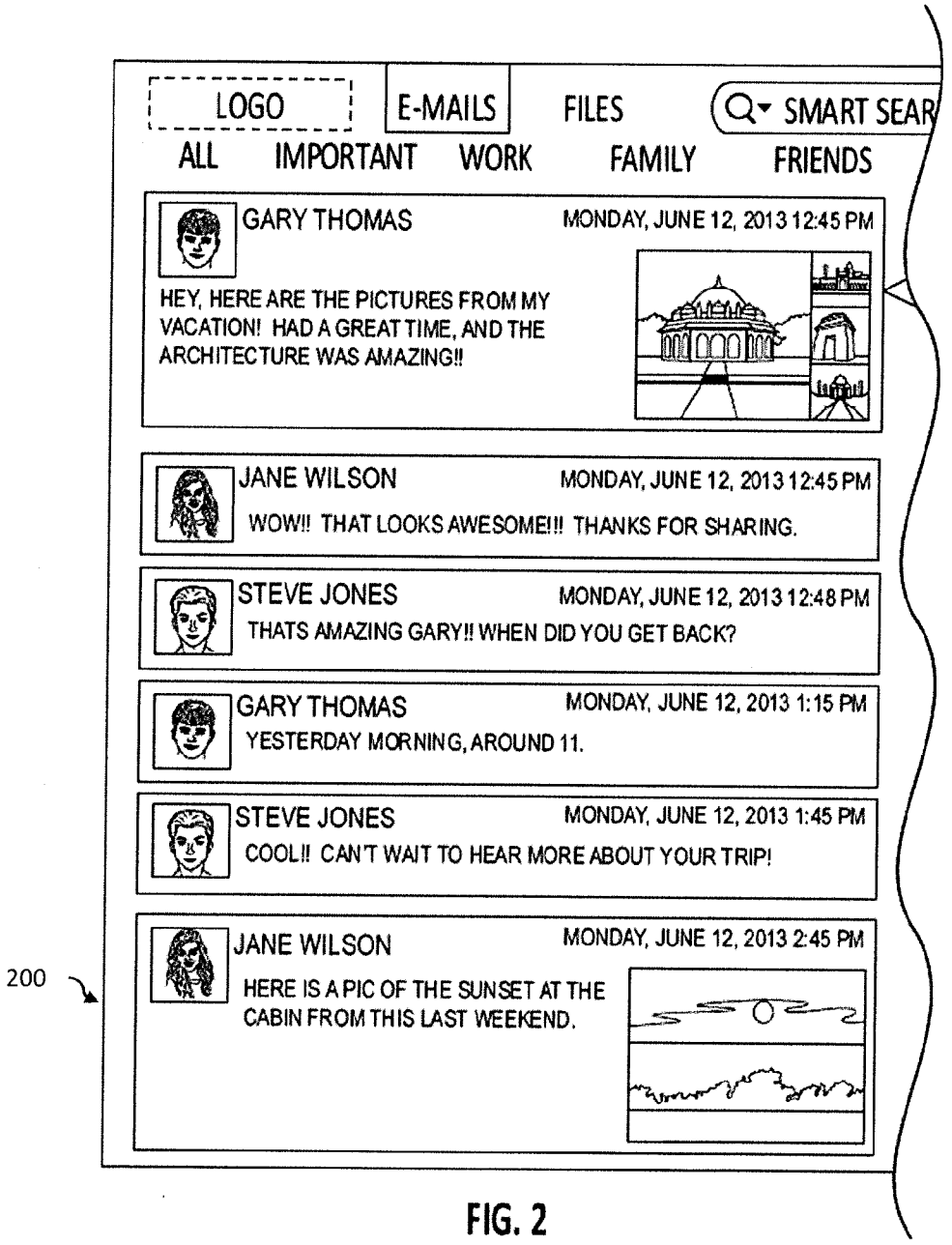

LOGO
E-MAILS
FILES
SMART SEAR
ALL
IMPORTANT
WORK
FAMILY
FRIENDS
GARY THOMAS
MONDAY, JUNE 12, 2013 12:45 PM
HEY, HERE ARE THE PICTURES FROM MY VACATION! HAD A GREAT TIME, AND THE ARCHITECTURE WAS AMAZING!!
JANE WILSON
MONDAY, JUNE 12, 2013 12:45 PM
WOW!! THAT LOOKS AWESOME!!! THANKS FOR SHARING.
STEVE JONES
MONDAY, JUNE 12, 2013 12:48 PM
THATS AMAZING GARY!! WHEN DID YOU GET BACK?
GARY THOMAS
MONDAY, JUNE 12, 2013 1:15 PM
YESTERDAY MORNING, AROUND 11.
STEVE JONES
MONDAY, JUNE 12, 2013 1:45 PM
COOL!! CAN'T WAIT TO HEAR MORE ABOUT YOUR TRIP!
JANE WILSON
MONDAY, JUNE 12, 2013 2:45 PM
HERE IS A PIC OF THE SUNSET AT THE CABIN FROM THIS LAST WEEKEND.
200

FIG. 2

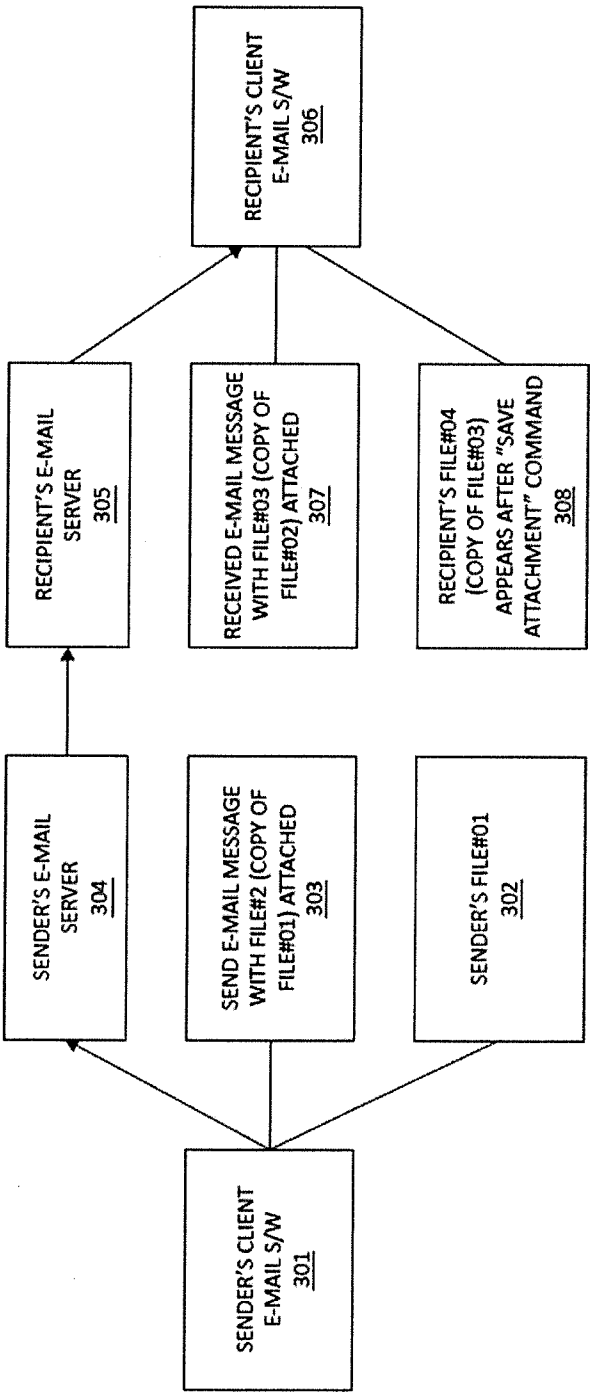

SENDER'S CLIENT E-MAIL S/W 301
SENDER'S E-MAIL SERVER 304
SEND E-MAIL MESSAGE WITH FILE#2 (COPY OF FILE#01) ATTACHED 303
SENDER'S FILE#01 302
RECIPIENT'S E-MAIL SERVER 305
RECEIVED E-MAIL MESSAGE WITH FILE#03 (COPY OF FILE#02) ATTACHED 307
RECIPIENT'S FILE#04 (COPY OF FILE#03) APPEARS AFTER "SAVE ATTACHMENT" COMMAND 308
RECIPIENT'S CLIENT E-MAIL S/W 306

FIG. 3

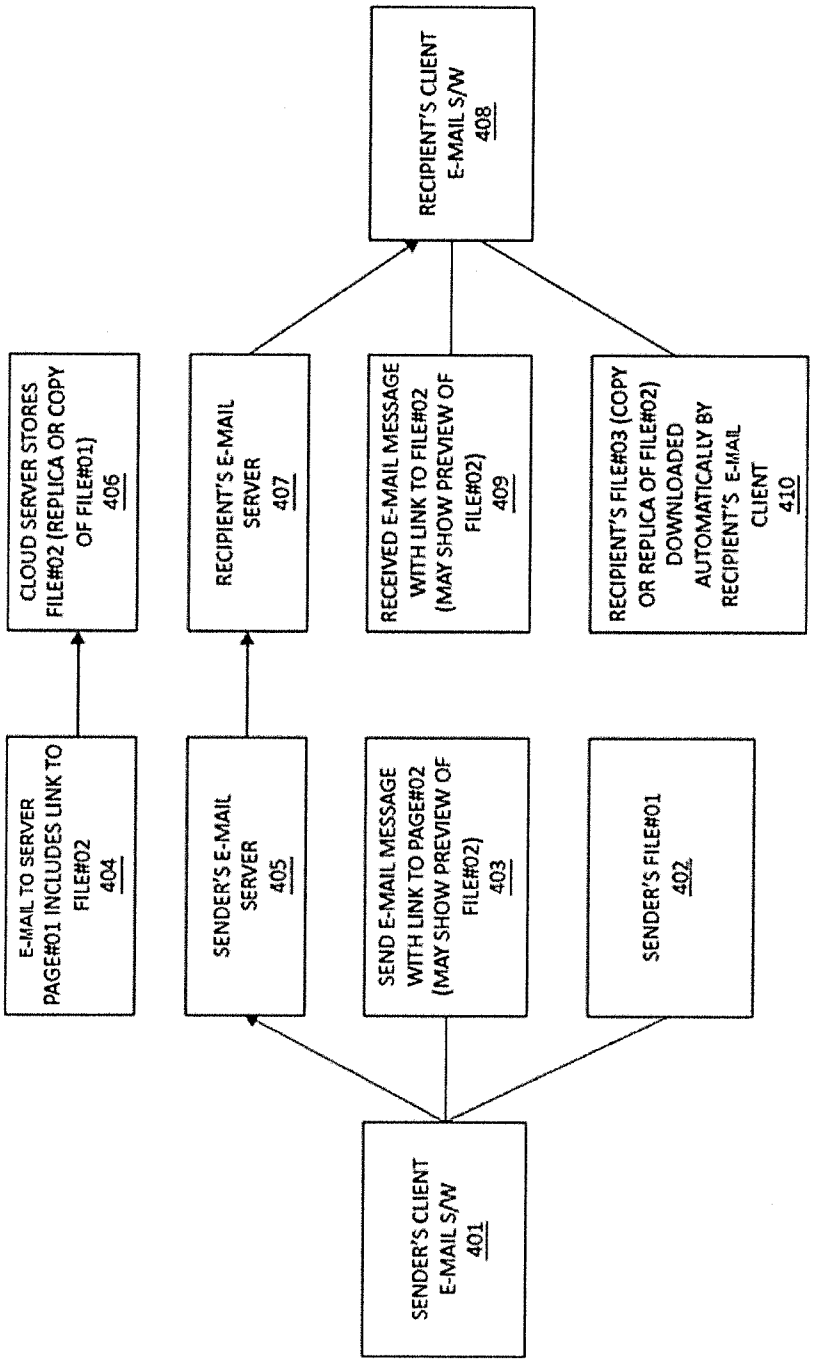

SENDER'S CLIENT E-MAIL S/W 401
SENDER'S FILE#01 402
SEND E-MAIL MESSAGE WITH LINK TO PAGE#02 (MAY SHOW PREVIEW OF FILE#02) 403
SENDER'S E-MAIL SERVER 405
E-MAIL TO SERVER PAGE#01 INCLUDES LINK TO FILE#02 404
RECIPIENT'S FILE#03 (COPY OR REPLICA OF FILE#02) DOWNLOADED AUTOMATICALLY BY RECIPIENT'S E-MAIL CLIENT 410
RECEIVED E-MAIL MESSAGE WITH LINK TO FILE#02 (MAY SHOW PREVIEW OF FILE#02) 409
RECIPIENT'S E-MAIL SERVER 407
CLOUD SERVER STORES FILE#02 (REPLICA OR COPY OF FILE#01) 406
RECIPIENT'S CLIENT E-MAIL S/W 408

FIG. 4

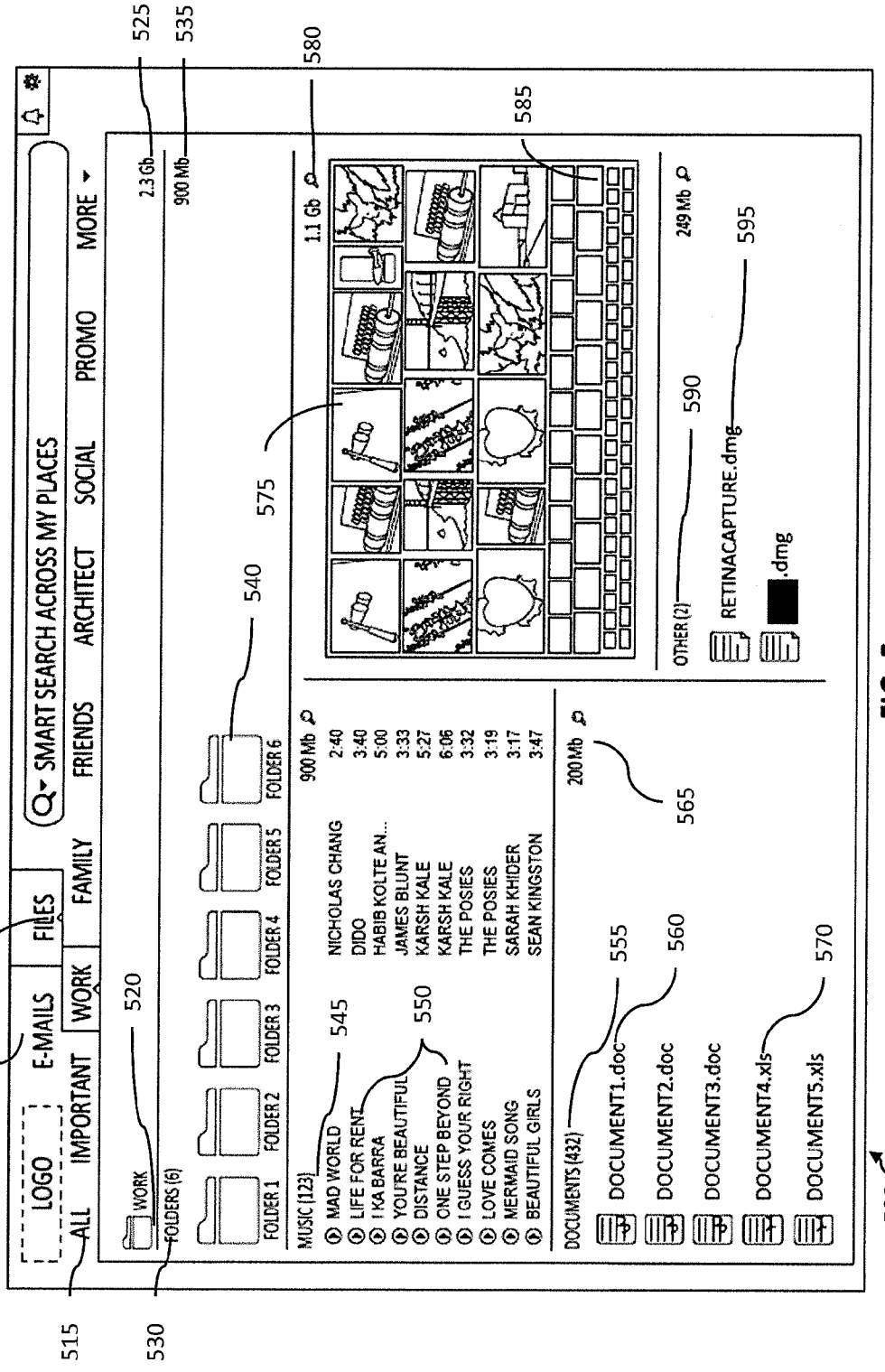

505
510
515
520
525
530
535
540
545
550
555
560
565
570
575
580
585
590
595
LOGO
E-MAILS
FILES
SMART SEARCH ACROSS MY PLACES
ALL
IMPORTANT
WORK
FAMILY
FRIENDS
ARCHITECT
SOCIAL
PROMO
MORE
2.3 Gb
900 Mb
1.1 Gb
249 Mb
WORK
FOLDERS (6)
FOLDER 1
FOLDER 2
FOLDER 3
FOLDER 4
FOLDER 5
FOLDER 6
MUSIC (123)
MAD WORLD 2:40
LIFE FOR RENT 3:40
I KA BARRA 5:00
YOU'RE BEAUTIFUL 3:33
DISTANCE 5:27
ONE STEP BEYOND 6:06
I GUESS YOUR RIGHT 3:32
LOVE COMES 3:19
MERMAID SONG 3:17
BEAUTIFUL GIRLS 3:47
NICHOLAS CHANG
DIDO
HABIB KOLTE AN...
JAMES BLUNT
KARSH KALE
KARSH KALE
THE POSIES
THE POSIES
SARAH KHIDER
SEAN KINGSTON
DOCUMENTS (432)
200 Mb
DOCUMENT1.doc
DOCUMENT2.doc
DOCUMENT3.doc
DOCUMENT4.xls
DOCUMENT5.xls
OTHER (2)
RETINACAPTURE.dmg
.dmg
500

FIG. 5

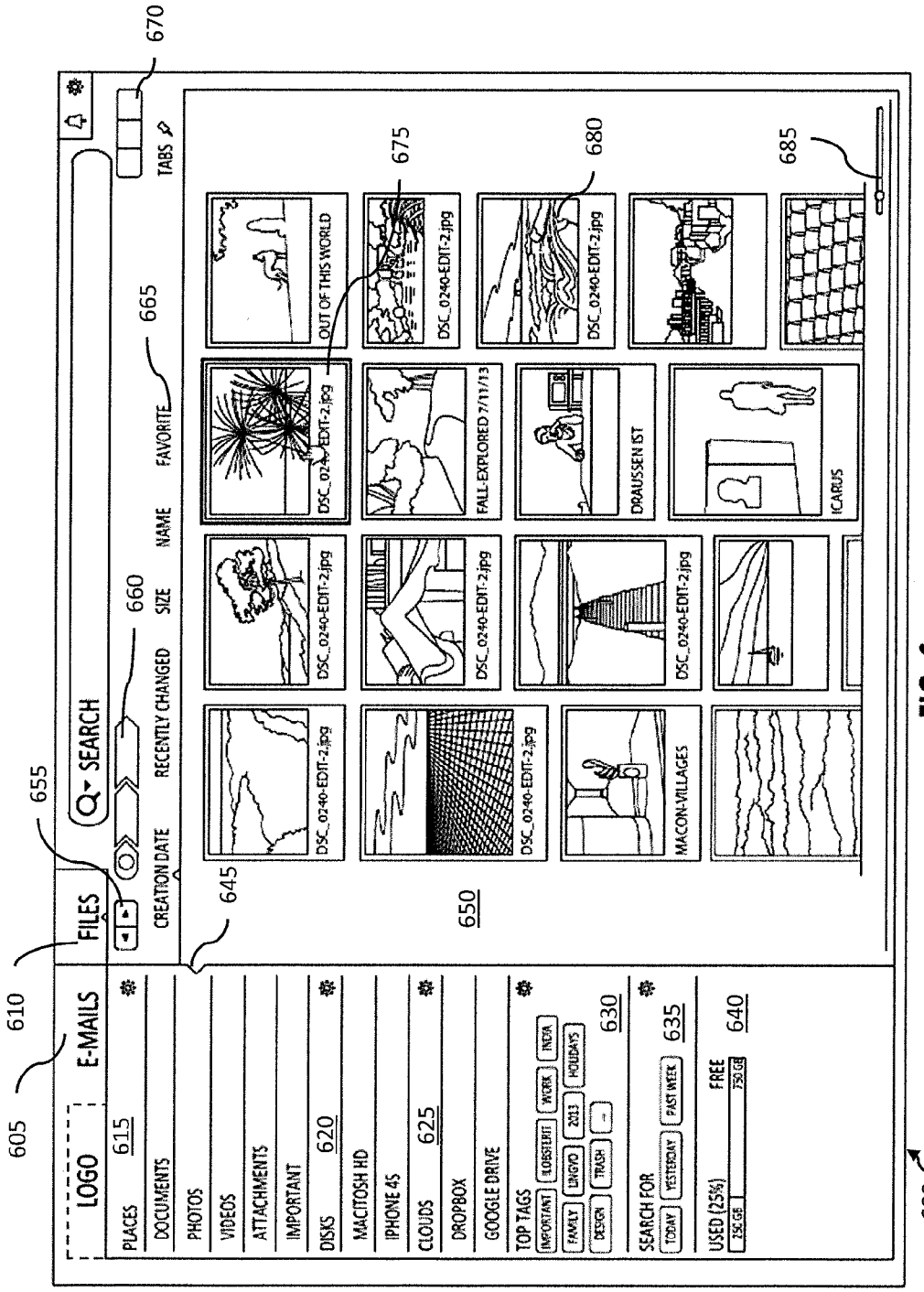

605
610
655
660
665
670
675
680
685
600
645
650
LOGO
E-MAILS
FILES
SEARCH
TABS
CREATION DATE
RECENTLY CHANGED
SIZE
NAME
FAVORITE
PLACES
615
DOCUMENTS
PHOTOS
VIDEOS
ATTACHMENTS
IMPORTANT
DISKS
620
MACITOSH HD
IPHONE 4S
CLOUDS
625
DROPBOX
GOOGLE DRIVE
TOP TAGS
IMPORTANT
LOBSTER!!!
WORK
INDIA
FAMILY
LINGVO
2013
HOLIDAYS
DESIGN
TRASH
630
SEARCH FOR
TODAY
YESTERDAY
PAST WEEK
635
USED (25%)
FREE
750 GB
640
DSC_0240-EDIT-2.jpg
OUT OF THIS WORLD
FALL-EXPLORED 7/11/13
DRAUSSEN IST
ICARUS
MACON-VILLAGES

FIG. 6

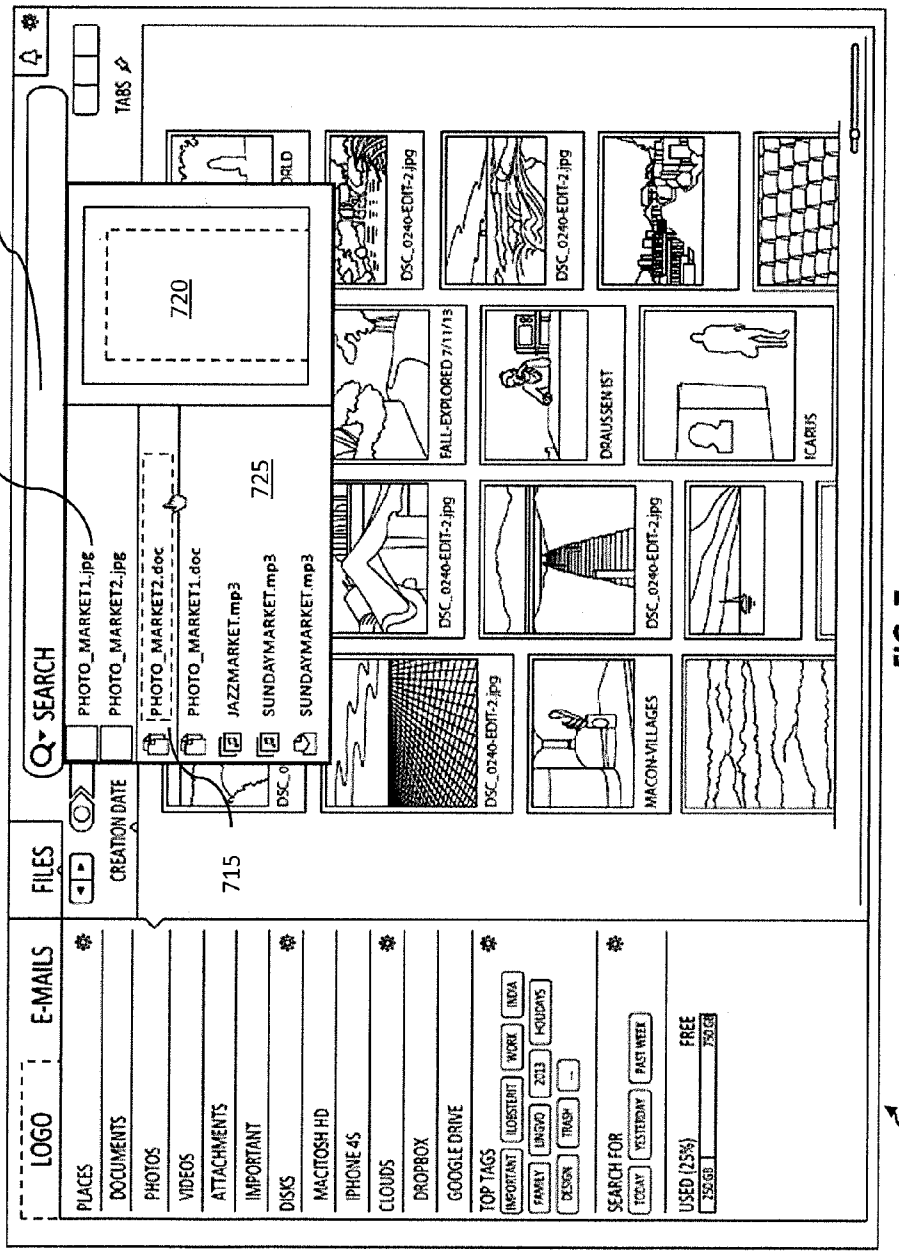

705
710
715
720
725
700
LOGO
E-MAILS
FILES
SEARCH
TABS
PLACES
DOCUMENTS
PHOTOS
VIDEOS
ATTACHMENTS
IMPORTANT
DISKS
MACITOSH HD
IPHONE 4S
CLOUDS
DROPBOX
GOOGLE DRIVE
TOP TAGS
SEARCH FOR
USED (25%)
FREE
CREATION DATE
PHOTO_MARKET1.jpg
PHOTO_MARKET2.jpg
PHOTO_MARKET2.doc
PHOTO_MARKET1.doc
JAZZMARKET.mp3
SUNDAYMARKET.mp3
SUNDAYMARKET.mp3
DSC_0240-EDIT-2.jpg
FALL-EXPLORED 7/11/13
DRAUSSEN IST
ICARUS
MACON-VILLAGES

FIG. 7

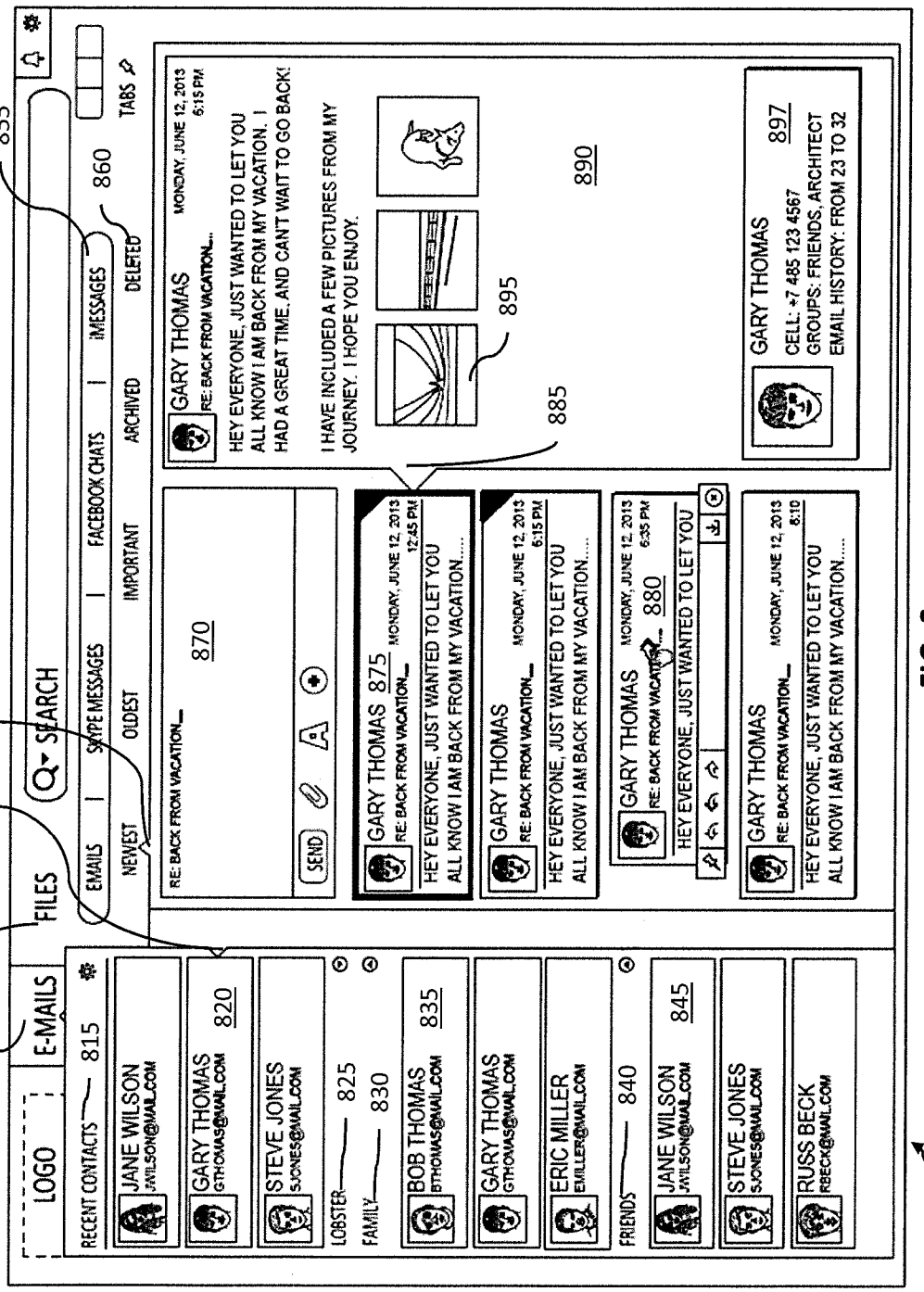

800
805
LOGO
E-MAILS
810
FILES
850
Q- SEARCH
865
855
EMAILS | SKYPE MESSAGES | FACEBOOK CHATS | IMESSAGES
860
TABS
NEWEST
OLDEST
IMPORTANT
ARCHIVED
DELETED
RECENT CONTACTS
815
JANE WILSON
JAYLSON@MAIL.COM
GARY THOMAS
GTHOMAS@MAIL.COM
820
STEVE JONES
SJONES@MAIL.COM
LOBSTER
825
FAMILY
830
BOB THOMAS
BTHOMAS@MAIL.COM
835
GARY THOMAS
GTHOMAS@MAIL.COM
ERIC MILLER
EMILLER@MAIL.COM
FRIENDS
840
JANE WILSON
JAYLSON@MAIL.COM
845
STEVE JONES
SJONES@MAIL.COM
RUSS BECK
RBECK@MAIL.COM
RE: BACK FROM VACATION
870
SEND
GARY THOMAS 875
MONDAY, JUNE 12, 2013
12:45 PM
RE: BACK FROM VACATION
HEY EVERYONE, JUST WANTED TO LET YOU
ALL KNOW I AM BACK FROM MY VACATION.....
GARY THOMAS
MONDAY, JUNE 12, 2013
6:15 PM
RE: BACK FROM VACATION
HEY EVERYONE, JUST WANTED TO LET YOU
ALL KNOW I AM BACK FROM MY VACATION.....
885
GARY THOMAS
MONDAY, JUNE 12, 2013
6:35 PM
RE: BACK FROM VACATION
880
HEY EVERYONE, JUST WANTED TO LET YOU
GARY THOMAS
MONDAY, JUNE 12, 2013
6:10
RE: BACK FROM VACATION
HEY EVERYONE, JUST WANTED TO LET YOU
ALL KNOW I AM BACK FROM MY VACATION.....
GARY THOMAS
MONDAY, JUNE 12, 2013
6:15 PM
RE: BACK FROM VACATION
HEY EVERYONE, JUST WANTED TO LET YOU
ALL KNOW I AM BACK FROM MY VACATION. I
HAD A GREAT TIME, AND CAN'T WAIT TO GO BACK!
I HAVE INCLUDED A FEW PICTURES FROM MY
JOURNEY. I HOPE YOU ENJOY.
895
890
GARY THOMAS
CELL: +7 485 123 4567
GROUPS: FRIENDS, ARCHITECT
EMAIL HISTORY: FROM 23 TO 32
897

FIG. 8

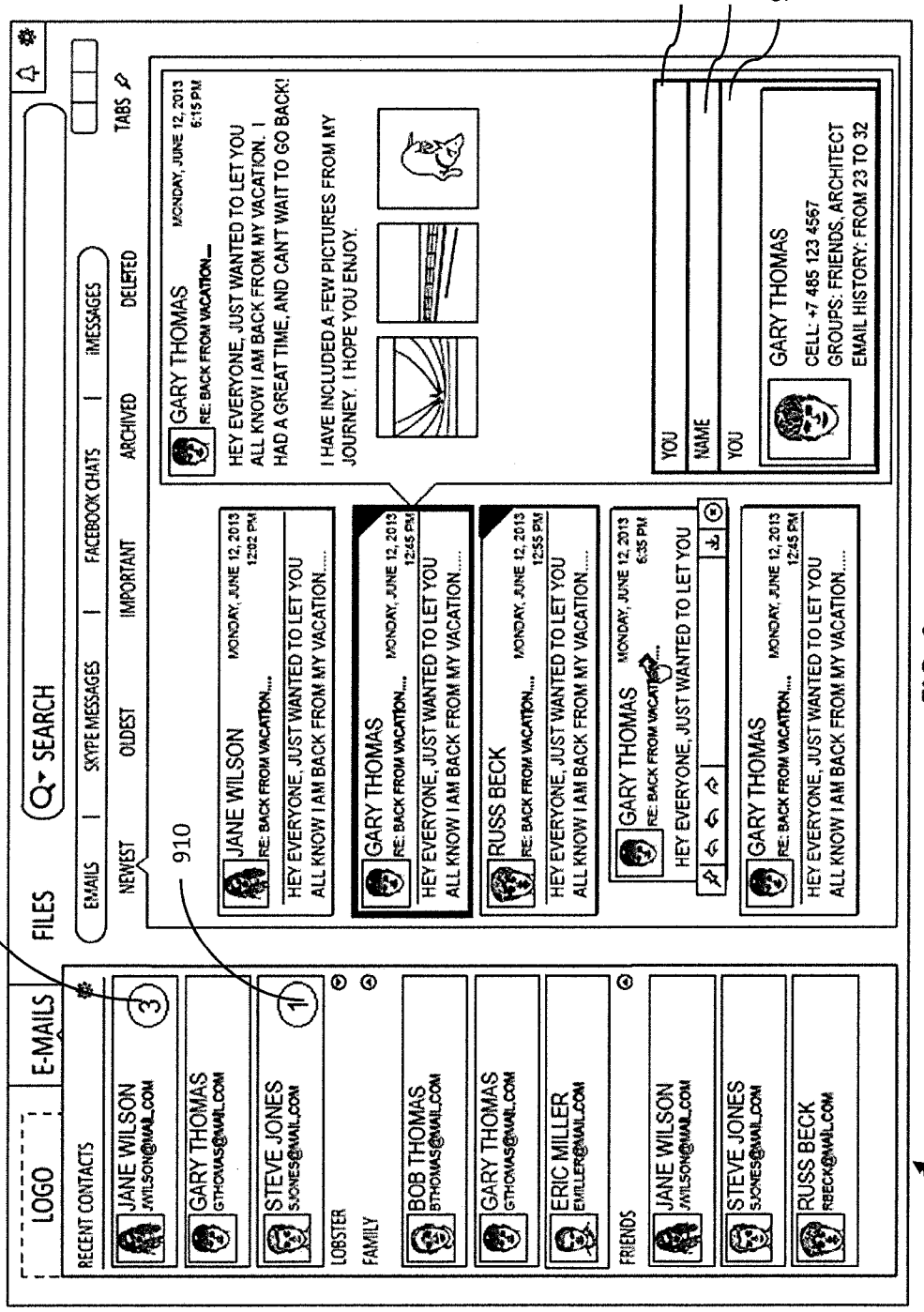

905
910
915
920
925
900
LOGO
E-MAILS
FILES
SEARCH
RECENT CONTACTS
JANE WILSON
JWILSON@MAIL.COM
GARY THOMAS
GTHOMAS@MAIL.COM
STEVE JONES
SJONES@MAIL.COM
LOBSTER
FAMILY
BOB THOMAS
BTHOMAS@MAIL.COM
GARY THOMAS
GTHOMAS@MAIL.COM
ERIC MILLER
EMILLER@MAIL.COM
FRIENDS
JANE WILSON
JWILSON@MAIL.COM
STEVE JONES
SJONES@MAIL.COM
RUSS BECK
RBECK@MAIL.COM
EMAILS | SKYPE MESSAGES | FACEBOOK CHATS | IMESSAGES
NEWEST
OLDEST
IMPORTANT
ARCHIVED
DELETED
TABS
JANE WILSON
MONDAY, JUNE 12, 2013
12:02 PM
RE: BACK FROM VACATION....
HEY EVERYONE, JUST WANTED TO LET YOU
ALL KNOW I AM BACK FROM MY VACATION.....
GARY THOMAS
MONDAY, JUNE 12, 2013
12:45 PM
RE: BACK FROM VACATION....
HEY EVERYONE, JUST WANTED TO LET YOU
ALL KNOW I AM BACK FROM MY VACATION.....
RUSS BECK
MONDAY, JUNE 12, 2013
12:55 PM
RE: BACK FROM VACATION....
HEY EVERYONE, JUST WANTED TO LET YOU
ALL KNOW I AM BACK FROM MY VACATION.....
GARY THOMAS
MONDAY, JUNE 12, 2013
6:35 PM
RE: BACK FROM VACATION....
HEY EVERYONE, JUST WANTED TO LET YOU
GARY THOMAS
MONDAY, JUNE 12, 2013
12:45 PM
RE: BACK FROM VACATION....
HEY EVERYONE, JUST WANTED TO LET YOU
ALL KNOW I AM BACK FROM MY VACATION.....
GARY THOMAS
MONDAY, JUNE 12, 2013
6:15 PM
RE: BACK FROM VACATION....
HEY EVERYONE, JUST WANTED TO LET YOU
ALL KNOW I AM BACK FROM MY VACATION. I
HAD A GREAT TIME, AND CAN'T WAIT TO GO BACK!
I HAVE INCLUDED A FEW PICTURES FROM MY
JOURNEY. I HOPE YOU ENJOY.
YOU
NAME
YOU
GARY THOMAS
CELL: +7 485 123 4567
GROUPS: FRIENDS, ARCHITECT
EMAIL HISTORY: FROM 23 TO 32

FIG. 9

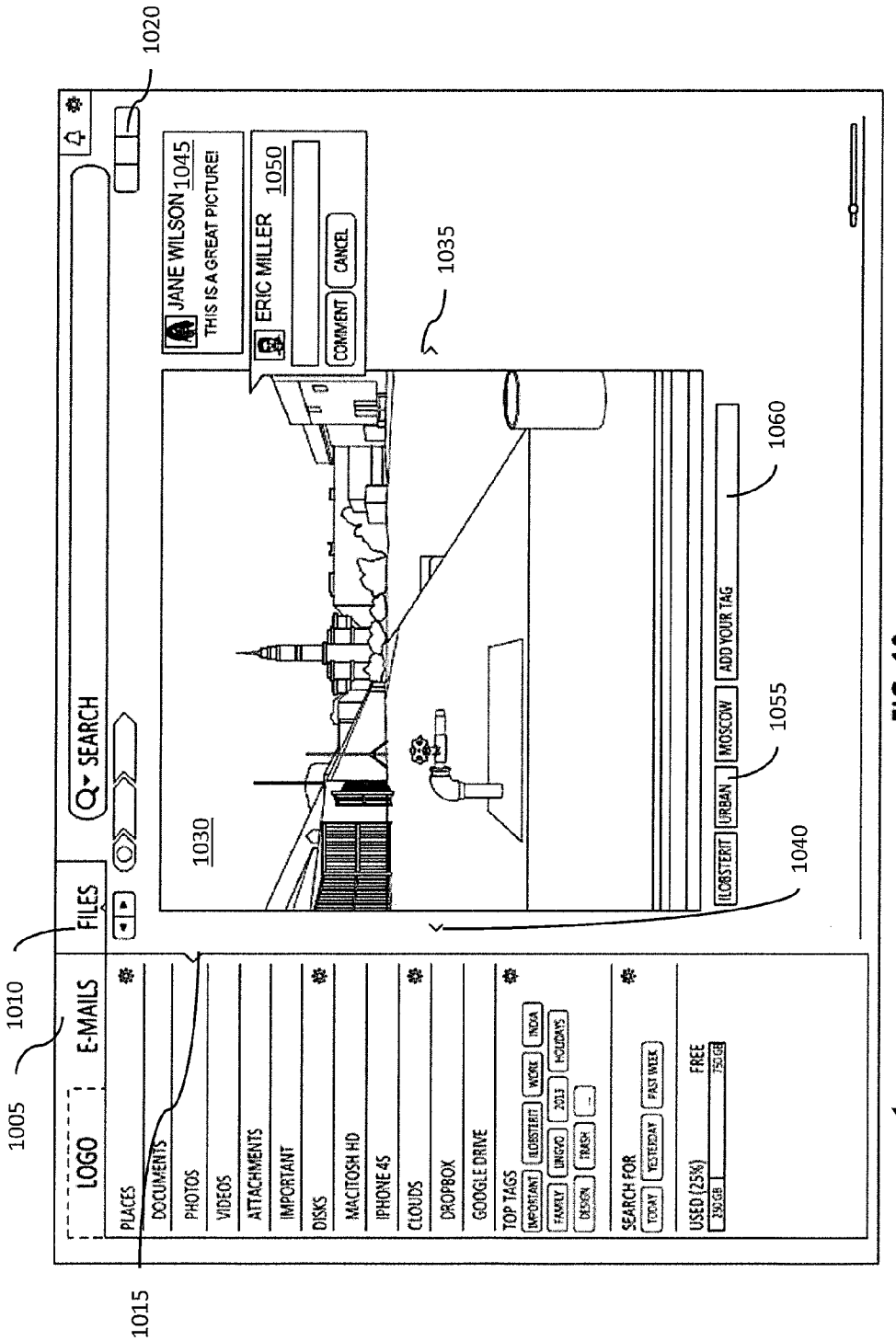

1020
LOGO
E-MAILS
FILES
SEARCH
1010
1005
PLACES
DOCUMENTS
PHOTOS
VIDEOS
ATTACHMENTS
IMPORTANT
DISKS
MACITOSH HD
IPHONE 4S
CLOUDS
DROPBOX
GOOGLE DRIVE
TOP TAGS
IMPORTANT
LOBSTER!!
WORK
INDIA
FAMILY
UNGVO
2013
HOLIDAYS
DESIGN
TRASH
SEARCH FOR
TODAY
YESTERDAY
PAST WEEK
USED (25%)
FREE
250GB
750GB
1015
1030
JANE WILSON 1045
THIS IS A GREAT PICTURE!
ERIC MILLER 1050
COMMENT
CANCEL
1035
!LOBSTER!!
URBAN
MOSCOW
ADD YOUR TAG
1060
1055
1040
1000

FIG. 10

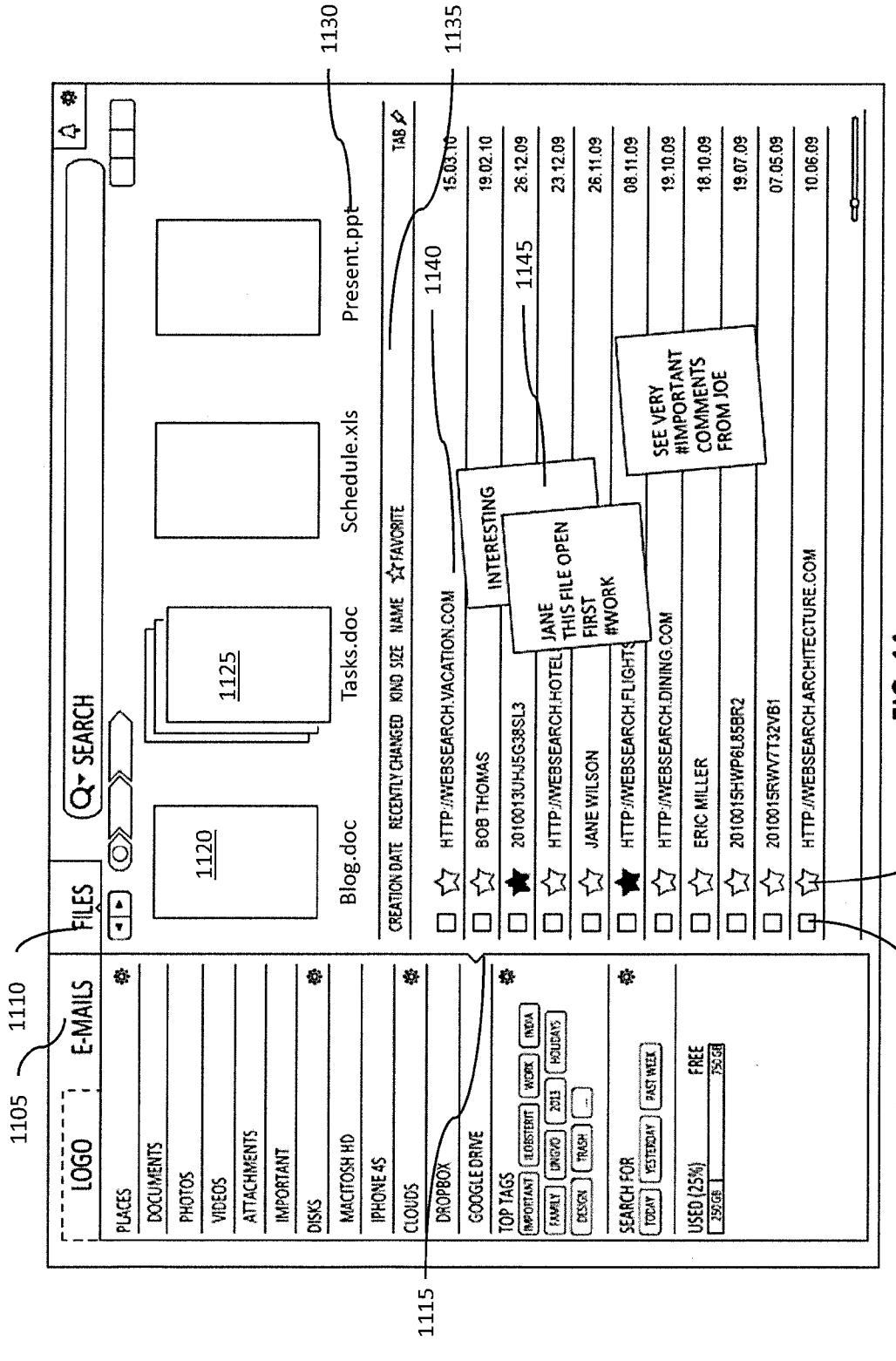

1105
1110
1115
1120
1125
1130
1135
1140
1145
1150
1155
1100
LOGO
E-MAILS
FILES
SEARCH
PLACES
DOCUMENTS
PHOTOS
VIDEOS
ATTACHMENTS
IMPORTANT
DISKS
MACITOSH HD
IPHONE 4S
CLOUDS
DROPBOX
GOOGLE DRIVE
TOP TAGS
IMPORTANT
LOBSTER!!!
WORK
INDIA
FAMILY
UNOVO
2013
HOLIDAYS
DESIGN
TRASH
...
SEARCH FOR
TODAY
YESTERDAY
PAST WEEK
USED (25%)
FREE
250 GB
Blog.doc
Tasks.doc
Schedule.xls
Present.ppt
CREATION DATE
RECENTLY CHANGED
KIND
SIZE
NAME
FAVORITE
TAB
HTTP://WEBSEARCH.VACATION.COM
15.03.10
BOB THOMAS
19.02.10
INTERESTING
2010013UHJ5G38SL3
26.12.09
HTTP://WEBSEARCH.HOTEL
23.12.09
JANE
THIS FILE OPEN
FIRST
#WORK
JANE WILSON
26.11.09
HTTP://WEBSEARCH.FLIGHTS
08.11.09
SEE VERY
#IMPORTANT
COMMENTS
FROM JOE
HTTP://WEBSEARCH.DINING.COM
19.10.09
ERIC MILLER
18.10.09
2010015HWP6L85BR2
19.07.09
2010015RWV7T32VB1
07.05.09
HTTP://WEBSEARCH.ARCHITECTURE.COM
10.06.09

FIG. 11

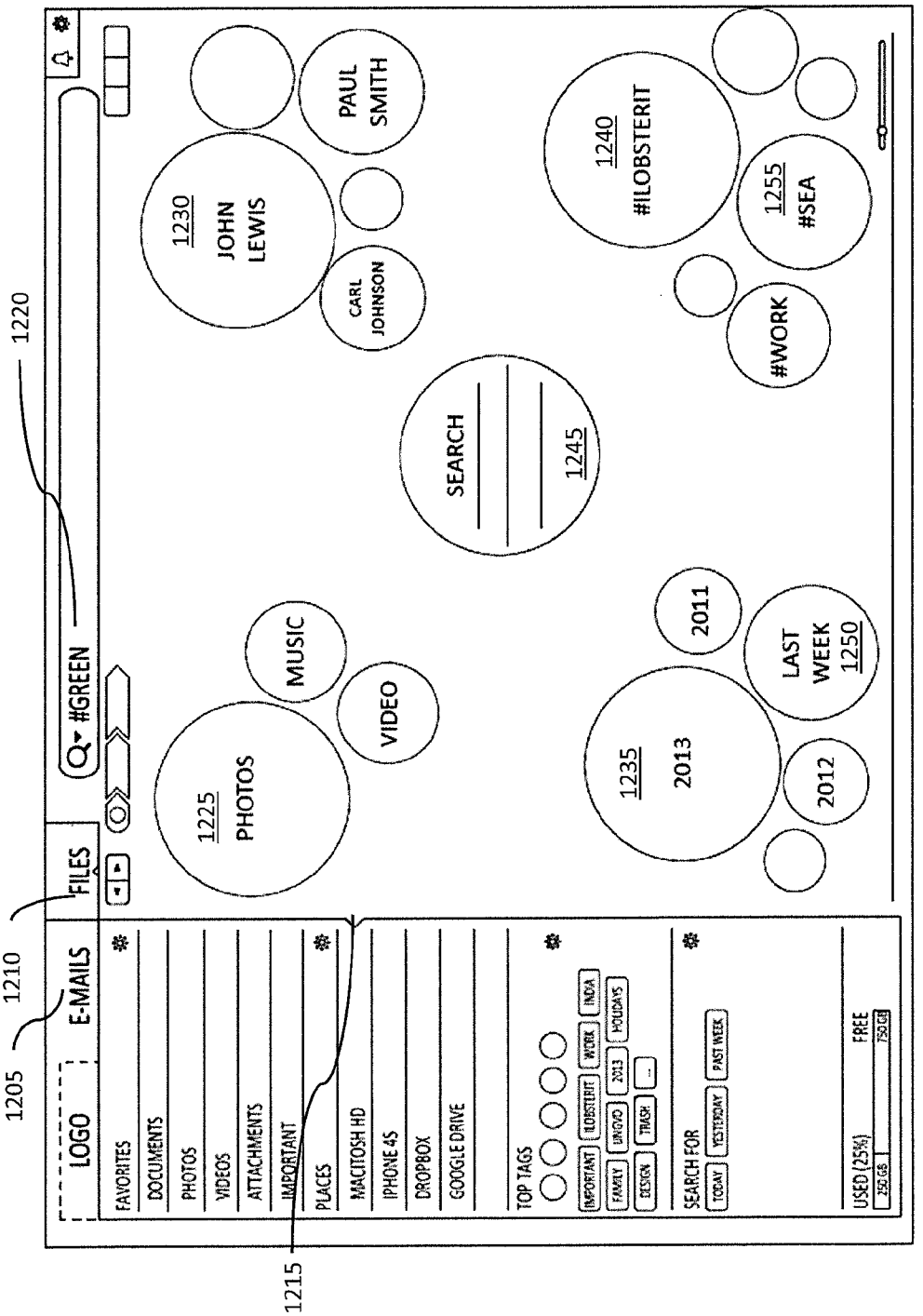

1205
1210
1220
1215
1200
LOGO
E-MAILS
FILES
#GREEN
FAVORITES
DOCUMENTS
PHOTOS
VIDEOS
ATTACHMENTS
IMPORTANT
PLACES
MACITOSH HD
IPHONE 4S
DROPBOX
GOOGLE DRIVE
TOP TAGS
IMPORTANT
ILOBSTERIT
WORK
INDIA
FAMILY
UNIQYD
2013
HOLIDAYS
DESIGN
TRASH
SEARCH FOR
TODAY
YESTERDAY
PAST WEEK
USED (25%)
FREE
250 GB
1225
PHOTOS
MUSIC
VIDEO
1230
JOHN LEWIS
CARL JOHNSON
PAUL SMITH
SEARCH
1245
1235
2013
2012
2011
LAST WEEK
1250
1240
#ILOBSTERIT
#WORK
1255
#SEA

FIG. 12

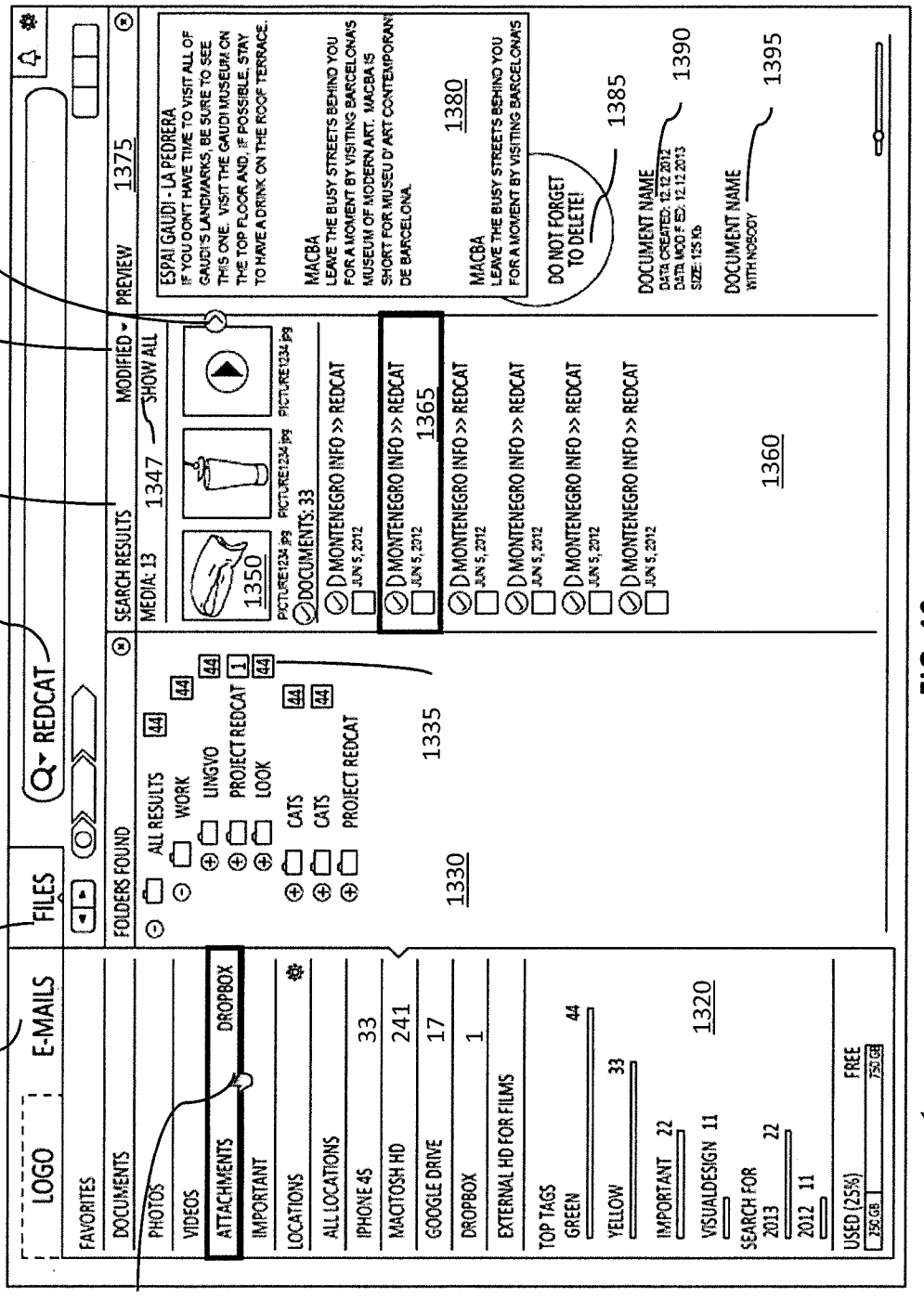

1305
1310
1315
1325
1330
1335
1340
1345
1355
1360
1365
1375
1380
1385
1390
1395
LOGO
E-MAILS
FILES
REDCAT
FAVORITES
DOCUMENTS
PHOTOS
VIDEOS
ATTACHMENTS
DROPBOX
IMPORTANT
LOCATIONS
ALL LOCATIONS
IPHONE 4S 33
MACTOSH HD 241
GOOGLE DRIVE 17
DROPBOX 1
EXTERNAL HD FOR FILMS
TOP TAGS
GREEN 44
YELLOW 33
IMPORTANT 22
VISUALDESIGN 11
SEARCH FOR
2013 22
2012 11
USED (25%)
FREE
250 GB
750 GB
FOLDERS FOUND
ALL RESULTS 44
WORK 44
LINGVO 44
PROJECT REDCAT 1
LOOK 44
CATS 44
CATS 44
PROJECT REDCAT
SEARCH RESULTS
MEDIA: 13
SHOW ALL
MODIFIED
PICTURE1234.jpg
DOCUMENTS: 33
MONTENEGRO INFO >> REDCAT
JUN 5, 2012
PREVIEW
ESPAI GAUDI - LA PEDRERA
IF YOU DON'T HAVE TIME TO VISIT ALL OF GAUDI'S LANDMARKS, BE SURE TO SEE THIS ONE. VISIT THE GAUDI MUSEUM ON THE TOP FLOOR AND, IF POSSIBLE, STAY TO HAVE A DRINK ON THE ROOF TERRACE.
MACBA
LEAVE THE BUSY STREETS BEHIND YOU FOR A MOMENT BY VISITING BARCELONA'S MUSEUM OF MODERN ART. MACBA IS SHORT FOR MUSEU D' ART CONTEMPORANI DE BARCELONA.
DO NOT FORGET TO DELETE!
DOCUMENT NAME
DATA CREATED: 12.12.2012
DATA MOD.F: 12.12.2013
SIZE: 125 Kb
DOCUMENT NAME
WITH NOBODY
1300

FIG. 13

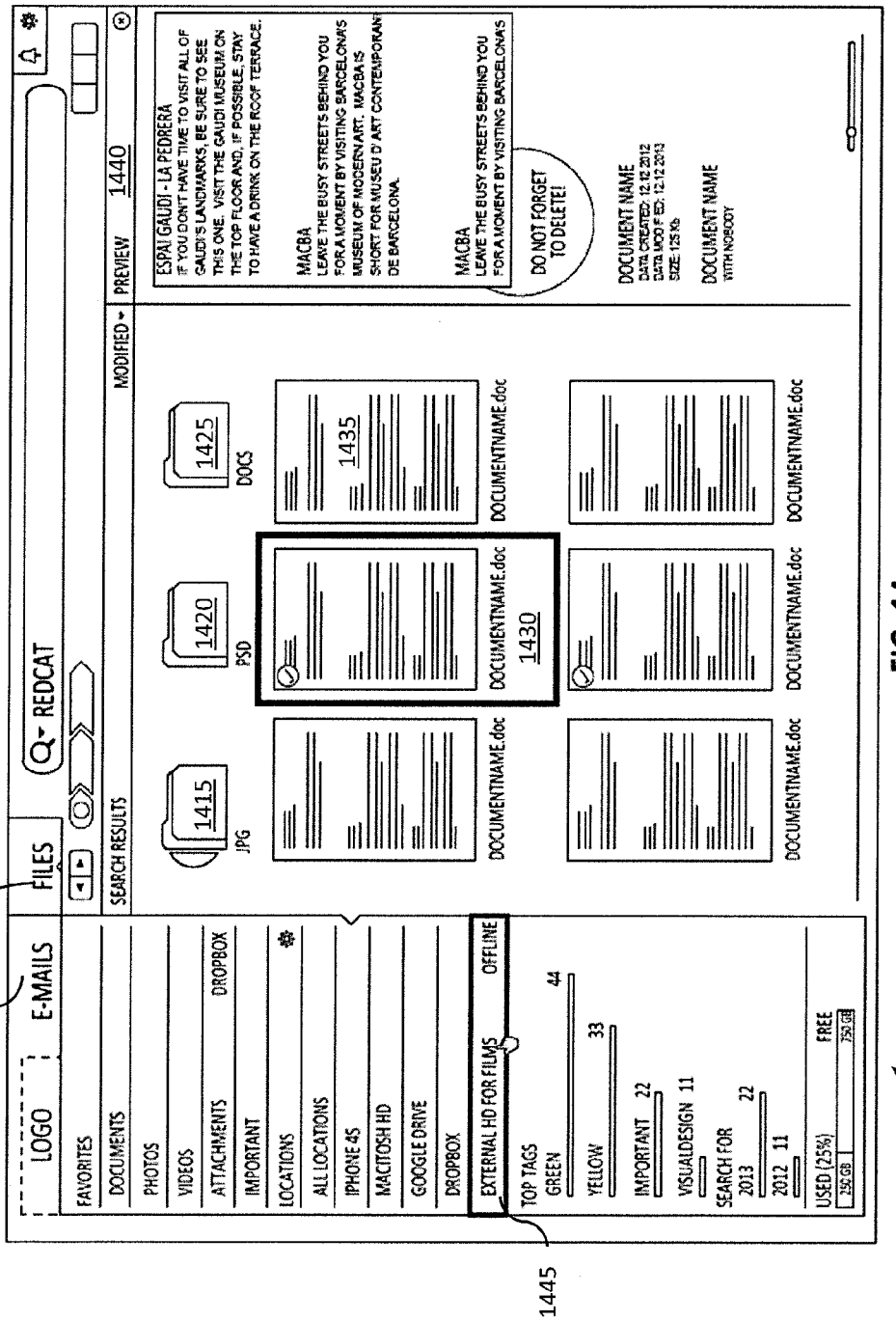
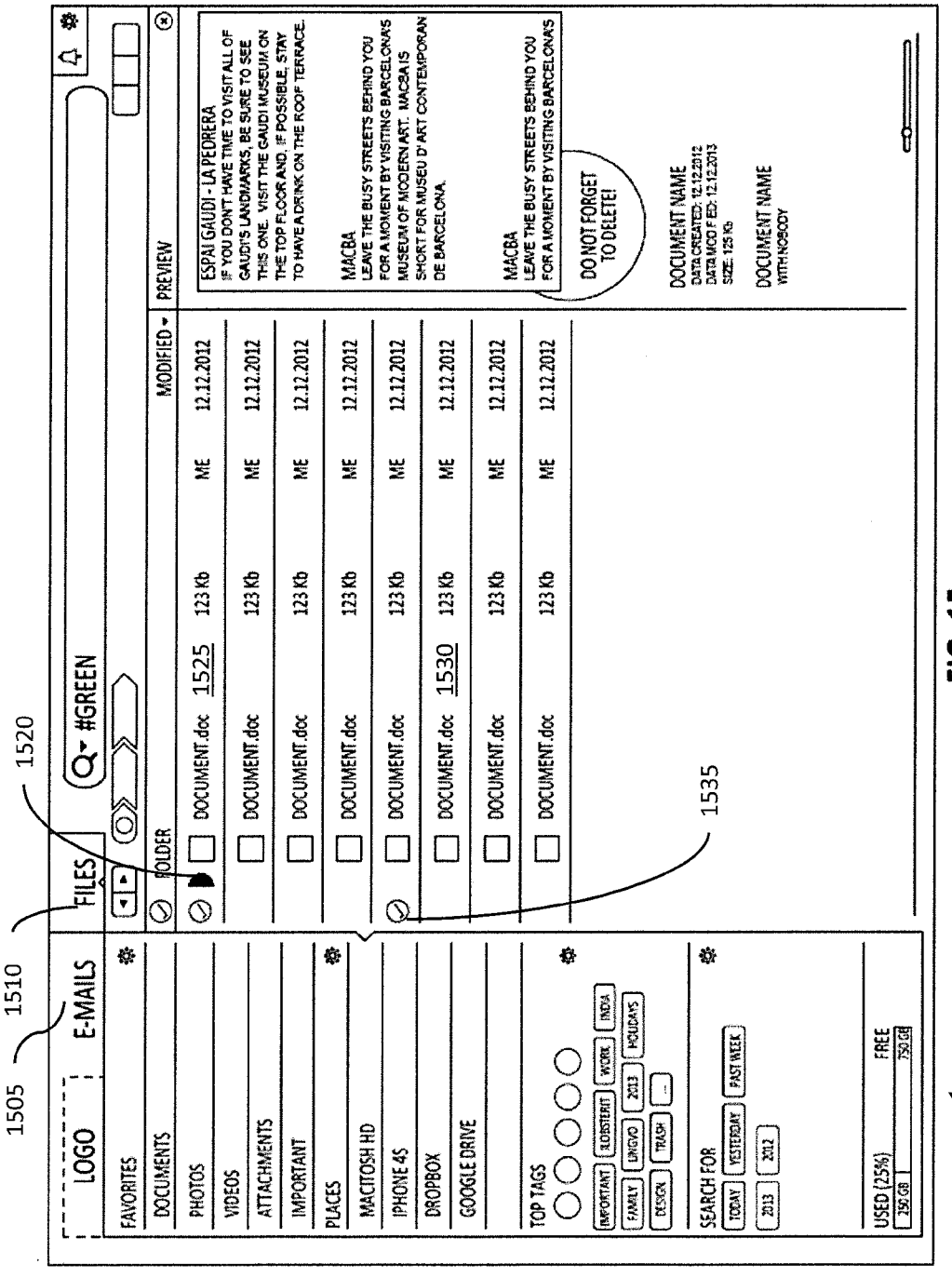

1405
1410
1445
1400
LOGO
E-MAILS
FILES
REDCAT
FAVORITES
DOCUMENTS
PHOTOS
VIDEOS
ATTACHMENTS
DROPBOX
IMPORTANT
LOCATIONS
ALL LOCATIONS
IPHONE 4S
MACITOSH HD
GOOGLE DRIVE
DROPBOX
EXTERNAL HD FOR FILMS
OFFLINE
TOP TAGS
GREEN 44
YELLOW 33
IMPORTANT 22
VISUALDESIGN 11
SEARCH FOR
2013 22
2012 11
USED (25%)
FREE
250 GB
750 GB
SEARCH RESULTS
MODIFIED
PREVIEW
1440
1415
JPG
1420
PSD
1425
DOCS
1435
1430
DOCUMENTNAME.doc
ESPAI GAUDI - LA PEDRERA
IF YOU DONT HAVE TIME TO VISIT ALL OF GAUDI'S LANDMARKS, BE SURE TO SEE THIS ONE. VISIT THE GAUDI MUSEUM ON THE TOP FLOOR AND, IF POSSIBLE, STAY TO HAVE A DRINK ON THE ROOF TERRACE.
MACBA
LEAVE THE BUSY STREETS BEHIND YOU FOR A MOMENT BY VISITING BARCELONA'S MUSEUM OF MODERN ART. MACBA IS SHORT FOR MUSEU D' ART CONTEMPORANI DE BARCELONA.
DO NOT FORGET TO DELETE!
DOCUMENT NAME
DATA CREATED: 12.12.2012
DATA MOD FED: 12.12.2013
SIZE: 125 Kb
DOCUMENT NAME
WITH NOBODY

FIG. 14


1505
1510
1520
1525
1530
1535
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LOGO
E-MAILS
FILES
#GREEN
FAVORITES
DOCUMENTS
PHOTOS
VIDEOS
ATTACHMENTS
IMPORTANT
PLACES
MACITOSH HD
IPHONE 4S
DROPBOX
GOOGLE DRIVE
TOP TAGS
IMPORTANT
ROBSTERIT
WORK
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FAMILY
LONGVO
2013
HOLIDAYS
DESIGN
TRASH
SEARCH FOR
TODAY
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2013
2012
USED (25%)
FREE
250 GB
750 GB
FOLDER
MODIFIED
PREVIEW
DOCUMENT.doc
123 Kb
ME
12.12.2012
ESPAI GAUDI - LA PEDRERA
IF YOU DON'T HAVE TIME TO VISIT ALL OF GAUDI'S LANDMARKS, BE SURE TO SEE THIS ONE. VISIT THE GAUDI MUSEUM ON THE TOP FLOOR AND, IF POSSIBLE, STAY TO HAVE A DRINK ON THE ROOF TERRACE.
MACBA
LEAVE THE BUSY STREETS BEHIND YOU FOR A MOMENT BY VISITING BARCELONA'S MUSEUM OF MODERN ART. MACBA IS SHORT FOR MUSEU D' ART CONTEMPORAN DE BARCELONA.
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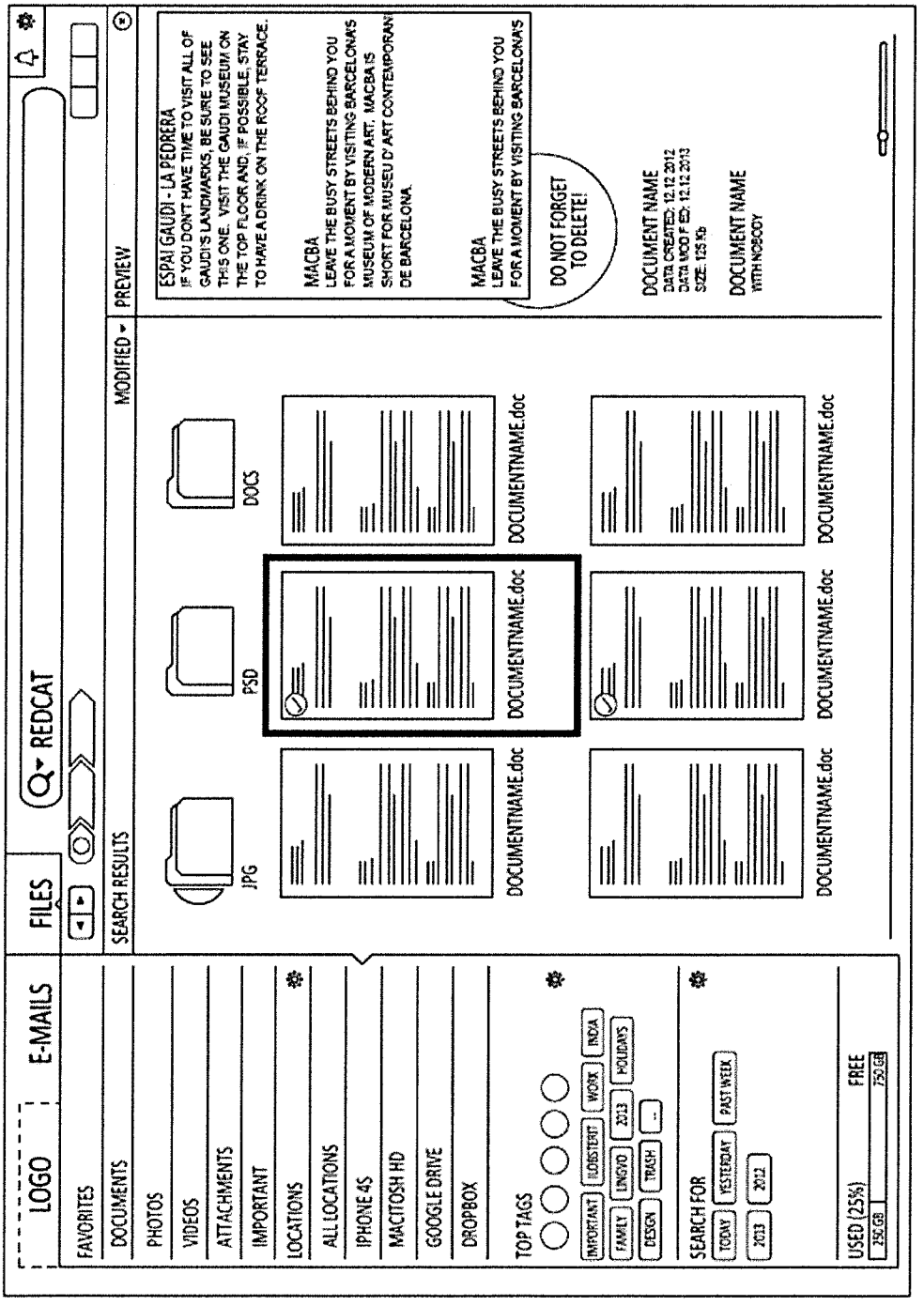
DO NOT FORGET TO DELETE!
DOCUMENT NAME
DATA CREATED: 12.12.2012
DATA MODIFIED: 12.12.2013
SIZE: 125 Kb
DOCUMENT NAME
WITH NOBODY

FIG. 15


LOGO
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DOCUMENTS
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VIDEOS
ATTACHMENTS
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LOCATIONS
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MACITOSH HD
GOOGLE DRIVE
DROPBOX
TOP TAGS
IMPORTANT
LOWESTEST
WORK
INDIA
FAMILY
LINGVO
2013
HOLIDAYS
DESIGN
TRASH
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SEARCH FOR
TODAY
YESTERDAY
PAST WEEK
2013
2012
USED (25%)
FREE
250 GB
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SEARCH RESULTS
MODIFIED
PREVIEW
JPG
PSD
DOCS
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ESPAI GAUDI - LA PEDRERA
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MACBA
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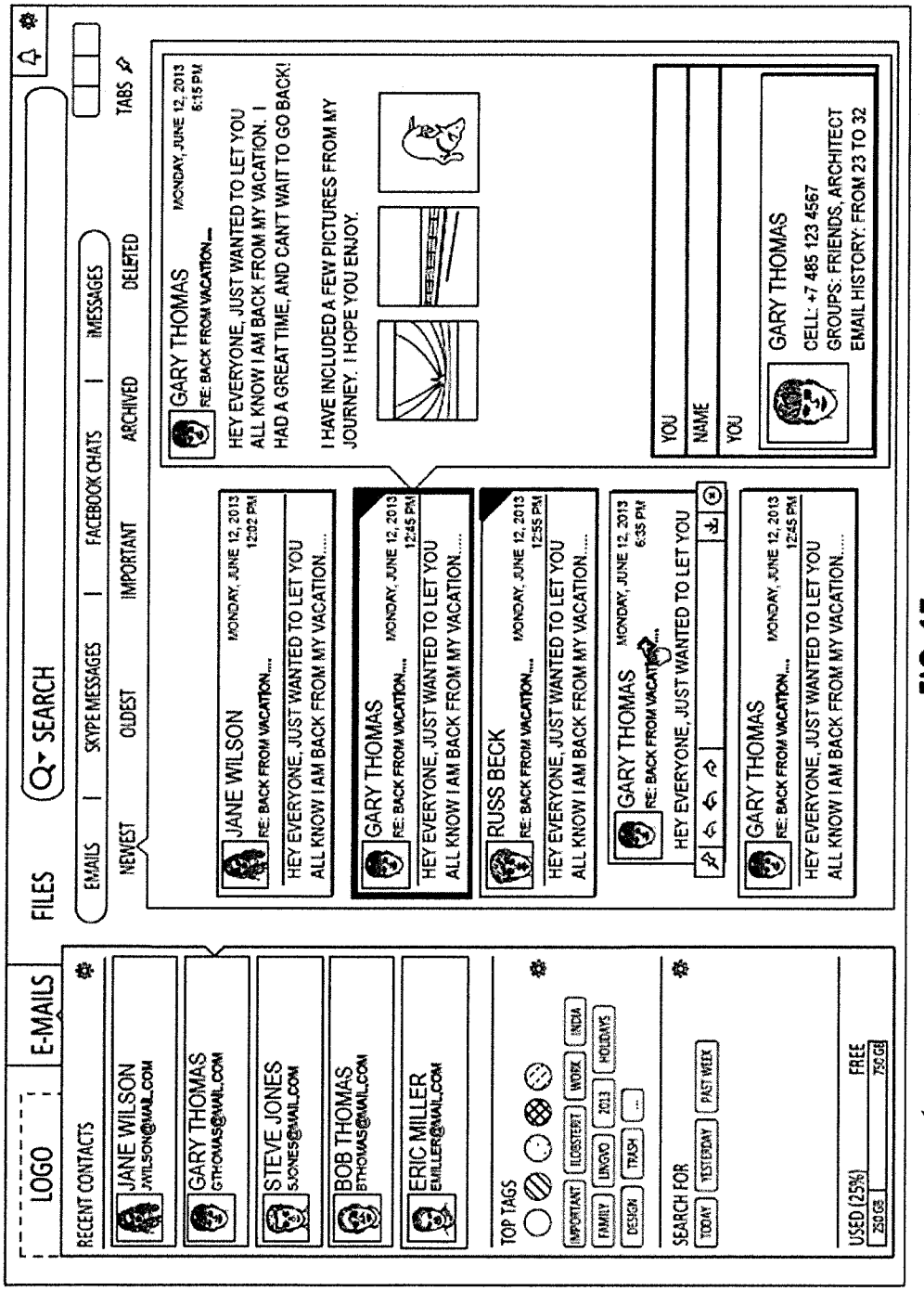
DO NOT FORGET TO DELETE!
DOCUMENT NAME
DATA CREATED: 12.12.2012
DATA MOD F ED: 12.12.2013
SIZE: 125 Kb
DOCUMENT NAME
WITH NOBODY

1600

FIG. 16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E-MAILS
FILES
SEARCH
EMAILS | SKYPE MESSAGES | FACEBOOK CHATS | IMESSAGES
NEWEST
OLDEST
IMPORTANT
ARCHIVED
DELETED
TABS
RECENT CONTACTS
JANE WILSON
JWILSON@MAIL.COM
GARY THOMAS
GTHOMAS@MAIL.COM
STEVE JONES
SJONES@MAIL.COM
BOB THOMAS
BTHOMAS@MAIL.COM
ERIC MILLER
EMILLER@MAIL.COM
TOP TAGS
IMPORTANT
FLOBSTER1
WORK
INDIA
FAMILY
LINGVO
2013
HOLIDAYS
DESIGN
TRASH
...
SEARCH FOR
TODAY
YESTERDAY
PAST WEEK
USED (25%)
250 GB
FREE
750 GB
JANE WILSON
RE: BACK FROM VACATION....
MONDAY, JUNE 12, 2013
12:02 PM
HEY EVERYONE, JUST WANTED TO LET YOU
ALL KNOW I AM BACK FROM MY VACATION.....
GARY THOMAS
RE: BACK FROM VACATION....
MONDAY, JUNE 12, 2013
12:45 PM
HEY EVERYONE, JUST WANTED TO LET YOU
ALL KNOW I AM BACK FROM MY VACATION.....
RUSS BECK
RE: BACK FROM VACATION....
MONDAY, JUNE 12, 2013
12:55 PM
HEY EVERYONE, JUST WANTED TO LET YOU
ALL KNOW I AM BACK FROM MY VACATION.....
GARY THOMAS
RE: BACK FROM VACATION....
MONDAY, JUNE 12, 2013
6:35 PM
HEY EVERYONE, JUST WANTED TO LET YOU
GARY THOMAS
RE: BACK FROM VACATION....
MONDAY, JUNE 12, 2013
12:45 PM
HEY EVERYONE, JUST WANTED TO LET YOU
ALL KNOW I AM BACK FROM MY VACATION.....
GARY THOMAS
RE: BACK FROM VACATION....
MONDAY, JUNE 12, 2013
6:15 PM
HEY EVERYONE, JUST WANTED TO LET YOU
ALL KNOW I AM BACK FROM MY VACATION. I
HAD A GREAT TIME, AND CAN'T WAIT TO GO BACK!
I HAVE INCLUDED A FEW PICTURES FROM MY
JOURNEY. I HOPE YOU ENJOY.
YOU
NAME
YOU
GARY THOMAS
CELL: +7 485 123 4567
GROUPS: FRIENDS, ARCHITECT
EMAIL HISTORY: FROM 23 TO 32

1700

FIG. 17

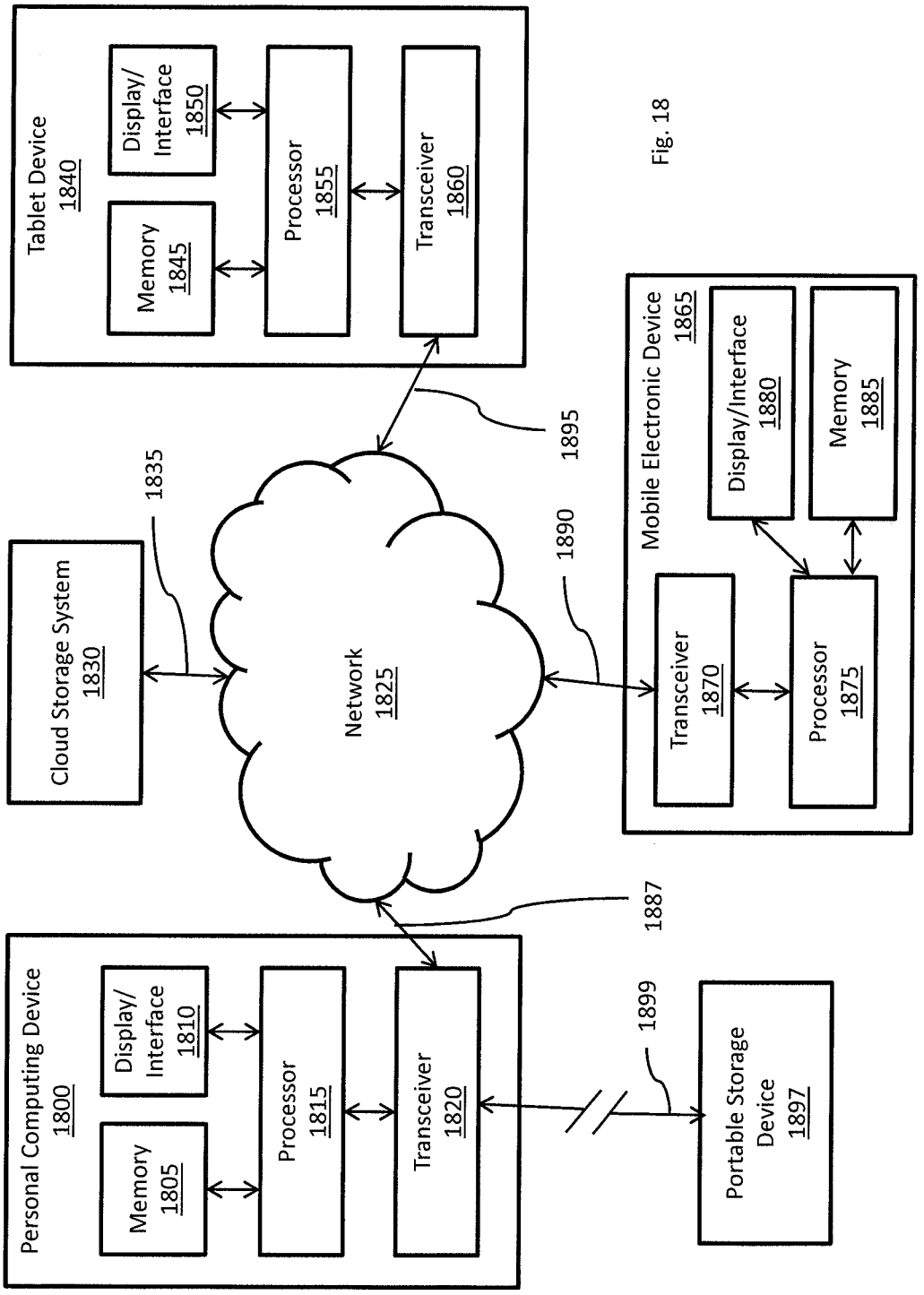

Tablet Device
1840
Display/
Interface
1850
Memory
1845
Processor
1855
Transceiver
1860
1895
1835
Cloud Storage System
1830
Network
1825
1890
Mobile Electronic Device
1865
Display/Interface
1880
Memory
1885
Transceiver
1870
Processor
1875
1887
Personal Computing Device
1800
Display/
Interface
1810
Memory
1805
Processor
1815
Transceiver
1820
1899
Portable Storage
Device
1897

Fig. 18

Fig. 20

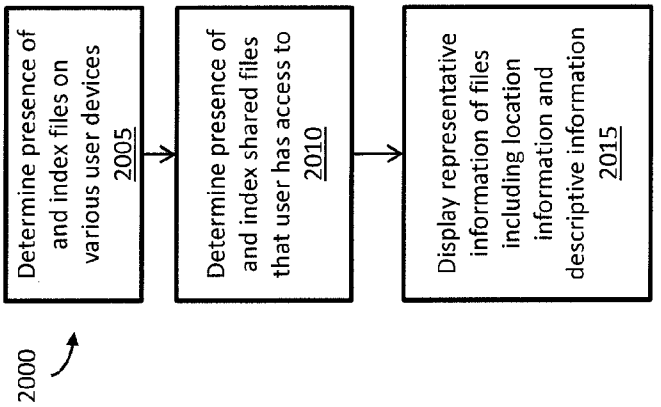

2000
Determine presence of and index files on various user devices 2005
Determine presence of and index shared files that user has access to 2010
Display representative information of files including location information and descriptive information 2015

Fig. 19

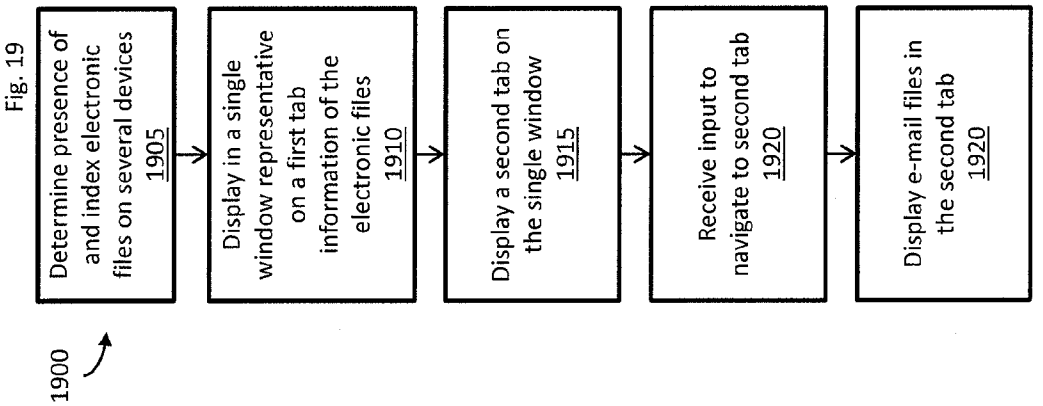

1900
Determine presence of and index electronic files on several devices 1905
Display in a single window representative on a first tab information of the electronic files 1910
Display a second tab on the single window 1915
Receive input to navigate to second tab 1920
Display e-mail files in the second tab 1920

Fig. 22

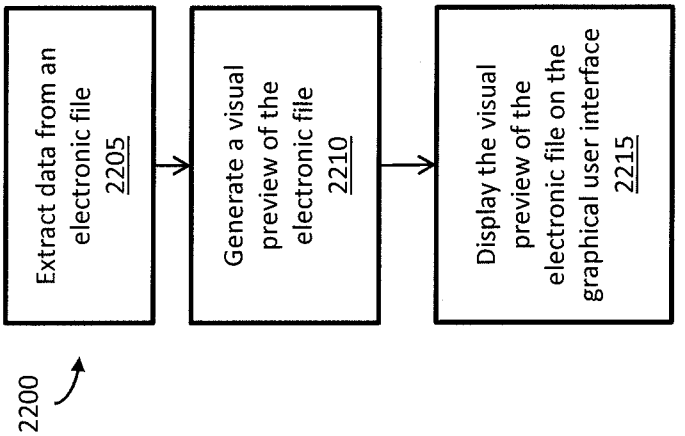

2200
Extract data from an electronic file 2205
Generate a visual preview of the electronic file 2210
Display the visual preview of the electronic file on the graphical user interface 2215

Fig. 21

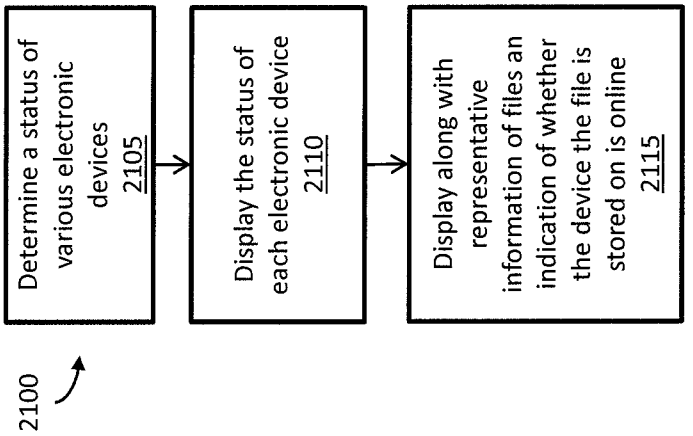

2100
Determine a status of various electronic devices 2105
Display the status of each electronic device 2110
Display along with representative information of files an indication of whether the device the file is stored on is online 2115

Fig. 24

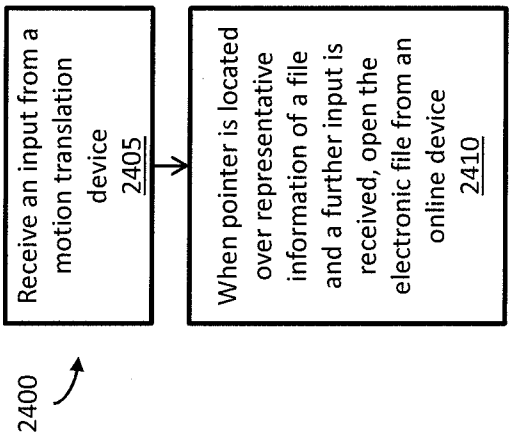
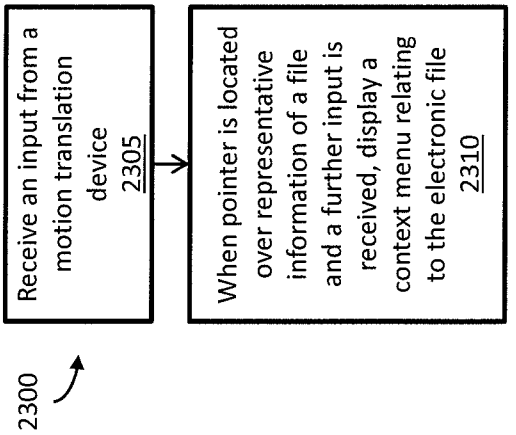
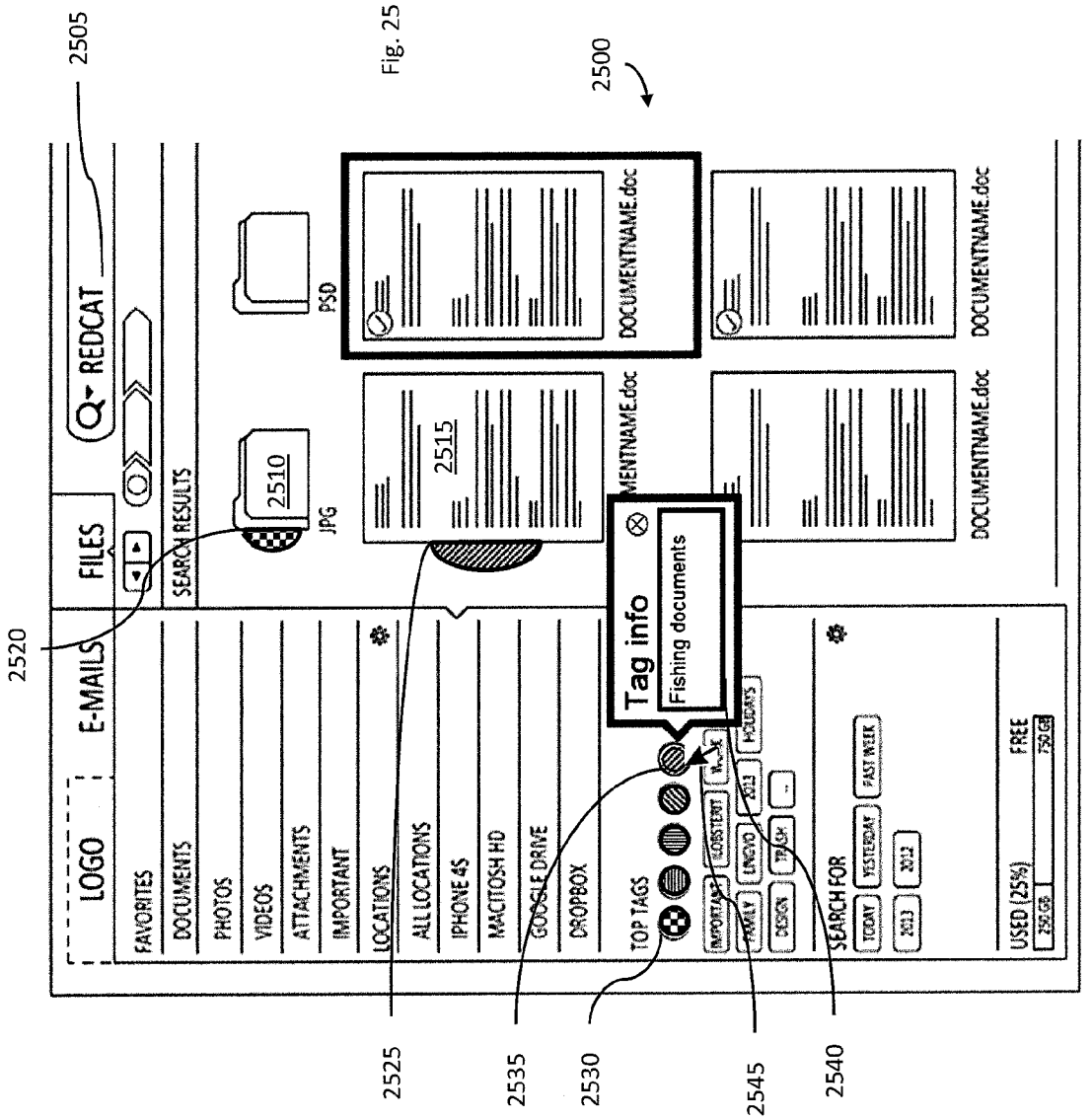

2400
Receive an input from a motion translation device 2405
When pointer is located over representative information of a file and a further input is received, open the electronic file from an online device 2410

Fig. 23


2300
Receive an input from a motion translation device 2305
When pointer is located over representative information of a file and a further input is received, display a context menu relating to the electronic file 2310


2505
2500
2520
LOGO
E-MAILS
FILES
REDCAT
FAVORITES
DOCUMENTS
PHOTOS
VIDEOS
ATTACHMENTS
IMPORTANT
LOCATIONS
ALL LOCATIONS
IPHONE 4S
MACITOSH HD
GOOGLE DRIVE
DROPBOX
SEARCH RESULTS
2510
JPG
PSD
2515
DOCUMENTNAME.doc
Tag info
Fishing documents
TOP TAGS
SEARCH FOR
TODAY
YESTERDAY
LAST WEEK
2013
2012
USED (25%)
FREE
250 GB
750 GB
2525
2535
2530
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2540

Fig. 25

Fig. 27

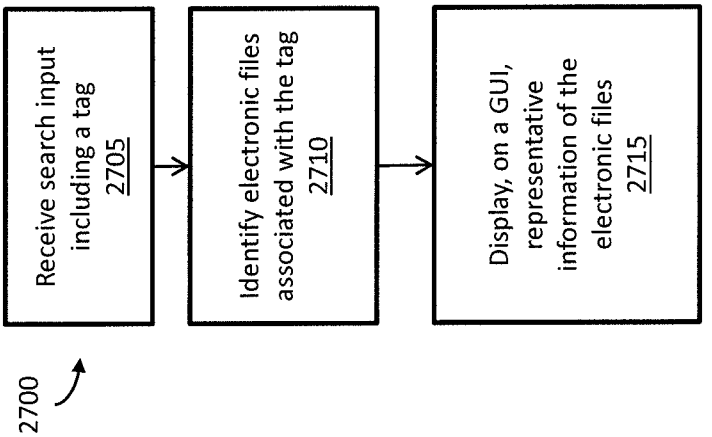

Receive search input including a tag 2705
Identify electronic files associated with the tag 2710
Display, on a GUI, representative information of the electronic files 2715
2700

Fig. 26

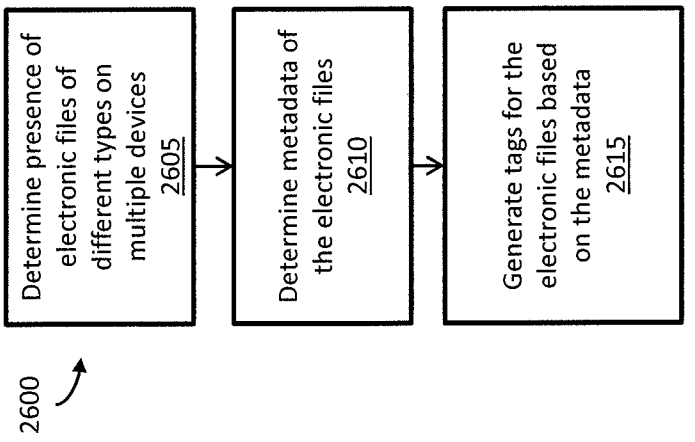

Determine presence of electronic files of different types on multiple devices 2605
Determine metadata of the electronic files 2610
Generate tags for the electronic files based on the metadata 2615
2600

Fig. 29

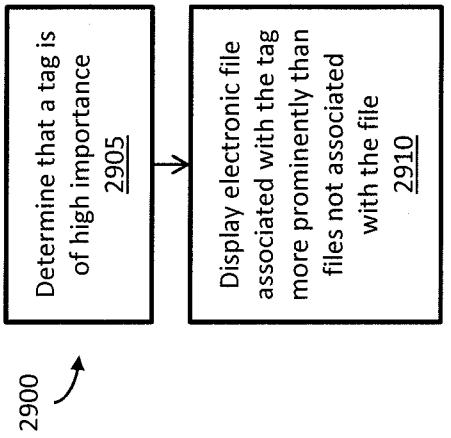

2900
Determine that a tag is of high importance 2905
Display electronic file associated with the tag more prominently than files not associated with the file 2910

Fig. 28

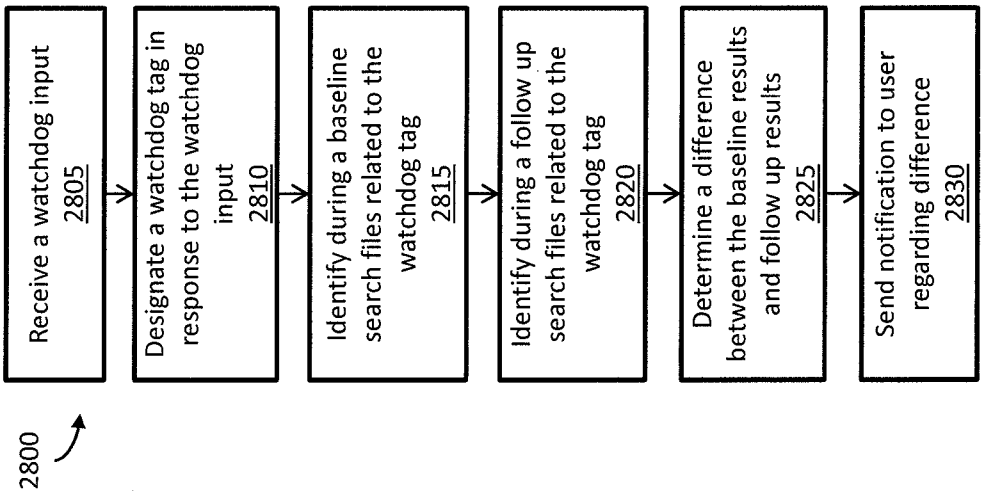

2800
Receive a watchdog input 2805
Designate a watchdog tag in response to the watchdog input 2810
Identify during a baseline search files related to the watchdog tag 2815
Identify during a follow up search files related to the watchdog tag 2820
Determine a difference between the baseline results and follow up results 2825
Send notification to user regarding difference 2830

Fig. 31

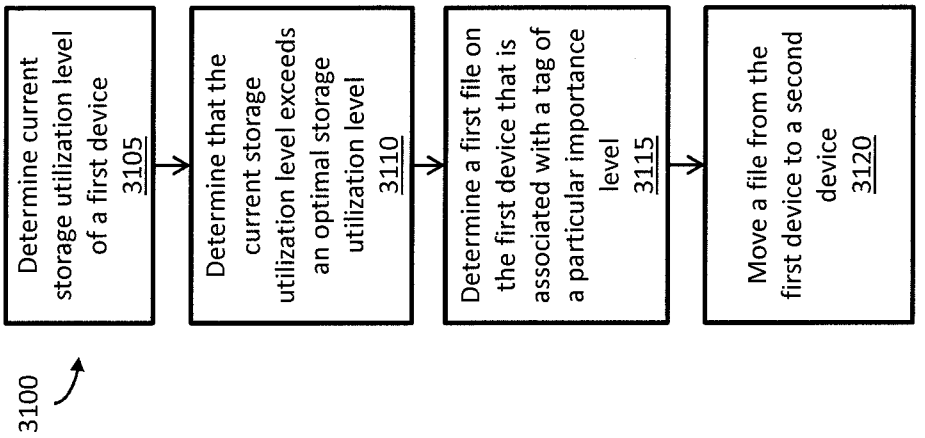
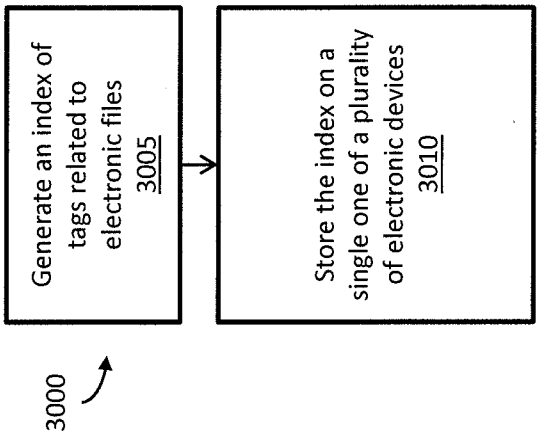

3100
Determine current storage utilization level of a first device 3105
Determine that the current storage utilization level exceeds an optimal storage utilization level 3110
Determine a first file on the first device that is associated with a tag of a particular importance level 3115
Move a file from the first device to a second device 3120

Fig. 30


3000
Generate an index of tags related to electronic files 3005
Store the index on a single one of a plurality of electronic devices 3010

METHOD AND SYSTEM FOR DISPLAYING UNIVERSAL TAGS

[0001] This non-provisional application claims priority to U.S. Provisional Application 61/922,597 filed on Dec. 31, 2013, the disclosure of which is incorporated herein by reference in its entirety.

BACKGROUND

[0002] Many people today use multiple devices and media in their daily activities. For example, a typical person may use laptops, smart phones, tablets, home and work desktops, external hard drives and memory cards, media centers, smart TVs, cameras, DVRs, cloud storage, as well as occasional use of the devices of family, friends, coworkers, or roommates. Across these various devices, people store large quantities of data of varying importance. Additionally, people receive and store files, programs, messages, and other media in external servers, such as e-mail or cloud computing systems.

SUMMARY

[0003] An illustrative method according to a set of instructions stored on a memory of a computing device includes identifying, by a processor of the computing device, a plurality of electronic files stored on a plurality of electronic devices. The plurality of electronic files includes different file types. The plurality of electronic files are also associated with a user. The method also includes determining, by the processor, metadata of the plurality of electronic files. The method also includes generating, by the processor, tags for the plurality of electronic files based on the metadata.

[0004] An illustrative apparatus includes a memory, a processor operatively coupled to the memory, and a first set of instructions stored on the memory and configured to be executed by the processor. The processor is configured to identify a plurality of electronic files stored on a plurality of electronic devices. The plurality of electronic files includes different file types. The plurality of electronic files are also associated with a user. The processor is further configured determine metadata of the plurality of electronic files. The processor is further configured to generate tags for the plurality of electronic files based on the metadata.

[0005] A non-transitory computer readable medium having instructions stored thereon that, upon execution by a computing device, cause the computing device to perform operations including instructions to identify a plurality of electronic files stored on a plurality of electronic devices. The plurality of electronic files includes different file types. The plurality of electronic files are also associated with a user. The instructions further include instructions to determine metadata of the plurality of electronic files. The instructions further include instructions to generate tags for the plurality of electronic files based on the metadata.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] Illustrative embodiments will hereafter be described with reference to the accompanying drawings.

[0007] FIG. **1** is a representation of a graphical user interface (GUI) demonstrating an e-mail interface in accordance with an illustrative embodiment.

[0008] FIG. **2** is a blown-up representation of a GUI demonstrating an e-mail interface in accordance with an illustrative embodiment.

[0009] FIG. **3** is a block diagram illustrating a file transfer system in accordance with an illustrative embodiment.

[0010] FIG. **4** is a block diagram illustrating a second file transfer system in accordance with an illustrative embodiment.

[0011] FIG. **5** is a representation of a GUI demonstrating a multi-file type view in accordance with an illustrative embodiment.

[0012] FIG. **6** is a representation of a GUI demonstrating a photo view in accordance with an illustrative embodiment.

[0013] FIG. **7** is a representation of a GUI demonstrating a photo view with a search menu displayed in accordance with an illustrative embodiment.

[0014] FIG. **8** is a representation of a GUI demonstrating an e-mail interface with a sorted contact list in accordance with an illustrative embodiment.

[0015] FIG. **9** is a representation of a GUI demonstrating an e-mail interface with a sorted contact list and an e-mail correspondence chain in accordance with an illustrative embodiment.

[0016] FIG. **10** is a representation of a GUI demonstrating a single photo view in accordance with an illustrative embodiment.

[0017] FIG. **11** a representation of a GUI demonstrating an electronic files view with reminders in accordance with an illustrative embodiment.

[0018] FIG. **12** a representation of a GUI demonstrating a dynamic birds-eye view of a user's data in accordance with an illustrative embodiment.

[0019] FIG. **13** is a representation of a GUI demonstrating a multi-level view including a hierarchical tree structure in accordance with an illustrative embodiment.

[0020] FIG. **14** is a representation of a GUI demonstrating a multi-level view including a document preview in accordance with an illustrative embodiment.

[0021] FIG. **15** a representation of a GUI demonstrating the contents of a specific device's storage in accordance with an illustrative embodiment.

[0022] FIG. **16** is a representation of a GUI demonstrating a multi-level view including a document preview and an icon based tagging section in accordance with an illustrative embodiment.

[0023] FIG. **17** is a representation of a GUI demonstrating an e-mail interface with a sorted contact list, an e-mail correspondence chain, and an icon based tagging section in accordance with an illustrative embodiment.

[0024] FIG. **18** is a block diagram illustrating various computing and electronic storage devices that may be used in accordance with an illustrative embodiment.

[0025] FIG. **19** is a flow diagram illustrating a method of displaying representative information of files and e-mails on a GUI utilizing a two tab display in accordance with an illustrative embodiment.

[0026] FIG. **20** is a flow diagram illustrating a method of determining files a user has access to and displaying representative information of the files on a GUI in accordance with an illustrative embodiment.

[0027] FIG. **21** is a flow diagram illustrating a method of determining the status of various electronic devices and displaying that status on a GUI in accordance with an illustrative embodiment.

[0028] FIG. **22** is a flow diagram illustrating a method of extracting data from an electronic file and displaying a preview of the file on a GUI in accordance with an illustrative embodiment.

[0029] FIG. **23** is a flow diagram illustrating a method of receiving an input from a user and displaying a context menu on a GUI in accordance with an illustrative embodiment.

[0030] FIG. **24** is a flow diagram illustrating a method of receiving an input from a user and opening an electronic file to be displayed on a GUI in accordance with an illustrative embodiment.

[0031] FIG. **25** is a representation of a GUI demonstrating a tagging system and a context menu in accordance with an illustrative embodiment.

[0032] FIG. **26** is a flow diagram illustrating a method of generating tags associated with electronic files in accordance with an illustrative embodiment.

[0033] FIG. **27** is a flow diagram illustrating a method of displaying search results related to a tag search in accordance with an illustrative embodiment.

[0034] FIG. **28** is a flow diagram illustrating a method of utilizing a watchdog tag in accordance with an illustrative embodiment.

[0035] FIG. **29** is a flow diagram illustrating a method of displaying electronic files with high importance tags in accordance with an illustrative embodiment.

[0036] FIG. **30** is a flow diagram illustrating a method of indexing tags associated with electronic files in accordance with an illustrative embodiment.

[0037] FIG. **31** is a flow diagram illustrating a method of moving files according to an optimal storage utilization of an electronic device in accordance with an illustrative embodiment.

DETAILED DESCRIPTION

[0038] Described herein are illustrative embodiments for methods and systems that provide for a universal tagging system for various electronic files. Additionally, the systems and methods disclosed herein can display the tags related to the various electronic files. In an illustrative embodiment, a user of the systems and methods may define tags for the various electronic files. In another embodiment, the system may automatically generate tags for the various electronic files. In a further embodiment, a user may modify tags that were created by the user or automatically generated by the system.

[0039] In an illustrative embodiment, tags may be applied to various electronic files that are stored across various electronic devices, cloud storage servers, online file sharing websites, and other electronic devices that are capable of storing electronic files. Further, a user may be able to search for electronic files, where relevant search results are generated using the tags associated with the various electronic files. For example, if a user seeks to find photos related to his or her recent vacation, a user may specify that the tags "vacation," "photo," and "2014" be searched for. The system can then return and display on a graphical user interface (GUI) all of the electronic files that are associated with the three tags input by the user. In another example, the user may seek to find e-mail correspondence relating to a recent purchase that the user did not like, and therefore had returned. The user may specify a search input of "refund" or "purchase" as well as "e-mail" to return e-mail messages related to the tags "refund" or "purchase." Utilizing the disclosed systems and methods, large quantities of a user's data and electronic files can be more easily organized and located across multiple electronic devices. By utilizing the universal tagging, a user can easily and conveniently locate different types of electronic files across different devices that utilize different platforms and software applications. Further, the system is capable of automatically tagging electronic files, making utilization of the universal tagging system even more convenient and easy for a user.

[0040] Tags may be applied to various types of electronic files. For example, an electronic file may be a task list, reminder list, calendar, document, spreadsheet, presentation, photo, video, e-mail message, chat message, instant message, text or short message service (SMS) message, voicemail, contact, song or other sound file, or any other type of electronic file that may be stored on an electronic device memory. The same tag may be applied to multiple different file types if the files are relevant to the tag. For example, multiple types of files may be related to the tag "#skiing." For example, photos of skiing, videos of skiing, documents or webpages detailing ski equipment, and e-mail messages organizing a ski trip may all be associated with the tag "#skiing." If a user searches for files related to the tag "#skiing," the system can return all relevant files, regardless of file type, that are associated with the tag.

[0041] Tags may also be applied in a way that signifies a broader concept than just the contents or description of an electronic file. For example, a tag indicating an organization name may be applied to all contacts that are a part of the organization. In another example, electronic files may be related to such an organization and may also be associated with that tag. For example, a user may generate documents relating to a company that the user works for. All of those documents generated for that organizational company may also be associated with the tags for that company or organization.

[0042] In another example, a user may generate files that are all related to a cohesive project. For example, a photographer may have several files and file types related to a wedding the photographer worked at. Accordingly, photo files, video files, documents related to billing, and e-mails correspondence regarding the wedding details and payment from the wedding party may all be tagged with a particular tag related just to that project. In this way, a user could easily enter an input of that particular tag and the system will subsequently display all of the videos, photos, documents, e-mails, etc. relating to that particular wedding

[0043] In another example, tags may be established that indicate the date and/or time an electronic file was created or was first stored on an electronic device accessible by the system. The user can then specify a time interval in which he would like to find a file. For example, that user may specify a particular week in which the user would like to see all files that were created. Since each file, regardless of type, is tagged with the date the files were created, the system can determine the files that apply and display on a GUI information related to the files. The user may then perform further searches, review the current search results, navigate to where current search results are stored, and/or open electronic files displayed in the search results.

[0044] In another example, tags may be established that are related to a physical location where files are established, originated, or created. For example, if a photo is taken by a digital camera, the digital camera may store as metadata

location information related to where the photo was taken. In another example, the system may note that, when an electronic file was imported or downloaded onto the memory of an electronic device the system has access to, the electronic file was acquired at a location where the acquiring electronic device was physically located when the file was downloaded or imported. In an alternative embodiment, a location tag may be related not to an actual physical location, but a memory location of a particular electronic device. For example, if a photo resides on the memory of a user's smart mobile telephone, a location tag of the photo may indicate the storage location of that photo. Notwithstanding the type of location tag applied to a file, the user may specify a location tag to have the system display electronic files related to that tag. Accordingly, the user may be able to search for electronic files that originated, were established, or were created at a common physical location. For example, a user may be able to search for all photos that were taken at "the beach." In another example, the user may search for all files that were downloaded while at "the coffee shop." In another example, the user may be able to search for all files that are stored on the user's "external hard drive."

[0045] In an illustrative embodiment, the system identifies a plurality of electronic files stored on a plurality of electronic devices. As disclosed herein, the plurality of electronic files may be a variety of different file types. Furthermore, the plurality of electronic files are associated with a user. An electronic file is considered associated with a user if, for example, a file is stored on an electronic device of the user. In another example, a file associated with the user may be stored on an electronic device that is not the user's, but that the user otherwise has access to, such as the electronic device of a family member. In another example, a file associated with a user may be a file sent to the user as an e-mail attachment or otherwise in some sort of messages. In another example, a file may be associated with a user if it resides on a cloud storage or file sharing system that the user has access to. For example, any documents that the user has originated or has been granted access to in a file sharing system may be considered a file associated with the user. Therefore, even if a user did not originate a file stored on a file sharing system, the system may still identify the file because the user has been granted access to the file by the originator or some other third party. The system can determine metadata of the various plurality of electronic files. The system can also generate tags for the various plurality of electronic files based on the determined metadata as disclosed herein. In some embodiments, the tags are automatically generated by the system. In one embodiment, the electronic files are e-mail messages, text messages, instant messages, social network messages, contacts, tasks, or calendar entries. Such electronic files may be associated with tags that specify an organization or individual person (either the person or organization may be one of the user's contacts) that the electronic files are related to. In another alternative embodiment, the electronic files may be tasks or calendar entries, and the system may associate such files with a tag indicating a location or time interval associated with the electronic files. For example, the tag may be related to a certain date on which the task or calendar item should or will be complete (or date the task or calendar item was completed). In another example, the tag may indicate a time interval in which the task or calendar item should or will be complete. The system may also generate notifications based on these time related tags that remind a user to complete a task or attend an appointment on a calendar. In another example, a tag indicating a location where a task or calendar item should be completed may be generated.

[0046] In another illustrative embodiment, the system receives a search input from a user specifying a tag to search. In an alternative embodiment, the user does not input a particular tag, but they system may recognize an input from a user as similar to an existing tag. In this embodiment, the system can still search for that tag. The system can identify a group of electronic files stored in various electronic device locations that have the tag specified in the search input. In an alternative embodiment, the system may also search for and identify files that have a similar tag to the one entered by the user for the search. The system can display, on a graphical user interface (GUI), representative information of the identified files from the search. In other words, the entire files are not displayed, but rather information describing the files such as title, a preview, size, location, and/or other information including tags and metadata may be displayed as representative information.

[0047] In an illustrative embodiment, when search results are displayed, additional tags related to the displayed electronic files that were not the subject of the search may be displayed. A user can select one of these other tags (or in other embodiments a tag that was a subject of the original search) to be a watchdog tag. The system may perform a baseline search for the watchdog tag, and store information relating to the results of the baseline search. For example, an index of the baseline search results may be saved as a group of watched electronic files. The system can then automatically and periodically perform subsequent searches for the watchdog tag, even without the user being aware of the searching. The subsequent follow up searches may be performed according to a predetermined schedule or amount of elapsed time. The schedule may be determined by the user or may be automatically defined by the system. In another embodiment, a user may also specify at will that a follow up search be performed on command. After a follow up search, the system compares the results of the follow up search to the indexed results of the first baseline search. If there is a difference in the electronic files, metadata of the files, and/or tags of the files, the system may notify the user of the change. In an alternative embodiment, the system may not notify the user of the particular change or changes, but instead may simply notify the user that a change has occurred and encourage the user to access the system to view the specific changes. Such notifications could be effected through e-mails, text messages, chat messages, a message center built in to the current system and method, or other message and notification methods.

[0048] In another alternative embodiment, a notification may not be generated whenever a change is identified. Instead, the system may only send notifications regarding certain types of changes. For example, the system may only notify the user if the watchdog tag itself was newly applied to the document. That is, the follow up search actually returned a an electronic file that was not found in the baseline search. In another example, the system may only notify the user when the changes are of a certain type. For example, the system may not notify the user regarding modifications to the contents of the watched files. Instead, a notification may be generated only if a file is deleted or added. In another example, the system may identify a changes of a certain magnitude before notifying the user. In a first example, the changes in magnitude may refer to the entire group of files found in the baseline

search. For example, the system may be programmed to only notify the user if 10% or more of the files found during the baseline search have changed. In another example, the system may only notify the user if a certain percentage of a file and/or the files metadata is changed. In another example, the user may only be notified when a certain number of tags have been added or deleted to a watched file or group of files.

[0049] If no differences are identified between a baseline search and a follow up search, the system sends no notification to the user. In an alternative embodiment, the system may send a notification to the user that no change regarding the watchdog tag has occurred (or that no significant change regarding the watchdog tag has occurred). Subsequent follow up searches may also be performed regarding the watchdog tag. Such subsequent follow up searches may also be performed at certain times according to a predetermined schedule. The subsequent follow up search results may be compared to the baseline search results to determine changes, or the subsequent follow up search results may be compared to a previous follow up search to determine changes. Where the subsequent results are compared to a previous follow up search, the system will have saved and indexed the previous follow up search results so that they might be used to identify changes after the subsequent follow up search results have been determined. The index of the follow up search may replace the original index of the baseline search, may add to and supplement the original index, or may be saved completely independently of the original index.

[0050] A watchdog tag may be established by the user to watch a particular electronic file. Where there is activity relating to that electronic file, the user may be notified. For example, if the file is a contact and the user receives a message from the contact, the user may be notified. If the file is a document and the document is edited, the user may receive a notification. If an electronic file that is relevant to a search is associated with a watchdog tag, that file may be associated with a higher ranking than an electronic file not associated with a watchdog tag. Other specific tags may also be weighted and associated with higher rankings for search results. For example, a tag titled "IMPORTANT" may be associated with a higher ranking than other tags, such as descriptive tags like "Vacation." In another embodiment, tags may be weighted for purposes of calculating ranks based on the origination of the tags. For example, a tag that was created or assigned by a user to the electronic file may be worth more to the relative rank of a file than a tag that was automatically generated by the system.

[0051] In one embodiment, and as discussed above, watchdog tags may be implemented in which the user may note some query as the watch tag. The system may then copy all of the search results to a special folder that is not visible to the user. These search results may renew periodically: when changes in the folder are detected, the user may then receive notifications concerning these changes.

[0052] In an illustrative embodiment, a user may enter a search input that includes or is similar to a tag. The system can identify electronic files related to the tag and display representative information of the files on the GUI. Further, the system may determine an importance associated with a particular second tag that is associated with one or more of the search results. In this embodiment, representative information of electronic files that are associated with this important second tag may be displayed more prominently on the GUI than the representative information of other files that are identified as not being associated with a tag of importance. If representative information is displayed more prominently, it may be, for example, larger, closer to the top, include more information (such as a preview), and/or not be omitted from the GUI altogether. Importance of a tag may be determined by the system based on the frequency of use of the tag, a user determination that the tag is important, a similarity of the second tag to the tag that was originally searched for, or other prioritizing and/or ranking factors disclosed herein.

[0053] In another illustrative embodiment, the system can automatically generate tags based on the metadata of an electronic file. However, in this embodiment, the system does not generate a tag based on every aspect of the electronic file's metadata. Accordingly, the system can prioritize the important metadata of a file to establish related tags and pass over unimportant metadata related to the file that will not get a tag created. For example, the system may consider the date created or originated, keywords of the title or contents of the file, contacts mentioned in the file, contacts corresponded with via the file, and organizations related to the file as important and deserving of establishing a tag. Metadata that the system may not consider as deserving of a tag (i.e., unimportant metadata) may be the version number of the file, how large the file is, what date it was last modified, what file type it is, and the exact nature of the content and title of the file. Accordingly, the metadata considered more important will have related tags generated. In other embodiments, the system may consider different metadata to be important and unimportant. In still other embodiments, the user may custom define particular metadata the system should consider as important and/or unimportant.

[0054] Tags may be automatically generated in many various ways in different illustrative embodiments. In a first example, metadata may be utilized by the system to automatically generate tags. For example, tags may be generated related to metadata determined by the system about an electronic file. Such metadata may include, but is not limited to, a user or person who has modified a file (or who has last modified the file), an author of the file, a size of the file, a file type or software application or website utilized to access the file, a virtual or physical location of the file, a sender of the file, a receiver of the file, and/or a time created or received of the file.

[0055] In another embodiment, a context of an electronic file may be utilized to automatically generate a tag for the file. For example, if a file is saved in a virtual location folder for a particular organization or project, the system may generate a tag related to that organization or project. The system may also learn from previous tags defined and applied by user. For example, if a user defines an e-mail message as relating to a particular organization, the system may categorize future e-mail messages from that sender as part of the particular organization and apply a tag accordingly. The system may also apply tags based on the content of files themselves. For example, the system may analyze a file content and determine that the file is related to basketball. Accordingly, the system may automatically apply a tag for "basketball" to the file. In another example, the system may utilize lookups from external sources to determine tags for electronic files. For example, if the system receives an e-mail message from a previously unknown sender (at least unknown to the system), the system may mine third party web sites or other information for generating tags for the file. For example, the e-mail message may have a signature line at the bottom identifying the name of the

sender. The system may search the user's social networks and contact lists for an individual that goes by the name of the signature on the e-mail message. If found, the system may use additional profile information from the third party source to further tag the e-mail message. For example, the system may discover an organizational affiliation of the sender, such as where the sender works. Accordingly, the system may add an organizational tag to the e-mail message indicating the sender's place of employment, which was gleaned from the user's social network. Other outside sources of information could be used such as dictionary and definition websites, websites that contain publicly available biographical or demographic information, online shopping websites, etc. Other tags may be established based on usage, accessibility, and/or importance levels as disclosed herein.

[0056] In an illustrative embodiment, the system may utilize a usage level of the electronic file to generate tags for an electronic file. The usage level indicates how much a user has directly or indirectly used an electronic file. By calculating how much a user has used an electronic file, the system can determine an approximation of importance or relevance of the electronic file to the user. That is, if there are electronic files with higher usage levels, those files may be more desirable to a user. As a result, those electronic files may be given tags such as "important" or "often used." This may be helpful because such files may be more likely to be the target of a search.

[0057] A usage level may be calculated using a variety of information. For example, the system may track how many times an electronic file is accessed or opened. This may define or contribute to the usage level. Another factor that may be used to determine a usage level may be an amount of time the electronic file has been displayed on the GUI. For example, the system may track how long a user has had an electronic file open, and that cumulative amount of time may be used to calculate the usage level of the electronic file. In a related embodiment, the system may track the amount of time that an electronic file is open and actually being displayed on the GUI. In other words, the system may not count an amount of time when a file is open but minimized when calculating usage level; but any time the electronic file is open and displayed on the GUI may be counted when calculating the usage level. In another related embodiment, the system may only count the time when an electronic file is open and active. In other words, the system may count time for purposes of calculating a usage level where an electronic file is open and being interacted with by the user. Such interactions may include scrolling, changing metadata, changing the content of the electronic file itself, commenting on the electronic file, responding to the electronic file (where the electronic file is a message or e-mail, for example), listening to and/or watching the electronic file, etc. A usage level could also be determined by a number of tags applied automatically by the system or a user. That is, if a file has more tags, it is likely more important to the user.

[0058] Other factors and statistical data may also be utilized to generate and assign tags to an electronic file. The system may calculate an accessibility or mobility level, which can be used for applying tags to electronic files. For example, the accessibility or mobility of an electronic file may be impacted by the electronic device or type of electronic device that an electronic file is stored on. As a result, the electronic device or type of electronic device may be considered when assigning a tag for an electronic file. That is, if a file is more likely to be unavailable to a user because of how it is stored, what applications are required to open it, etc., this information can be used to determine tags that indicate importance of a file. For example, the system may assign a higher accessibility or mobility level to electronic files stored on internet accessible servers, such as an e-mail exchange or cloud server storage system. In another example, the system may assign a medium accessibility or mobility level to other electronic devices that the system is likely to have access to, such as a smartphone or laptop. In another example, the system may assign a low accessibility or mobility level to an electronic file that is stored on electronic devices that the system is less likely to have access to, such as an external hard drive, USB drive, or SD card.

[0059] The accessibility or mobility level may also be calculated based on the type of electronic file. For example, an electronic file that requires a specific stand-alone software application to access may be considered to have a lower accessibility or mobility level. For example, if an electronic file can only be opened by Microsoft PowerPoint™, the system may consider the accessibility or mobility level of the electronic file to be relatively low. In another example, if a file can be opened or accessed by several software applications or can be opened or accessed by a web-based application, the system considers the electronic file to have a high accessibility or mobility level. In other words, the system can determine whether it is more or less likely that a user will be able to access and/or modify an electronic file and will calculate the accessibility or mobility level of the electronic file accordingly. Similarly, the system may determine an access level of an electronic file to determine the accessibility or mobility level of the electronic file. For example, if an electronic file is read-only (i.e., the user cannot edit the electronic file), the system may consider the electronic file to have a relatively lower accessibility or mobility level. If an electronic file has a higher access level, such as a file where the user has full access and editing privileges, that electronic file is considered to have a relatively higher accessibility or mobility level. All of these factors can be utilized in determine what tags to apply to an electronic file.

[0060] The system may consider the file type of an electronic file in another way to calculate an accessibility or mobility level and determine how to apply tags to the files. The system may consider the file type and the version of the electronic file to determine what version of a software application may be used to access and/or modify the electronic file. For example, if the system had to use a software application that was out of date or old to access and/or modify an electronic file, the system may rank the accessibility or mobility level lower. If the file type of the electronic file uses a current and up to date version of a software application to access and/or modify it, the system may consider that electronic file to have a relatively higher accessibility or mobility level. If the accessibility or mobility level are lower, the system will be less likely to assign tags that reflect important files.

[0061] In another embodiment, the system may utilize the file type in yet another way to determine an accessibility or mobility level. For example, the system may determine whether an electronic file is a copy or a replica. As disclosed herein, for the purposes of this disclosure, a copy of a file is identical to the original file at the time of duplication, but is not automatically updated after changes in the original file on a separate machine. A replica of a file is identical to the original file at the time of duplication, and is automatically

updated after changes are made to the original file, even if the original file exists on a separate machine than the replica file. In this embodiment, a replica file may be considered to have a higher accessibility or mobility level than a copy file.

[0062] In another embodiment, the system may consider the version of an electronic file when determining an accessibility or mobility level. For example, if an electronic file is stored as multiple different versions of the same electronic file, a most recent version may be given a higher accessibility or mobility level, while previous versions of an electronic file are given a lower accessibility or mobility level.

[0063] In another illustrative embodiment, the size of an electronic file may also be used when determining an accessibility or mobility level, which can be used for automatically assigning tags. For example, if the user is searching for photos using a mobile smart phone device, the system may apply important tags to photos that are of a medium resolution as having a relatively high accessibility or mobility level. The system may not apply important tags photos with very high or very low resolutions due to having a relatively lower accessibility or mobility level. In this way, the user's search results may reflect photos that are tailored for the size of the display of a mobile smart phone device and limitations on the mobile smart phone device's internet connectivity and processing speeds. In such an embodiment, the way tags are applied can be dynamic rather than static, because the tags applied may change based on what device is used to perform the search. Accordingly, if these type of dynamic factors are used, the tags should be applied at least as a part of after a search is performed.

[0064] In another embodiment, the system may determine an importance level of a file in order to automatically apply a tag relevant to the file. A contact with a high importance level will be assigned tags indicating the higher importance levels so that they can be more easily organized and searched for by a user. The importance level may be determined in a variety of ways. For example, the system may determine the importance of a contact based on a level of correspondence between the user and the contact. For example, if the user and contact send each other numerous e-mails, text messages, chat messages, voice calls, video calls, and/or instant messages, the system will consider that contact as having a higher importance level. In other embodiments, the system may consider only correspondence to or from the contact in determining the importance level, as opposed to combining the correspondence to and from the contact, as in the previous example.

[0065] In another embodiment, the system may determine the importance level of a contact based on a user's response rate to correspondence or any type of message from the particular contact. For example, if the user has directly responded to 70 out of 100 e-mail messages (70%) from contact A, then contact A will have a higher importance level relative to a contact B, to whom the user has only responded to 20 out of 50 e-mail messages (40%).

[0066] In another illustrative embodiment, the system may consider groups of contacts together in determining an importance level. For example, the user may define certain contacts to be grouped together, such as family members. In such an embodiment, the system may determine an importance level of groups such as family members cumulatively, and return search results based on the increased importance levels that come with being a part of such a user defined group. As already noted, groups of contacts may be defined by the user. In another embodiment, a group may be automatically defined by the system. For example, several contacts may have e-mail addresses that are routed to the same e-mail servers. For example, employees of an ABC Company may all have e-mails that end in "@ABCCompany.com." Accordingly, the system may define all of those employees in a single group associated with the ABC Company. This group may be treated by the system as a single organizational contact. Accordingly, the system may determine the importance level of the single organizational contact by cumulatively considering the importance level of all the group members together. Further, an individual contact may be deemed more important simply based on its inclusion in the group. The system may further classify an organizational contact as an ontological object.

[0067] In further illustrative embodiments, the tags established for the electronic files may be stored in an index along with other metadata relating to the various electronic files. Additionally, the index may be stored only on one electronic device or storage area, even though the index includes information regarding many electronic files that are stored on a plurality of electronic devices.

[0068] In another illustrative embodiment, the system may utilize tags to assist in performing file management functions. For example, the system may determine a current storage utilization level of a first electronic device and compare that to an optimal storage utilization level for that first electronic device. If the current storage utilization level meets or exceeds the optimal level, the system can seek to move electronic files from the first electronic device. In one embodiment, the system may identify electronic files associated with a tag that is deemed to be of lower importance. For example, files with tags that indicate a relatively old creation date may be considered less important than files with tags that indicate a relatively recent creation date. In this embodiment, the system can move the electronic files with lower importance to a second electronic device to make sure the first electronic device meets storage level goals, which may be predetermined or configured by a user. In another embodiment, the system may relocate files that are of relatively higher importance, with the rationale that these files should be moved to another location to ensure that they are preserved.

[0069] In another illustrative embodiment utilizing optimal storage levels and goals, a user may specify that their mobile phone memory should not get more than 70% full so that they are always able to snap a photo with their mobile phone when the mood strikes. In such an embodiment, the user may take several photos that pushes the phone's memory beyond the 70% threshold. In this scenario, the next time the phone is online with the system (which could be all the time if the system is actually executed on the phone), the system can automatically generate an instruction to move files from the phone to one or more other storage mediums based the importance level of tags associated with the photos. For example, the system may only relocate photo files and may relocate the files that were created the longest time ago as indicated by tags of the photos. In this way, the user will always keep her newest photos on her phone while the older ones go to auxiliary storage. In another embodiment, the criteria used to determined which files to move may rest on a determination of which files are used more often or the most recently according to the tags of the file. That is the system may move files that are not used as much rather than files that are used frequently or recently. In the previous example, the higher priority files are not moved. In an alternative embodiment,

higher priority files may be moved in order to ensure that the files are preserved on another storage device. In some embodiments, files that are determined to be high priority according to important tags may be automatically moved by the system utilizing the systems and methods disclosed herein regardless of storage utilization levels. In this embodiment, the moving of the files serves as a sort of back up or file preservation for high priority or important files. In another embodiment, high priority files are automatically copied but not moved unless storage utilization level concerns result in movement of files.

[0070] Photo and video data may often have little or no accompanying metadata that describes the information itself. The use of system generated metadata are useful in developing more information about photos and videos. Metadata used to generate tags may also be generated by the system. For example, videos and photos may be analyzed to determine information about the files. For example, facial recognition may allow the system to automatically tag those in a video or picture. In another embodiment, the system may be able to determine a portion of an audio file and use an internet look up to determine what song or specific audio file it is. By performing this operation, the system may also be able to determine the title of the file, the artist, any individuals appearing or performing in the file, and any other information that may be available on the internet regarding a photo, video, audio, or other type of file.

[0071] In another embodiment, data may be recorded by an electronic device by the user, such as audio data. The data may include a tag or other instruction for organizing and managing data and electronic files. The system may convert the audio into raw searchable data so that the system may determine the instruction and/or tag that the user desires based on the audio data. The system can analyze the raw searchable data and determine the instruction from the user and apply the tags and organize the data according to the instructions from the user in the recorded audio file. In one embodiment, the audio file is actually associated with particular files and used as metadata and/or a tag itself. However, since the system has determined what words the user actually said, the tag and instruction from the user can still be searched utilizing standard search inputs. In an alternative embodiment, such a search may also be performed by receiving an audio file. In one alternative embodiment, a user may enter a search input utilizing an audio and/or visual file, and the system actually uses the search input to find similar audio and/or visual files. That is, if a user quotes a movie, song, or other audio, the system can locate the file that contains such a quote. In another example, if the user searches for an object prominently displayed in a digital photograph entered as the search term, the system can find other photo files that also contain the object in the search for image.

[0072] Disclosed herein is an audio tagging functionality. Users may like to share photos through social networking channels and by using devices themselves (e.g., a user shows his smartphone to a friend to show a series of pictures from a recent trip). Users may use any number of devices, such as a laptop, desktop, tablet, wearable device, and the aforementioned smartphone to share photos. During such demonstrations, the user may discuss these photos. The user may describe, for example, elements of the photo itself. This may include where the photo was taken, the object and/or persons that were the subject of the photo, who is represented in the photo, when the photo was taken, etc.). In addition, the viewer may ask questions about the photo being shown by the user demonstrating the photo, to which the user responds with additional information about the photo. All of these verbal discussions may be recognized by the built-in microphone in the device, and associated with the particular photo or set of photos. Such a verbal discussion may be converted into raw searchable metadata, or converted to more formal sets of metadata (e.g., organized by who, where, when, what, etc.). In addition, detailed analysis of the discussion may provide further cues to the mechanisms to rank the best photos. In one example, the user may himself describe a selected photo as the best composed, or representative as the most photogenic of the subjects in the picture. The timbre of the user's voice may also be analyzed to determine if the change in timbre should correspond to assigning a higher rank to the photo in question.

[0073] Such a functionality may be implemented in a single user mode, where the user verbally describes photos on the screen without a discussion with a second person. This may occur, for example, by the person dictating to his device various details about a particular photo that is then subsequently used in tagging and/or ranking operations.

[0074] In addition to the foregoing, the functionality previously described may be implemented for tagging video information relating to the user. In this case, for example, the metadata may be associated not only to the video file as a whole, but even more precisely, with reference to a particular time line in the file. In addition, this functionality may be implemented for tagging music. Here again, in this case the metadata may be associated not only to the music file as a whole, but also more precisely with reference to a particular time line in the file.

[0075] In one embodiment, in order to rank photos, various statistical information and other parameters may be utilized for determining importance of a file and tagging. For example, the system may consider the following factors: a number of times that the photo had been displayed (including full screen or slide show), how much time the user was watching the particular photo (e.g., some photos may be quickly glanced at by the user, while others are viewed for a longer period of time, indicating an affinity by the user to the particular photo), was the particular photo ever shared through email, cloud, social media, the file system, or another communication channel.

[0076] Herein, use of the terminology contact may refer to an individual or an organization. Herein, an organization may be an ontological object. A user herself may create her own tags in the system. Tags may be created to correspond with varying entities, such as organizations, persons, projects, places, and dates. If the user creates a specific tag (such as for an organization), the systems and methods of the illustrated embodiments may implement varying hypotheses. For example, the systems and methods disclosed herein may assume that this tag is more important to the user since the user created it herself. Moreover, the systems and methods disclosed herein may make certain associations automatically (i.e., the organization in the email address from whence the email originated is associated with the sender of the email, such as an employee) and query the user to verify these associations.

[0077] In another illustrative embodiment, a tag may be associated with a contact that has a high ranking. The system may analyze the user's contact ratings and send the user short message service (SMS) notifications about a message from a

person with a correspondingly high rating. Based on the contact's rating, the system can decide on what the user should be reminded of. Differing types of activities may be assigned a higher ranking and/or priority, such as an assignment made to an individual or a task that is assigned to the user. For example, if the contact is very high ranking, the notification might have the contents of the message in it. If the contact is only somewhat highly ranked, the system may only notify the user that a message has been received. The system may also assign particular tags to a contact or message based on the contacts ranking.

[0078] For all user information (files, letters, contacts, social network data, etc.), the embodiments disclosed herein introduce a single end-to-end system of: tags (color, hash tags, smart tags), commentaries, and contact ratings (which may be arranged automatically, yet are adjustable by the user). Auto-tagging of electronic files is available, but the user may also modify tags. In one embodiment, a smart tag with a project name may be generated. In this way, the embodiments herein may create a tag with the project name based on the analysis of contents and participants of an electronic correspondence, social network files, and correspondence.

[0079] Object recognition technology may also be applied to create metadata and/or tags about the content of photos and video files and for searching of those files. In one example, a user is looking for a photo where their family is at sea from 2005 to 2008. The system can understand in advance that the image contains an object "body of water" so, when the system receives the search term "sea," the system will return images containing a "body of water." The system may also create an ontology of contacts, including relatives, their photos etc.

[0080] In one embodiment, the system may implement photo tagging according to the following example. The user may have 500 photos of Pete which he posts to a social media website. Subsequently, another individual tags one of the photos in which Pete appears. The system can identify this tag of the photo, use this tag to create a "Pete" tag in the system, and query the user to confirm by displaying similar faces of Pete to the user. In this way, future pictures with Pete in them may also be tagged by the system.

[0081] In another embodiment, a user may have comments of his photos from other individuals in a particular social media. The comments may also be used by the systems of the illustrated embodiment for full-text searching, and extracted to create tags, which later are used to characterize various photos.

[0082] Various illustrative embodiments also include methods and systems that provide for a displaying files and tags, regardless of where the files are actually stored. The display may indicate a file location. Also described herein are systems and methods which allow users to disclose, access, distribute, synchronize, manage, and search different types of content and electronic files, including but not limited to file content, communication content, contact content, and other personal information across multiple devices and cloud servers. Also described herein is a graphical user interface (GUI) that displays representative information of different electronic files. The electronic files may be physically stored on multiple devices, but the representative information relating to the electronic files may be displayed on a single GUI. The representative information of an electronic file may include the physical location where the electronic file is stored, the size of the electronic file, a date and/or time the electronic file was created or last modified, a file type of the electronic file, a preview of the electronic file, or any other representative information relating to the electronic file. Furthermore, a user can interact with the GUI to view, open, access, organize, backup, synchronize, distribute, or locate different electronic files stored on various electronic devices. Representative information as defined herein may include, but is not limited to, various types of metadata.

[0083] In an illustrative embodiment, the system can determine the presence of electronic files of a user among multiple devices. For example, the user may utilize a tablet, smart phone, laptop, universal serial bus (USB) drive, cloud storage, set top boxes (smart TVs), and many other electronic storage and computing devices and methods. Further, software applications may include files that relate to a user or the user has access to. Such files may include e-mails, messages, chats, documents, pictures, videos, contacts, or other electronic data. The system can determine all of these types of data from a plurality of devices and index the data. Even if a user was not the creator or owner of the document, the system can index the data as long as the user has access to it. The index may be stored on a particular device of the user's, for example, a laptop. The user may also designate which device will store the index. In another embodiment, the index will be stored on a cloud storage system. Advantageously, when the index is stored on a cloud storage system (e.g., a remote server), the index may be updated regarding changes to data or files on any device whenever the device is connected to the internet.

[0084] After electronic files such as documents, pictures, e-mails, contact information, and the like have been indexed, representative information of the electronic files can be displayed on a graphical user interface (GUI) to a user. In one embodiment, the representative information may be displayed in a single window format. Representative information may include a file name, a file preview, date last modified, version number, date created, number of related files, number of files in a folder, and any other information relating to an electronic file. In some embodiments, the representative information may include information regarding the location of the electronic file. The location information can be indicated utilizing a symbol or icon. For example, if a file is on the user's smartphone, a smartphone icon may be used to indicate the location of the file. Different icons or symbols may have different shapes, colors, sizes, or text content. For example, the device where a file is stored may be part of the representative information. The system may also index a virtual location of a file. For example, regardless of where an e-mail might be physically stored, it might be virtually located in a user's e-mail inbox within the system and displayed as such whenever the inbox is displayed on the GUI. In this case, the system may indicate either or both of the virtual and physical locations. In some embodiments, the representative information may be displayed in a single window, but may be divided within a multiple tab configuration. For example, a GUI may include tabs for files, photos, e-mails, and contacts. In another embodiment, the GUI may have tabs for files and e-mails, where photos are categorized under files and contacts are categorized under e-mails. The user may be able to switch between tabs by interacting with the GUI. For example, a user may utilize a motion translation device and input, such as a touchscreen in which the user may touch the location on the screen where one of the tabs appears, activating and displaying that tab. To switch to a different tab, the user may touch the different tab. In another example, the user may use a mouse or

touchpad to locate a pointer over the desired tab on the GUI. The user may then make another input, such as a single mouse click, to activate and display the desired tab the pointer is located over.

[0085] Whether or not tabs are used, the representative information of electronic files displayed by the system may include information relating to where and how the electronic files are stored. For example, the representative information may include an indication that the file is stored on a particular device or in a cloud storage system. The representative information may also include an indication of whether the file has been backed-up or not. The representative information may also include the location of a backed-up copy of the file. The representative information may also include an indication of whether the device where the file is stored is online or offline. In the case where a file is stored on two different devices, the system may indicate the status of both devices. In another embodiment, the system may only indicate enough about the status of the devices to indicate whether the file is available for opening and/or editing. For example, if a file is on two different devices, and one is online and one is not, the system may indicate on a GUI that the device where the file is stored is online, because the user's actual access to the file is not hindered by one of the devices being offline. Other status's than online and offline may also be indicated by the system. For example, the connections speed or status of a device may be indicated. In another example, a passive or active status may be indicated. Such a status may be relevant if a computing device has a standby, sleep, hibernate, or screen saver mode that restricts remote access to the memory of the device. In another example, instead of online or offline which indicates communication between two devices over a network, a device status may be connected or unconnected. This may be useful for a secure digital (SD) card, portable hard drive, or USB storage device, where the devices are connected directly to a computing device rather than communicating with devices over a network. Other potential statuses that may be indicated by the system about a computing device may include a currently operational status, a currently non-operational status, or a set in a lower functional mode status. Despite the status of a device however, if a file has been previously indexed, the representative information relating to the file can be displayed.

[0086] In an illustrative embodiment, the representative information for a file may be manipulated or changed by the user. For example, if the user receives a file through a file sharing website or attached to an e-mail, the file may have a computer generated name or a name that is otherwise undesirable by the user. Accordingly, the user may then change the name of the file that is used in the representative information. Any other of the representative information may also be changed by the user.

[0087] The system may also display a preview of electronic files on the GUI. This may occur automatically, or may occur based on some sort of interaction by the user with the GUI. For example, the system may display the preview only if the user clicks or taps on the file once. In another example, a preview may be displayed when the user moves a pointer over a file. In another embodiment, a preview may be automatically displayed, but a further preview may be displayed when a file is interacted with. For example, the first page of a document may be shown, and when a pointer is moved over the document, the second page of the document is shown. In another example, a thumbnail of a picture may be shown. When the user moves a pointer over the thumbnail, a larger and/or more high resolution version of the photo may be displayed by the system. In order to generate the preview of electronic files, the system may extract all or a portion of content from an electronic file to generate the preview. For example, where a first page of a document is used as a preview image, the first page of the document is extracted. Various types of previews may be displayed by the system. For example, a preview may include a first group of words from a document or message (such as an e-mail). Another preview may be a thumbnail image of a larger image, or a screen shot of a video. The preview image could also include some or all of the contact information relating to an e-mail or other type of message. A preview image could also include a task information relating to an electronic file. For example, where the electronic file is a task list, reminder list, or calendar, such a task list, reminder list, or calendar may include information that can be used in the preview. For example, a reminder list may include an item reminding the user to pay their rent. Accordingly, a preview of the reminder list or of the item on the reminder list itself may include the text "Rent is Due!" In another embodiment, such a task or preview may be derived from an e-mail, such as an e-mail requesting information from the user. The preview of such an e-mail may include text indicating the request.

[0088] In another illustrative embodiment, context menus may be used. Context menus are menus that pop-up on the GUI relating to a particular part of the GUI. For example, a context menu may pop-up if a user moves their mouse over the representative information of an electronic file. In another embodiment, the user can move a pointer over the representative information and make another input, such as a mouse click, to get the context menu to display. In other embodiments, such as when a touch screen is in use, the user may only input with regard to the representative information, and a pointer may not be utilized. A context menu may include information related to a particular electronic file or actions that may be taken related to the electronic file. For example, a context menu may indicate that an electronic file is classified as read only. In another example, a context menu may present a user with options relating to the electronic file, such as download the file, delete the file, rename the file, move the file, back-up or copy the file, etc.

[0089] In another illustrative embodiment, various user inputs and interactions may be made to effectuate opening an electronic file by clicking on or otherwise interacting with the representative information of a file on the GUI. For example, if the user wishes to open a document stored on a laptop, even though the user is currently using a tablet, the user may activate the system disclosed herein. The user can then navigate to or search for the representative information of the document desired, and tap on it through the touch screen of the tablet. The system receives the input from the user, and the system then uses an application that matches the file type of the document to open the document and display it to the user on the tablet. The application may be located on the tablet or located elsewhere. As long as the system has access to the application, the document can be opened. In an alternative embodiment, the system may select an application to utilize when opening a document based on a number of factors. For example, the system may consider whether the user made any choices regarding what application to use (e.g., an open-with option) or how the file should be displayed (e.g., read-only). The system may also choose an application that is appropriate

for the device the user is currently using. The system may also select an alternative application to use where a preferred application is not available. In an alternative embodiment, electronic files that have been opened may be displayed directly by the system and even edited within the GUI. If a document is not available (for example, the device where the document is stored is offline), the system may automatically find another copy or replica of the document on another device and open that one. In this way, the user may never have to worry about how the document is actually opened. For example, there may be a copy or replica of the document on an external hard drive, a cloud storage server, or the user's home personal computer (PC). In another embodiment, the system may be able to locate a copy or a replica of the document on an e-mail server or otherwise find it among other message types that the user has sent or received.

[0090] In another illustrative embodiment, the GUI may display some representative information more prominently than other representative information. For example, if the representative information includes an icon such as a piece of paper type icon for a document. The piece of paper type icon for certain files may be displayed larger and/or further toward the top of the GUI than the icons for other files. Such a difference in prominence may be random, so as to make the display less monotonous and more pleasing to the eye. If groups of files are displayed together in a solitary representative information, different groups of files represented by an icon or symbol may also be displayed more prominently than other groups or individual files. In another embodiment, such differences in prominence may result from a decision made by the system to display the representative information of the files accordingly. For example, the system may determine to display more recently opened or edited files more prominently. In another example, the system may display messages that have been received but not read or responded to more prominently. In another example, the system may display photos or videos posted to the user's social networks that have a relatively greater number of social interactions with others on the social networks more prominently. If the system is displaying search results, the system may display results with more relevance to the search more prominently. Other criteria, such as number of times modified, date created, size of the file, or tag or metadata associated with the file, may also be used by the system to determine how to determine representative information to display more prominently on the GUI.

[0091] In another illustrative embodiment, the GUI may also display a representation of a current storage utilization of a device in which the GUI is being displayed. For example, the representation may include a graphical representation indicating a percentage or fixed amount of free storage space and used storage space. In another embodiment, such a representation may be used to indicate an amount of free and used storage space on a different device. In another embodiment, such a representation may be used to indicate an amount of free and used storage space on all of the user's devices combined. In another embodiment, such a representation may be used to indicate an amount of free and used storage space in a portion of a cloud storage space allotted to the user. In yet another embodiment, such a representation may be used to indicate an amount of free and used storage space in all of the user's devices and the portion of the cloud storage space allotted to the user.

[0092] In another illustrative embodiment, the representative information displayed on the GUI may include a hierarchical tree structure. Such a tree structure may indicate the various physical devices of the user and the files and folders stored thereon. The hierarchical tree structure may also indicate the files and folders stored on a user's allotted cloud storage space. In addition to showing where files are physically stored on various devices and/or cloud storage space, a hierarchical tree structure may alternatively or additionally display files in their designated virtual locations. A virtual file location is defined herein as a location the system visualizes a file being in, even if the file is not physically stored there. For example, a virtual location of "My Music" may contain all of a user's audio files, regardless of what device or folder the audio files are in. Thus, each audio file has a virtual location of the My Music folder. Other files and contacts may similarly have other virtual locations as determined by the system or the user. A virtual file is defined herein as a file that is a merged version of several files. The virtual file may physically exist on a storage device, or may exist locally when opened by the user and incorporates data from multiple physical files. A virtual file may be displayed as representative information on the GUI. The representative information may indicate that it is a virtual file, or the representative information may appear similar to the representative information for any other file, not indicating to the user that the file is a virtual file.

[0093] In an alternative embodiment, the representative information displayed on the GUI may be an amalgamation of representative information of multiple files. For example, the amalgamation may be represented by a circle. The circle may be sized according to the number of files represented by the amalgamation, a relative importance of the grouping of files, or other criteria. The amalgamation may also include text, such as the device or devices where the files in the amalgamation are stored, a file type or types of the files in the amalgamation, a total size of the amalgamation, or a preview of at least one of the files in the amalgamation.

[0094] Electronic files indexed, displayed, used, etc. by the system can include many things. For example, files as defined herein may include things such as documents, presentations, spreadsheets, e-mails, messages, audio files, video files, contact information, web pages, information from webpages, tasks, calendars, and the like. Such files may be gleaned by the system from various sources such as local file storages powered with operating systems (e.g., laptops, phones, tablets, media centers, etc.), external passive file storages (e.g., external hard drives, memory sticks, CD/DVD's, etc.), cloud storages (e.g., Dropbox™, Google Drive™, Evernote™, Flickr™' Facebook™ galleries, etc.), e-mail accounts (e.g., Gmail™, Hotmail™, Yahoo™ mail, exchange servers, etc.), messenger services (e.g., Twitter™, Skype™, SMS, Snapchat™, Viber™, Google Hangouts™, etc.), social media feeds (e.g., Facebook™' Google+™ LinkedIN™, etc.), contact lists (from e.g., e-mail accounts, messengers, telephone, personal address books, Outlook™ contacts, etc.), tasks, calendars, dictionaries, encyclopedias, internet sites, and any other services like FineReader™ online.

[0095] Advantageously, the systems and methods disclosed herein provide benefits over an exclusive utilization of cloud storage. Some people store information in a cloud storage in order to synchronize information on different personal devices. However, for other people, cloud storage is not necessary because personal devices have become very productive, and often have sufficient capabilities to handle the needs of many users without resorting to cloud storage strategies. In other cases, the amount of data produced by some

people is so massive that transferring that data to cloud servers may be cumbersome and time consuming. For example, a digital camera owner may return from a vacation with hundreds, if not thousands, of photos or videos in high resolution. If these photos and videos were moved to cloud storage, the photos and videos could occupy multiple gigabytes of memory in the cloud storage servers, and may additionally severely tax data transfer resources to move all the photos and videos to a cloud server. Further, many devices have become wirelessly connected to each other (e.g., smart TVs, media centers, cameras, fitness bracelets, Google™-glasses, other wearable computers, etc.) so that it may be preferable to keep some data on local devices rather than remote servers. Additionally, much of the data that could be stored on a cloud storage may never be used again, thus unnecessarily taking up space on the cloud storage servers.

[0096] Accordingly, there may not be sufficient resources and/or desire to move vast quantities of generated data from multiple devices to cloud storage and organize all of the data. Additionally, cloud storage systems or leaving data on multiple devices may not be satisfactorily searchable to make such methods for file storage useful.

[0097] The systems and methods discussed herein provide for a multiple device storage system where files can be organized across all personal devices, cloud locations, and applications (e.g., e-mail, word processing, videos, pictures, etc.). Further, people share computer files sending them as e-mail attachments or attaching them to instant messages, social media feeds, blogs, or publishing them in their galleries or cloud storages. Accordingly, the systems and methods herein provide for organization and searching not only across all personal devices and cloud locations but also through a user's e-mails, instant messages, social media feeds, blogs, media galleries, and other communication content.

[0098] In one illustrative embodiment, a system can display, access, distribute, synchronize, manage, and search different types of content, including but not limited to file content, communication content, contact content and other personal information across multiple devices and cloud servers. The system may also include a server system that communicatively couples to an agent-type application on one or more client devices.

[0099] In another illustrative embodiment, a method provides multi-platform content access, distribution, and synchronization of files on different devices including using a client-side application to manage transfer and presentation of files on a device and across server systems.

[0100] In another illustrative embodiment, a method provides multi-platform content access including full-text indexing of the content, files, and metadata of files located on a device and searching of files using full text index located on a server system.

[0101] In another embodiment, a method is disclosed for displaying data from local, external, offline, and other sources in a single interface presented to a user. The display can also include information on where the data and/or files are actually stored.

[0102] In another embodiment, a computer-readable medium may include instructions executable by a processor to cause the processor to perform functions enabling multi-platform content access, distribution, and synchronization on different devices. Such instructions may be embodied in a client-side computer organization application. In addition to the foregoing embodiments, other systems and computer program product embodiments are provided and supply related advantages.

[0103] The number of devices that a user may implement in her day-to-day life has proliferated. While these individual devices are often-times interconnected via, for example, wireless networking, cellular networking, and other infrastructures, systems and methods as disclosed herein can effectively manage data shared between such devices. For example, the systems and methods disclosed herein address platform content access, distribution, and synchronization of data and files, while managing the data and files as well.

[0104] The systems and methods disclosed herein better effectuate such platform content access, distribution, and synchronization, while at the same time managing the data itself so as to make more effective use of available cloud-based solutions. Finally, the systems and methods disclosed herein provide for utilizing multiple, yet interconnected, devices while making file organization over such devices and systems easy for a user.

[0105] The embodiments disclosed herein provide a convenient one-stop (unified) access to multiple forms of personal data. The embodiments facilitate a unified catalog of personal files across all devices, as well as an ability to view or play files locally or remotely.

[0106] In addition, the embodiments disclosed herein provide file and/or data management functionality, such as opening, copying, moving, deleting, archiving, sharing, and editing. The disclosed embodiments promote technology to automatically smart move files in a user's family cloud, so that there is always space on the user's phone and laptop, and the most necessary files are always at hand.

[0107] The embodiments disclosed herein also provide search functionality. Advantageously, the search functionalities disclosed herein expand searching beyond file name searching. This may be helpful where, for example, files arrive in e-mail or are shared online or by other means and have a computer generated file name. Accordingly, the embodiments disclosed herein can examine the metadata for full-text content utilizing a fuzzy search, within the meaning according to different ontologies, etc.

[0108] The embodiments disclosed herein also provide privacy/security functionality. In some embodiments, a repository of data will not be stored in the cloud for users concerned about privacy and security issues. There may be temporary or compartmentalized storage for proxy caching, data manipulation, or convenience, but significant duplication or long-term storage in the cloud can be avoided. Additionally, some embodiments may include no indexing or cataloguing of data in the cloud to ensure data protection, theft protection, corruption, integrity of data, and related issues with cloud based repositories. Further, some embodiments may keep no file catalogue or full theft index in the cloud. Further still, the architecture envisioned can either utilize or not utilize a mirrored or master copy of the index/catalogue data in the cloud. In some embodiments, a mirrored or master copy of the index/catalogue data in the cloud may be stored and indexed locally on the client side to facilitate local control of the index. In some cases, such an arrangement may be considered a peer-to-peer index and data synchronization process.

[0109] As will be further described, the embodiments disclosed herein provide search and data management functionality over an entire available range of data storage mediums and systems of exchange between devices. For example, vari-

ous embodiments disclosed herein promote (a) disclosure, (b) manage, and (c) search information functionality for (1) locally stored files, (2) offline files, (3) cloud-based files, (4) e-mail information (whether stored locally, offline, or remotely), (5) instant message/short message format information (again stored in a variety of locations), (6) social media feeds, (7) contact information, (8) other type of content including but not limited to dictionaries and encyclopedias, tasks, calendars, etc.

[0110] An illustrative embodiment includes a distributed platform and a client application that allows users to have very easy access to their files and e-mail. The embodiment brings together all user information sources available in the user's network, including local and cloud sources, external devices, social networks, e-mail, and telephone communications. Furthermore, the embodiment allows for data management, which may be configured to be seamless and automatic. For example, one of the user's devices may be running out of available storage space on a particular data medium. The system may make the decision to migrate data in order to free space, or perform backup operations.

[0111] Another illustrative embodiment includes a platform based on a back-end and a front-end, native client and external device architecture. Any product/service that generates data and files (documents or messages) can integrate with this platform as a source of data and files. Accordingly, the user can see these data and files in a uniform interface with an ability to search, tag, preview, manage, share, etc. The platform may include built-in smart rules and notification functionality. For example, a particular device may be wearable, such as a fitness bracelet. This device, through the embodiments disclosed herein, may trigger a rule or notification based on the activity of the user to provide an alert. Moreover, embodiments as disclosed herein may include infrastructure through which data may be displayed. For example, a user may again be wearing a device, through which the infrastructure facilitates the viewing of a video message or otherwise displays data.

[0112] In an illustrative embodiment and from the point of view of architecture—agent software is installed under Operating System (OS) software. The agent extracts text and metadata from all local files and e-mail and passes on the data to a server or other local or remote processing device (herein referred to as cloud service) for indexing. The agent monitors changes in files. The agent collects the actual aggregate of all the devices of the user code and creates a local copy of the relevant index (cache).

[0113] In an illustrative embodiment and from the point of view of the user interface, the cloud service provides a combination of a simple, but very dynamic, attractive, and convenient e-mail client and a simple, but very comfortable file manager. Such a program may function in ways used in a traditional e-mail client (e.g., Microsoft™ Outlook™), but also may include the ability to view not only an e-mail message but also files included in correspondence. This program, a client tied to the cloud service, or cloud service client, may be implemented for desktop operating systems (OSX™ and Windows™), and for mobile operating systems, such as iOS™ and Android™.

[0114] In one illustrative embodiment, the cloud service client interface for desktop OS is very fresh and light in the spirit of interfaces for mobile OS. This program is not intended to replace traditional e-mail clients or file managers, but aims to make working with mail and files easier. For example, a first type of functionality may serve to review incoming mail. A system may provide a radically more convenient way of presenting the incoming mail than traditional systems, such as Outlook™ and Mac Mail. Such a presentation may be based on the fact that important messages are displayed in a different way than un-important messages. Another feature of such a system may relate to the formation of responses to messages directly within the cloud service client.

[0115] Furthermore, content management technology can be used with a mail client, which facilitates easy sharing of local files. In the system, a file may be shared as either a copy or a replica. For the purposes of this disclosure, a copy of a file is identical to the original file at the time of duplication, but is not automatically updated after changes in the original file on a separate machine. A replica of a file is identical to the original file at the time of duplication, and is automatically updated after changes are made to the original file, even if the original file exists on a separate machine than the replica file.

[0116] In one embodiment, efficient management of photos and/or video information on personal devices is possible. Such embodiments allow for the following objectives to be realized. The local storage associated with the camera can be emptied, or at least can always have some available memory. The data can be made accessible from and to the user's network of devices, from cameras, phones, tablets, wearable devices, and others. The data can be made accessible to the user's contacts. The data can be retained in one backup location, while freeing space on the user's other devices. Finally, the interface allows Original Equipment Manufacturers (OEMs) access to retain communication with the user to enhance consumer loyalty, address usage (i.e., provide instruction to the user), and maintain accessibility in the event of a recall, warranty, or other consumer support issue.

[0117] Illustrated embodiments incorporate innovative data management functionality, for example, an ability to automatically move the files between a user's devices and a public, private, or personal storage account, so that: (1) the cloud service client moves important and frequently used files to the user's local device, (2) the client always maintains a certain predetermined amount of free space (e.g., 25%, 30%, 35%, 40%, etc.) on the local device by gradually moving less-used files to remote devices, and (3), the client keeps copies of important files at **2** or **3** physical locations on different devices to avoid data loss caused by the loss of one of the devices or data unavailability due to no network access. In other words, an important file can still be accessed from one device even while a second device containing the file is offline.

[0118] An example can be the following usage scenario. A user inserts a secure digital (SD) card containing photos into a device. The system then copies newer photos on the SD card to a photo folder on the local device, while retaining free space on the device as will be further described. The system can then apply optional photo filters, smart tagging, object-facial recognition, audio tagging, and the like. Newer photos are then replicated from the photo folder to an external hard drive or default backup device. The newer photos can also be replicated from the photo folder to a replica at a remote storage location (e.g., cloud). The replica copies on the cloud storage may serve as the backup copies or may be separate from the backup copies. The user is then able to share the photos with contacts as indicated on the interface. For example, certain icons may be displayed to indicate that the

photos are available in the system. The user may be able to click on an icon of the interface to start a slide show, share the photos, or perform another activity.

[0119] In an additional usage scenario, the user may turn on a scanner, and receive scans to a scan folder on his laptop. The mechanisms retain enough free space on the laptop by moving older images and retaining newer ones. The system may also apply photo filters, de-skew, perspective correction, optical character recognition (OCR), smart tagging, object-facial recognition, audio-tagging and the like. Newer scans can be replicated from the scan folder on the laptop to an external hard drive or default backup device. Newer scans can also be replicated from the scan folder to the remote storage location, again while retaining a certain amount of designated free space on the laptop and external and remote storage locations. The user is therefore able to share the scan with contacts as indicated by the interface.

[0120] In another embodiment, the system may implement an external communications link with a device that is accessible via the Internet, for example. The link may be provided to a user, whom after a short registration process then has the ability to connect a device through the external communications link, which then provides the user with OEM vendor content and accessibility through the interface. For example, the user may be asked to register an SD card, or verify a camera connection, during which the camera version is determined or confirmed. The mechanisms then will allow bi-directional communication between the user and the OEM via, for example, a designated tab, which may display OEM vendor content therein.

[0121] Software incorporating such embodiments may be installed via sharing (link shared via e-mail or other social networking contact), file sharing requiring installation of the software itself, or download from the appropriate website. Upon first use, the software may prompt for login information. If the user has used the software before, the user may be prompted to enter a login ID (such as an e-mail address) and a personal password. If the user has not used the software before, the user may be prompted to enter their e-mail address. A confirmation message can then be sent to the user's e-mail address that includes a temporary password in the message.

[0122] After confirming the user's e-mail address by using the temporary password to log in, a software window is displayed. In one illustrative embodiment, the left-hand side of the software window is empty initially. This side may be referred to as the workspace. On the right-hand side of the software window, available icons for sources such as my hard drive, external drives, if currently connected, cloud drives, Exchange, mail servers (Gmail etc.), other locations: camera, media centers etc., and other computers may be displayed. A user may be able to interact with the icons that represent the various sources. For example, a user may be able to drag an icon representing a source into the left-hand side workspace. By doing so, the software will recognize that the user has assigned that service or device to their personal cloud. The dragging may be accomplished using a mouse in a point and click fashion, or may be accomplished using a touch screen of some kind.

[0123] For example, the user may drag their hard drive icon to the left (the workspace). The software can further query the user for specific folders from the device that are to be indexed. By default, it suggests to index all folders on the user's local disk except for applications. The user can also connect their traditional e-mail clients (e.g., Outlook™, Exchange™ etc.). As soon as devices are assigned to the user's personal cloud, the workspace on the left is filled with a list of folders and files that have been assigned to the cloud storage.

[0124] At the top of the graphical user interface (GUI) window, the user views two large tabs: one for files and one for e-mail. In an alternative embodiment, a third tab may also be presented on the GUI for contacts. In other embodiments, other tabs may exist as well. For example, other tabs may include calendar and tasks tabs. A search field may also be presented on the GUI. As the sources are indexed, the system may display on the GUI a progress of the indexing. In the indexing, the system can detect duplicate files or very similar files in the user's personal cloud or other devices. For example, such matched files categorized as duplicates or other matched files may be categorized based on how well they match each other. For example, 100% duplicate files may have the exact same content and metadata, including the date and time the files were created and/or modified. In another example, 99.9% duplicate files may have the same content and metadata, save for being created at and/or modified at a different date and time. In another example, 99.8% duplicates may have the same content but may have different other metadata, such as a different file name. In another example, 99% similar files may have small differences in content.

[0125] The system may offer to consider files that are not 100% duplicate files as different versions. In an alternative embodiment, the system may utilize a different threshold. For example, the system may only offer to consider files that are 99% similar as different versions. The system may also consider the date and author of a last modification of a file, which of the files originates in an e-mail, by whom a possible e-mail was sent, when a possible e-mail was sent, etc. The system may utilize that information to make automatic decisions for indexing files. For example, if files meet a certain threshold of similarity or are duplicates, the system may only save the most recently modified version. In another example, the system may save all versions of the file but designate one version as an official version using one of the aforementioned criteria. In another embodiment, the system may offer to merge duplicates into one file. In such a case, the system may treat these physical files as a single logical file and synchronize the changes of this file across all its physical copies. If the duplicate is located within the same physical medium, the software will remove the physical duplicate (keeping an official copy).

[0126] The system may also analyze a user's e-mails and clear up the user's disorganization in contacts. Namely, the system may assign heuristically photos (or avatars) to any contacts of the user. The system may also obtain the photos or other information about the contacts from the user's social networks. For example, the system may obtain the 50 most active contacts with whom the user had communications in the last six months and may search for their e-mail addresses in a first social network. The system may also use other criteria to search for the contacts in the first social network, such as name or other data relating to a contact that the system may be able to glean from e-mails from the contacts or information manually entered by the user relating to the contacts. If the system fails to find such persons in the first social network, the system may move to a second social network and search for the contacts there using similar methods. The system may also locate contacts on social networks by searching

for similar names to the contacts among friends of the user (such methods may include transliteration and fuzzy search functionality).

[0127] In one embodiment, for each contact that a user has, a kind of dossier can be assembled for each contact. That is, the system can associate documents, files, e-mails, photos, etc. with each of the user's contacts. The system may also identify among all of the user's e-mail addresses, e-mail addresses that are preferred for e-mailing a contact, e-mail addresses that are not preferred for e-mailing a contact, and any wrong e-mail addresses (either e-mail addresses that are not valid or e-mail addresses that are not properly associated with the correct contact). The system may also add comments to e-mail addresses. Similarly, the system may clean up phone numbers on a contact list by analyzing the history of the user's SMS correspondence and phone calls. The system may also associate phone numbers with e-mail addresses that belong to the same contact.

[0128] Further, the system can analyze actual correspondence and make a brief summary of the user's relationship with a contact. For example, the system may determine the main theme of the correspondence, the degree of importance to the user of the contact or correspondence, or recommendations based on a particular correspondence. For example, a recommendation may be based on an e-mail from several months ago that asked the user for information, but has not yet been responded to. Such recommendations may be configurable by a user, or turned on and off by a user. In this case, the system may recommend that the user write a response, and the system may further prompt the user to include an answer to the specific inquiry in the original correspondence from several months ago. Any length of time used to determine a recommendation may also be configurable by the user. In another example, the system may note that a family member's birthday or anniversary is approaching, and the system may therefore alert the user to send them a message. The user may further be able to configure how long before such a birthday or anniversary the user should be alerted by the system. The user may further specify which family members or other contacts recommendations for special events like birthdays and/or anniversaries should generate alerts. In a similar example, the system may determine that a user has not sent an e-mail to a grandparent in two months. The system may send the user an alert that the grandparent should be e-mailed, which again can be fully configurable by the user. In another example, the system could generate a recommendation to correspondences that request a response (RSVP) for an event. Another example where a recommendation may be made is if correspondence indicates that the user owes someone money. The system may send such recommendations to the user in a variety of ways. The system may send the user a short message service (SMS) message, an e-mail message, a Facebook™ message, or other type of message that includes the recommendation. The recommendations could also be added to a calendar, task list, or reminder list for the user. In another embodiment, the recommendation could comprise an icon displayed along with the e-mail message.

[0129] In an illustrative embodiment, data to or from each contact can be automatically assigned a rank of importance. The rank of importance could be represented by a number, such as a number from 1 to 100. The rank of importance could also be a high, medium, or low categorization. Other ways of ranking may also be used. The user may change the ranking system manually, and may also change the rank of particular data manually. The ranks of importance for data may be used to determine how to visualize the incoming messages and e-mails from different contacts. For example, messages from higher ranked contacts or related to higher ranked conversations may be displayed by the system more prominently than other messages. By analyzing the data in social networking channels, e-mail addresses, message structures, and/or signatures in messages, the system may extract a contact's possible past and current places of employment. In this way, the system may build an ontology of the people and companies with whom the user has been corresponding and contacting.

[0130] In another illustrative embodiment, the system may analyze a user's e-mails, the user's contacts' ratings, the user's telephone communications and the like to simplify and organize the user's tasks. For this purpose, the system may implement a series of alerts, follow-ups, reminders (as well as by means of SMS), and the like, some of which may be generated based on the preceding discussion. The system can also identify the promises that the user once gave to e-mail recipients and prioritize and categorize them by identifying certain tasks or e-mails that the user needs to do or write today. The system can also be configured to generate tasks or e-mails that the user needs to do or write within other time periods, such as three days, one week, two weeks, or one month as just some illustrative examples. The system can also identify the promises that someone once gave the user in the correspondence and prioritize and categorize them by identifying the most important cases or e-mails where someone promised to do something for the user. The system may also be configured to create a draft letter reminding these contacts on the user's behalf that something is owed to the user as previously promised. Such a draft letter may include a copy or a quotation from the original correspondence where something was promised.

[0131] In another illustrative embodiment, the system may generate messages or recommendations to the user based on the user's usage and interaction with the system. For example, by analyzing content and user behavior with respect to folders and information sources, the system may jokingly inform the user in a natural language form about the user's activities with respect to the source. For example, when user hovers over a folder the system may gently and jokingly informs him, "You haven't opened this folder for ages."

[0132] In another embodiment, a user may wish to find a presentation, but does not recall the name of the file and does not remember the name of the file's location. The file may be located on the user's personal laptop or their work laptop. The user does remember that the file was prepared for John Smith, and that the presentation contained a red pie chart diagram. The user may selects a files tab. The system may then display to the user a complete file tree hierarchy of files on all of the user's devices. The user may browse the file tree hierarchy or may utilize a search field.

[0133] For example, the file may be located on the user's remote work computer. The user may wish to edit the document and send it to his manager. If the user attempts to open this remote file, the system can make a local physical copy of the file, and the user can work safely without worry about being disconnected from the network and losing the user's edits. However, the system retains the document as one logical file, and when the user is finished editing, the system will update the original copy. The system also attempts to make

use of available local applications to execute the file, though where that is not possible, remotely located applications may be utilized.

[0134] The system also allows any files to be moved, deleted, renamed, and copied in any personal cloud. In some embodiments, the actions may be immediately executed if the device the user is using and the device where the file of interest is stored are both online. In some embodiments, being online means being connected to the internet. However, more generally, being online as disclosed herein means that the two devices are able to communicate with each other, either through the internet or otherwise. If the devices are not online, some operations can be ordered with deferred execution. Such a process may prevent the need for people to constantly think about backing up files. Utilizing various mechanisms of the illustrated embodiments, the user can forget the problem of back-ups. In one embodiment, the system simply communicates the system folders and files that are important to the user, and asks the system to always store three physical copies in different locations. The system keeps track of the fact that these folders have at least three replicas. In the event that the user damages a device, for example, they can buy a new device, log into the cloud-based server using their e-mail address, and simply ask to restore the data to the new device. For security purposes, the user may designate those files and folders that he does not wish to be indexed.

[0135] As will be appreciated by one skilled in the art, aspects of the embodiments disclosed herein may be embodied as a system, method or computer program product. Accordingly, aspects of the embodiments disclosed herein may take the form of an entirely hardware embodiment, an entirely software embodiment (including firmware, resident software, micro-code, etc.) or an embodiment combining software and hardware aspects that may all generally be referred to herein as a "circuit," "module" or "system." Furthermore, aspects of the embodiments disclosed herein may take the form of a computer program product embodied in one or more computer readable medium(s) having computer readable program code embodied thereon.

[0136] Any combination of one or more computer readable medium(s) may be utilized. A computer readable storage medium may be, for example, but not limited to, an electronic, magnetic, optical, electromagnetic, infrared, or semiconductor system, apparatus, or device, or any suitable combination of the foregoing. More specific examples (a non-exhaustive list) of the computer readable storage medium would include the following: an electrical connection having one or more wires, a portable computer diskette, a hard disk, a random access memory (RAM), a read-only memory (ROM), an erasable programmable read only memory (EPROM or Flash memory), an optical fiber, a portable compact disc read-only memory (CD-ROM), an optical storage device, a magnetic storage device, or any suitable combination of the foregoing. In the context of this document, a computer readable storage medium may be any tangible medium that may contain, or store a program for use by or in connection with an instruction execution system, apparatus, or device.

[0137] Program code embodied on a computer readable medium may be transmitted using any appropriate medium, including but not limited to wireless, wired, optical fiber cable, RF, etc., or any suitable combination of the foregoing. Computer program code for carrying out operations for aspects of the embodiments disclosed herein may be written in any combination of one or more programming languages, including an object oriented programming language such as Java, Smalltalk, C++ or the like and conventional procedural programming languages, such as the "C" programming language or similar programming languages. The program code may execute entirely on the user's computer, partly on the user's computer, as a stand-alone software package, partly on the user's computer and partly on a remote computer, or entirely on the remote computer or server. In the latter scenario, the remote computer may be connected to the user's computer through any type of network, including a local area network (LAN) or a wide area network (WAN), or the connection may be made to an external computer (for example, through the Internet using an Internet Service Provider).

[0138] Aspects of the embodiments disclosed herein are described with reference to flowchart illustrations and/or block diagrams of methods, apparatus (systems) and computer program products according to embodiments disclosed herein. It will be understood that each block of the flowchart illustrations and/or block diagrams, and combinations of blocks in the flowchart illustrations and/or block diagrams, may be implemented by computer program instructions. These computer program instructions may be provided to a processor of a general purpose computer, special purpose computer, or other programmable data processing apparatus to produce a machine, such that the instructions, which execute via the processor of the computer or other programmable data processing apparatus, implement the functions/acts specified in the flowchart and/or block diagram block or blocks.

[0139] These computer program instructions may also be stored in a computer readable medium that may direct a computer, other programmable data processing apparatus, or other devices to function in a particular manner, such that the instructions stored in the computer readable medium produce an article of manufacture including instructions which implement the function/act specified in the flowchart and/or block diagram block or blocks. The computer program instructions may also be loaded onto a computer, other programmable data processing apparatus, or other devices to cause a series of operational steps to be performed on the computer, other programmable apparatus or other devices to produce a computer implemented process such that the instructions which execute on the computer or other programmable apparatus provide processes for implementing the functions/acts specified in the flowchart and/or block diagram block or blocks.

[0140] The flowchart and block diagrams in the figures illustrate the architecture, functionality, and operation of possible implementations of systems, methods and computer program products according to various embodiments disclosed herein. In this regard, each block in the flowchart or block diagrams may represent a module, segment, or portion of code, which comprises one or more executable instructions for implementing the specified logical function(s). It should also be noted that, in some alternative implementations, the functions noted in the block may occur out of the order noted in the figures. For example, two blocks shown in succession may, in fact, be executed substantially concurrently, or the blocks may sometimes be executed in the reverse order, depending upon the functionality involved. It will also be noted that each block of the block diagrams and/or flowchart illustration, and combinations of blocks in the block diagrams and/or flowchart illustration, may be implemented by special purpose hardware-based systems that perform the specified

functions or acts, or combinations of special purpose hardware and computer instructions.

[0141] FIG. **1** is a representation of a graphical user interface (GUI) **100** demonstrating an e-mail interface in accordance with an illustrative embodiment. In alternative embodiments, fewer, additional, and/or different components may be displayed on the GUI. The GUI **100** includes two tabs toward the top, an e-mails tab **105** and a files tab **110**. The e-mails tab **105** and the files tab **110** may, in an alternative embodiment, include a number indicating the number of e-mails or files indexed on each respective tab. In another alternative embodiment, a number in the e-mails tab **105** or the files tab **110** may also indicate a number of unread or new e-mails or newly indexed files. The GUI **100** further includes secondary tabs **115**. These secondary tabs **115** can help further sort the e-mails displayed when the e-mail tab **105** is selected. In GUI **100**, the e-mail tab **105** is selected, and thus the secondary tabs **115** are displayed. The secondary tabs **115** include options for sorting e-mails such as all, important, work, family, friends, architect, social, promo, and more. Some of the secondary tabs **115** are default and some are user defined. If a user selects one of the secondary tabs **115**, e-mails relating to that tab are displayed. In one embodiment, multiple secondary tabs **115** may be selected. Accordingly, e-mails may be sorted based on multiple criteria. In one embodiment, if two secondary tabs **115** are selected, any e-mails that relate to either of the subjects of the tabs are displayed. In an alternative embodiment, selecting two tabs displays only e-mails that relate to both tabs. More than two tabs may also be selected in various embodiments.

[0142] The GUI **100** also includes a search space **120**. If a user enters text into the search space **120**, the terms entered may be searched for among e-mails. The searching may search for the exact characters entered into the search space **120** or may include fuzzy searching. In an alternative embodiment, a search may be performed in areas other than just the e-mail folder. The GUI **100** also includes a settings and alerts icon **125**. If the user selects the settings and alerts icon **125**, the user is directed to displays that allow the user to change settings or alerts related to the system and methods disclosed herein. For example, wherever throughout this disclosure a feature is described as configurable by the user, the user may be able to navigate to a GUI that allows them to configure such a feature through the settings and alerts icon **125**.

[0143] The GUI **100** also includes e-mail previews, that preview individual e-mails. For example, e-mail previews **130**, **135**, and **140** are all shown on GUI **100**. E-mails **130** and **140** include an attached picture that is displayed in the preview. E-mail **130** includes multiple photos in the preview. One is displayed more prominently than the others. Each of e-mails **130**, **135**, and **140** include text that is displayed in the preview. E-mails **130**, **135**, and **140** also include a photo or avatar of the sender of the e-mail, the sender's name, and the date and time the e-mails **130**, **135**, and **140** were sent.

[0144] In this embodiment, e-mail **130** has been selected for full viewing by the user. Such selection may occur by the user tapping or clicking on the e-mail **130**. The full view **145** shows much of the same information as in the preview, except larger and more easily viewable. The full view includes much better views of photos **150** and **155**. Further, the user may interact with the photos **150** and **155** to cause a photo that is not displayed prominently by default, such as photo **155**, to be displayed more prominently. Also, if the e-mail **130** had more text then it currently does, the full text may be visible in the full-view **145** but not the preview. The GUI **100** also includes a contact info **160**. The system automatically displays the contact info **160** of the sender of the e-mail that is selected for the full-view **145**, in this case e-mail **130**. The contact info **160** includes the sender's photo or avatar, name, telephone number, groups, and e-mail history. In this case, Gary Thomas is part of the friends and architects groups. Thus, if the user selects secondary tabs **115** such as friends or architect, e-mails from Gary Thomas may be displayed on the GUI **100**. The groups that Gary Thomas is a part of may be automatically selected based on the interactions between the user and Gary, the content of the correspondence between the user and Gary, or information from the user's social networks. For example, if Gary Thomas was listed as a family member of the user on the user's Facebook™ profile, the system may automatically put Gary in the Family group. In an alternative embodiment, the user may configure and determine the groups that a contact belongs in. The e-mail history displayed in the contact info **160** indicates the magnitude of correspondence between Gary and the user. In this case, the user has received 23 e-mails from Gary and sent 32 e-mails to Gary.

[0145] FIG. **2** is a blown-up representation of a GUI **200** demonstrating an e-mail interface in accordance with an illustrative embodiment. In alternative embodiments, fewer, additional, and/or different components may be displayed on the GUI. Note that both in FIG. **1** and FIG. **2**, the e-mails displayed are all related to one another. That is, the several e-mails form a sort of conversation among the senders. In this instance, the e-mail messages are displayed from oldest to newest. In this way, the e-mails can be read along the normal flow of conversation when the e-mails are read from top to bottom.

[0146] FIG. **3** is a block diagram illustrating a file transfer system in accordance with an illustrative embodiment. In alternative embodiments, fewer, additional, and/or different components may be included in the system.

[0147] As shown in FIG. **3**, an e-mail file sharing architecture may include e-mail software **301** on a sending computer, an exchange server on the sender side **304**, a server on the recipient side **305**, and e-mail software **306** on the recipient computer. Also as shown, sender's e-mail software **301** is able to access a file#**01** **302** in sender's digital storage (the file to be sent) and generate an e-mail message **303** with a copy (file#**02**) of file#**01** attached. E-mail message **303** is sent through servers **304** and **305** to the recipient's software **306** as shown by the arrows on FIG. **3**. Recipient's software **306** receives e-mail message **307** (a copy of message **303**), which contains a file#**03** (a copy of attached file#**02**). The recipient machine may save a copy of file#**03** locally to a recipient computer as file#**04** **308**. In one exemplary embodiment, the software **301** may be Outlook™, the server **304** may be an Exchange™ server, the server **305** may be a Gmail™ server, and the software **306** is Mac-OS Mail. This embodiment is merely for illustration. Any other server and software types may be used in different embodiments of such a system.

[0148] FIG. **4** is a block diagram illustrating a second file transfer system in accordance with an illustrative embodiment. In alternative embodiments, fewer, additional, and/or different components may be included in the system.

[0149] As shown in FIG. **4**, an integrated e-mail file sharing architecture may include e-mail software **401** on a sending computer, an e-mail server on the sender side **405**, an e-mail server on the recipient side **407**, and e-mail software **408** on the recipient computer. In an example procedure, an e-mail

message **403** is composed using client software **401** and software **401** receives an indication that file#**01** **402** should be made accessible through the message **403**. Responsively, software **401** may access file#**01** **402** and upload a replica or copy of file#**01** to a cloud server **406**. The replica or copy is stored as file#**02** on cloud server **406** and software **401** receives access information for accessing file#**02**. Responsively, software **401** sends the access information to a cloud-based server and the server generates a document (page#**01**) **404** containing the access information. In other cases, the access information may be stored in the form in which the cloud-based server receives it. An indication of page#**01** (such as a network address, Internet address, linked file, or connection executable) is received or generated by software **401** and, in response to the indication being received or generated by software **401**, software **401** inserts or attaches the indication (or page#**01** itself) to message **403**. Message **403** is sent through servers **405** and **407** to software **408**.

[0150] If the recipient software **408** is a standard e-mail client, then the recipient receives e-mail message **409** (which is a copy of message **403**) from server **407** and accesses the link to the cloud-based server. The recipient computer accesses page#**01** **404** from the cloud-based server. In some cases, the recipient computer may receive a message encouraging the recipient to use the cloud-based e-mail client, along with a download link. By accessing page#**01**, the recipient is furnished with the link with access information to file#**02** on the cloud storage **406**. Recipient computer may use the link to access cloud storage **406** and download file#**02**, forming file#**03**-local copy or replica of the file#**02**.

[0151] If the recipient software **408** is a client implementing embodiments disclosed herein, then the process may be repeated in the same way, except all the process of receiving file#**03** may be automated and file#**03** may be either a copy or a replica of file#**02**. If file#**03** is a replica, then file#**01** or file#**03** may be updated when the other is edited. The updating may be accomplished through cloud-based server **404** so that file#**02** need not be stored on cloud server **406** to maintain the connection between file#**01** and file#**03**. In other implementations, file#**02** may continue to be stored and may serve as a link between the replica files.

[0152] If sender software **401** is also not a cloud-based client, then an agent process may be included as an add-on to software **401**. The agent may accomplish the uploading and attachment/insertion of the link that would have been performed by the cloud-based client. Then, message **403** may be sent and received in the same way as described above. Sender composes Outlook™ e-mail message, then runs the "attach file" command.

[0153] FIG. **5** is a representation of a GUI **500** demonstrating a multi-file type view in accordance with an illustrative embodiment. In alternative embodiments, fewer, additional, and/or different components may be displayed on the GUI. The GUI **500** includes e-mails tab **505** and files tab **510**. These two tabs may function similarly to the e-mails and files tabs described above with respect to FIG. **1**. In this embodiment, the files tab **510** is selected, and therefore files, instead of e-mails, are displayed in the GUI **500**. The GUI **500** also includes secondary tabs **515**, which are similar to the secondary tabs of FIG. **1**, except that here the secondary tabs **515** can be used to sort and view files instead of e-mails. In this embodiment, the work secondary tab **515** is selected, so that files relating to the user's work are displayed. The GUI **500** indicates with icon **520** which secondary tab is selected. In this scenario, the icon **520** is a folder because there is an actual virtual folder for work related files. The displayed files in the GUI **500** may be stored on different devices, but can still be located in the same work virtual folder. The space size indicator **525** indicates that the work virtual folder contains 2.3 gigabytes of data. In an alternative embodiment, the space size indicator **525** may also indicate a space remaining that is allotted to the user or the user's virtual work folder.

[0154] The folders display **530** of the GUI **500** shows that there are six folders associated with work. The folders display **530** also shows the six individual folders **540**. A folders size indicator **535** indicates that the folders contain 900 megabytes of data. The folders **540** may be opened to display the contents. The folders **540** may be physical or virtual folders, in that they may indicate actual physical storage locations or organizational storage locations.

[0155] The music display **545** of the GUI **500** shows several audio files **550**. While the music display **545** shows that 123 audio files exist, only a few are actually shown on GUI **500**. The system may display audio files that are most often played by the user, or the system may use some other criteria to determine which audio files are displayed. In an alternative embodiment, the system may display random audio files. If the user wishes to view other audio files, the user may select the music display **545** title in order to navigate to a GUI that displays more or all of the audio files. In an alternative embodiment, the user may be able to scroll through the list of the audio files **550** to view additional audio files.

[0156] The documents display **555** of the GUI **500** shows several different documents of different types. The documents size indicator **565** indicates that the documents take up 200 megabytes of memory. Example documents displayed in the documents display **555** include document **560** and document **570**. Similar to the audio files above, these documents may be displayed randomly from the 432 total documents, or the documents may be displayed based on a particular criteria, such as most recently modified or opened documents.

[0157] Photos are also displayed on the GUI **500**. For example, photo **575** and photo **585**. For simplicity, photo **585** does not show an image. However, photo **585** is meant to represent a lower resolution image than that of photo **575**. There are still further lower resolution images displayed than photo **585**. Further, a magnifying glass icon **580** is shown. In this embodiment, the magnifying glass icon **580** represents a search function that allows a user to search only the photos in the work virtual folder. Note that similar icons are present for the music, documents, and other portions of the GUI **500**. In this way, particularly if the photo the user desires is not currently displayed, the user may locate a particular photo or photos. Photos may be searched based on the photos' metadata, for example.

[0158] The other display **590** is also displayed on the GUI **500**. There are only two files in the other display **590**. For example, the file **595** is shown here. Files that may commonly be placed in the other display **590** are files that may not easily fit into the other categories displayed on the GUI **500**, such as folders, music, documents, and photos.

[0159] FIG. **6** is a representation of a GUI **600** demonstrating a photo view in accordance with an illustrative embodiment. In alternative embodiments, fewer, additional, and/or different components may be displayed on the GUI. The GUI **600** includes e-mails tab **605** and files tab **610**. These tabs may be similar to tabs **105** and **110** of FIG. **1**. Here, the files tab **610** is selected, so the GUI **600** displays files. On the left-hand

side of the screen, also referred to as a workspace, various storage mediums and types of files are listed. All of these represent locations of storage mediums and files that have previously been indexed by the system.

[0160] The workspace includes a places **615** section, a disks **620** section, a clouds **625** section, a top tags section **630**, a search for **635** section, and a representation of current storage utilization **640**. The places **615** section includes documents, photos, videos, attachments, etc. Each of the places **615** are considered virtual locations. For example, if a user clicked on or otherwise selected videos, all of the videos that can be accessed by the user would be displayed regardless of their actual physical location. However, the videos may still be displayed in the GUI **600** with an indicator of each video's actual physical location. Here, the photos are selected, as indicated by the arrow **645**. Accordingly, photos are being displayed on the GUI **600**.

[0161] The disks **620** section includes hard disk drives, solid state drives, or other physical memory of the user that has been indexed by the system. Here the disks **620** includes a Macitosh HD and an Iphone™ 4S, as examples. Unlike the places **615** section, the selections available in the disks **620** section are not considered to be a virtual location, but rather a physical location, since the selections are associated with actual memory on actual physical devices. Upon selecting one of the disks **620**, the system would display every file located on that memory. In an alternative embodiment, the system may not display software applications that are stored on a memory. In this embodiment, the actual file location of the displayed files is inherently displayed, since a physical memory has been selected and the arrow **645** would then point to one of the disks **620**. In a further embodiment, the system could also show, along with individual files displayed from the memory, where the files are actually located in a file tree hierarchy within the respective memory.

[0162] The clouds **625** section includes cloud storage locations where the user may have files stored. Additionally, the user may have access to files stored on cloud storage locations that have been placed there by others. The system may index and display those files as well.

[0163] The workspace also includes a top tags **630** section. The top tags show tags, which are a type of metadata, that are associated with files in the various virtual and physical locations. The top tags **630** section displays tags that are most commonly found among the various files indexed by the workspace. In an alternative embodiment, the top tags **630** section may only display the top tags for the selected location that is selected to be displayed. For GUI **600**, the currently selected location is the photos, so in this embodiment, the top tags for all photos may be displayed. In another embodiment, the top tags **630** section may not show the most used tags, but may rather use a different metric for determining which tags to display. For example, the system could display the most popular tags among all users of the system, the most popular tags of all users over a certain time period, the most popular tags of a similar demographic to the user, the most popular tags among those who the user has a relationship with such as the user's e-mail contacts, social network contacts, cloud storage contacts, etc. The system can also display tags that were most recently used by the user. If a user clicks on or otherwise selects one of the tags, whatever files are being displayed are sorted according to the selected tab. That is, only files that have the particular tag as metadata are shown. In alternative embodiments, multiple tags may be selected to sort displayed files in various ways. Furthermore, the tags that are displayed and how they are used can be configured by the user.

[0164] The workspace also includes the search for **635** section. The search for **635** section includes tags today, yesterday, and past week. If the user selects one of these tags, files that have been created or added to the system index in that time frame are displayed. In another embodiment, files that have been modified within the time frame are displayed. Other time ranges may also be used in alternative embodiments. In still other embodiments, the search for **635** section may include other types of tags, such as names of users who may have authored, edited, sent, commented on, or opened a file. By providing other types of tags here, the user could sort and filter documents in even further ways. The tags in the search for **635** section are all configurable by the user or may be automatically generated by the system.

[0165] The workspace also includes the representation of current storage utilization **640**. The representation of current storage utilization **640** demonstrates how much available and how much full memory the user has. Here, the representation of current storage utilization **640** demonstrates a total storage usage across all of the user's available storage mediums listed in the workspace. In an alternative embodiment, the representation of current storage utilization **640** may be configured to display usage of only certain storages, such as cloud storages or the user's iPhone™ 4S.

[0166] The photos as selected in the workplace are displayed in display area **650**. The photos displayed include, for example, photos **675** and **680**. Each photo in the present embodiment is displayed with a file title as well. The file title may indicate the name of the file. In other embodiments, the file title may also indicate other information, such as the actual physical location where the file is stored, the status of the device where the file is stored, and virtual locations the document is a part of, characteristics of the file, user input information about the file, tags regarding the file, and/or any other metadata relating to the file. Here, the user has positioned a pointer from a motion translation device over the photo **675**. As a result, the system has highlighted the photo **675** by placing an additional box around it. In this way, the user knows which photo will be selected if the user makes an input to select a photo, such as with a mouse click.

[0167] The GUI **600** also includes a scroll bar **685**. The scroll bar **685** allows the user to change the resolution of the photos he or she is viewing. In other words, if the user adjusts the scroll bar **685**, the photos displayed in the display area **650** are enlarged or reduced depending on which direction the scroll bar **685** is scrolled. Consequently, if the photos are enlarged, some photos may be removed from the display area **650** because they can no longer all fit in the display area **650**. Similarly, if the size of the pictures is reduced, more photos may be displayed in the display area **650**. In an alternative embodiment, the scroll bar **685** may instead be used to cycle through photos that are displayed in the display area **650**. In other words, if the user adjusts the scroll bar **685**, the photos in the display area **650** will change.

[0168] Navigation arrows **655** are also shown on the GUI **600**. The navigation can be used by the user to navigate to different displays. For example, if the user interacts with the left facing arrow, the system will display whatever was displayed previous to the GUI **600**. If the user then wishes to return to the GUI **600**, the user can interact with the right facing arrow. If instead the user wishes to navigate to a GUI

that was displayed two pages before the GUI **600**, the user may interact with the left facing arrow twice.

[0169] A folder hierarchy **660** is also shown on the GUI **600**. The folder hierarchy **660** indicates the current folder location that is being displayed, and allows the user to navigate to related parent folders of the currently displayed folder. Here, the folder hierarchy **660** has three sections, a left, middle, and right section. Each section may, in other embodiments, have text and/or an icon within the section indicating the location or function described herein. The left section may represent an original or home display. If the user clicks or otherwise interacts with the left section, the display will be returned to such an original or home display. The middle section represents a first hierarchical layer of what is currently being displayed. In this case, the first layer is places. As such, if the user interacts with the middle section, the GUI may display documents from all of the places as shown in the workspace on the left of the GUI **600**. The right section indicates the current display on the GUI **600**. If the user interacts with the right section, nothing will change on the current display. In this case, the right section merely serves to remind the user of the current location that is being displayed. In another embodiment, interacting with the right section may reset any filters, searches, or modifications that have adjusted what is displayed in the display area **650**. Such adjustments may be from the user's use of the scroll bar **685**, the search for **635** section, the top tags **630** section, or others. In other words, in this embodiment, interacting with the right section of the folder hierarchy **660** leads to resetting the display of the currently displayed location.

[0170] Sorting sub-tabs **665** are also displayed on the GUI **600**. The sorting sub-tabs **665** include creation date, recently changed, size, name, and favorite. Additionally, a tabs sub-tab is displayed. The tabs sub-tab may be used to configure which tabs are displayed in the sorting sub-tabs **665**. Next to the tabs sub-tab is a pin icon. The user may interact with the pin icon to hide or show the sub-tabs **665**. The sub-tabs **665** can be interacted with by the user to sort and filter what is shown in the display area **650**. In this embodiment, the creation date sub-tab is selected. Accordingly, the photos displayed in the display area **650** are photos that have been created most recently. In another embodiment, the photos displayed in the display area may be those that have been created the longest ago.

[0171] FIG. **7** is a representation of a GUI **700** demonstrating a photo view with a search menu displayed in accordance with an illustrative embodiment. In alternative embodiments, fewer, additional, and/or different components may be displayed on the GUI. The GUI **700** is similar to the GUI **600** in FIG. **6**, except that a search field **705** is being interacted with by a user. The GUI **700** includes the search field **705**. Here, no text has been entered by the user into the search field **705** yet, so a default text of "SEARCH" is still displayed in the search field **705**. However, the user has activated a cursor in the search field **705**. This causes an auto fill menu **725** to be displayed. The auto fill menu **725** displays suggestions for potential search results that the user may desire. In this embodiment, results such as result **710** and **715** are displayed. Here the user has positioned a pointer over the result **715**. As a result, the system displays a preview **720** of the file represented by the result **715**. The preview **720** may include extracted content of the file and/or metadata of the file.

[0172] FIG. **8** is a representation of a GUI **800** demonstrating an e-mail interface with a sorted contact list in accordance with an illustrative embodiment. In alternative embodiments, fewer, additional, and/or different components may be displayed on the GUI. The GUI **800** further displays an embodiment for viewing and writing e-mails in accordance with an illustrative embodiment. The GUI **800** includes an e-mails tab **805** and a files tab **810**. Here, the e-mails tab **805** is selected.

[0173] The GUI **800** also includes various sections of contacts, such as the recent contacts **820** section, the lobster **825** section, the family **830** section, and the friends **840** section. Here, the recent contacts **815** are displayed, and for example include contact **820**. Here, only a name, e-mail address, and photo or avatar is shown. However, alternative embodiments may show more or less information relating to a contact. The lobster **825** contacts are not displayed on the GUI **800**. A downward facing arrow to the left of the lobster **825** indicates that the contacts are hidden. If the user interacts with the downward facing arrow, the contacts will be displayed and the downward facing arrow will be displayed as an upward facing arrow, similar to those of family **830** and friends **840**. If the upward facing arrow of family **830** or friends **840** is interacted with, those groups of contacts will not be displayed on the GUI **800**. In this embodiment, recent contacts **815** cannot be hidden. However, in other embodiments recent contacts **815** may be hidden. Additionally, the groups of contacts displayed may be configured automatically by the system or manually by the user. Contact **835** is an example contact in the family **830** contacts section. Contact **845** is an example contact in the friends section.

[0174] In the GUI **800**, the contact **820** is selected as evidenced by an arrow **850**, and therefore only messages from contact **820** are shown in the GUI **800**. For example, previews **875** and **880** of messages from contact **820** are shown, as well as full e-mail **890**. The messages can be sorted or organized on the GUI **800** in several ways. For example, the messages may be sorted or organized with message type buttons **855**. The user can select to display only one or more message types. Here, the message types the user may select include e-mails, Skype™ messages, Facebook™ chats, and iMessages. Other options may be provided. The e-mails may also be sorted utilizing sub-tabs **860**, which include newest, oldest, important, archived, and deleted. Here, the newest sub-tab is selected as evidenced by an arrow **865**.

[0175] Draft e-mail section **870** provides the user an opportunity to respond to a selected e-mail. Draft e-mail section **870** allows the user to enter text for an e-mail, add attachments, to an e-mail, format the text of the e-mail, and add recipients to the e-mail.

[0176] Here, preview **875** has been selected as evidenced by an arrow **885** by the user and is shown as the full e-mail **890**. The preview **875** includes only contact information for the sender and some of the text of the e-mail. The full e-mail **890** shows the contact information, a more complete contact information **897**, photos such as photo **895**, and the full text of the e-mail.

[0177] Additionally, the user for the GUI **800** has positioned a pointer over preview **880**. As a result, the system has displayed a context menu over a portion of the preview **880**. Further, it is worth noting that the preview **880** is offset in the GUI **800** from the other preview e-mails. This may indicate that the preview **880** is a part of an e-mail conversation relating to the preview directly above it.

[0178] The context menu includes six icons. Starting from the left, a pin icon can be interacted with to determine whether or not the e-mail remains on the GUI **800** display. The first left

facing arrow may be interacted with by the user to direct the display to the first e-mail in an e-mail conversation. The second left facing arrow may be interacted with to direct the display to the previous e-mail in an e-mail conversation. Interacting with the right facing arrow may direct the display to the next e-mail in an e-mail conversation. In an alternative embodiment, the right facing arrow may be interacted with to direct the display to the final or most recent e-mail in an e-mail conversation. The icon second from the right is a download icon. When interacted with by the user, the e-mail and/or any attachments in the e-mail will be downloaded. The last icon is an X icon. If interacted with, that e-mail will be closed or hidden from view. In an alternative embodiment, interacting with the X icon will delete the e-mail.

[0179] FIG. **9** is a representation of a GUI **900** demonstrating an e-mail interface with a sorted contact list and an e-mail correspondence chain in accordance with an illustrative embodiment. In alternative embodiments, fewer, additional, and/or different components may be displayed on the GUI. The GUI **900** is similar to the GUI **800** shown in FIG. **8**, with a few differences, one of which is that e-mails from multiple contacts are displayed in the GUI **900**.

[0180] Further, the GUI **900** includes alert numbers **905** and **910**. The alert number **905** indicates that the user has three unread or new messages from contact Jane Wilson. The alert number **910** indicates that the user has one unread or new message from contact Steve Jones.

[0181] The full view e-mail in the GUI **900** includes a conversation preview, made up of preview messages **915**, **920**, and **925**. Each of the preview messages **915**, **920**, and **925** represent a different message that has been sent in a conversation relating to the full view e-mail that is displayed in the GUI **900**. Here preview messages **915** and **925** are messages sent by the user, thus designated with "YOU." The preview message **920** was sent by another contact, whose name would be displayed where "NAME" is shown on the GUI **900**. If a user interacts with any of the preview messages **915**, **920**, and **925**, that particular preview message will be displayed and can be reviewed by the user in detail.

[0182] FIG. **10** is a representation of a GUI **1000** demonstrating a single photo view in accordance with an illustrative embodiment. In alternative embodiments, fewer, additional, and/or different components may be displayed on the GUI. The GUI **1000** includes an e-mails tab **1005** and a files tab **1010**. On the GUI **1000**, the files tab **1010** is selected. Further, the GUI **1000** here shows a large view of a photo **1030**. The GUI **1000** may be a result of the selection of a photo from FIG. **6**, which is why the photo's virtual folder is selected as evidenced by the arrow **1015**. A view selector **1020** is also shown on the GUI **1000**. The different sections of the view selector **1020** may be interacted with to change how the photos are viewed. For example, interacting with the view selector may return to a view like the one depicted in FIG. **6**. Another section of the view selector **1020** may be interacted with to show a list of photo previews that displays significantly more metadata about the photos than is shown in FIG. **6**.

[0183] The photo that is being displayed on the GUI **1000** may also be changed utilizing arrows **1035** and **1040**. The user may move forward or backward in a sequence of photos using the arrows **1035** and **1040**. The GUI **1000** also shows tags related to the photo **1030**, such as tag **1055**. Additionally, the user may add new tags to a photo with add your tag **1060**.

[0184] The GUI **1000** also displays comments relating to the photo **1030**, such as comment **1045**. The user, who in this embodiment is named Eric Miller, may also comment on the photo **1030** using comment dialog **1050**.

[0185] FIG. **11** is a representation of a GUI **1100** demonstrating an electronic files view with reminders in accordance with an illustrative embodiment. In alternative embodiments, fewer, additional, and/or different components may be displayed on the GUI. The GUI **1100** includes an e-mails tab **1105** and a files tab **1110**. On the GUI **1100**, the files tab **1110** is selected. Here, the Google™ Drive is selected in the workspace as evidenced by an arrow **1115**. The GUI **1100** includes large file previews, such as previews **1120** and **1125**, as well as listed documents, such as document **1140**.

[0186] Preview **1120** is shown as a single page preview. Preview **1125** displays only the first page of the file as preview, but indicates that the file has multiple pages. In an alternative embodiment, this may indicate that there are several copies of the file throughout the user's devices, or that there are multiple versions of the file. Each preview is also displayed with a name, such as name **1130**.

[0187] Above the listed documents are sorting tabs **1135**. Sorting tabs **1135** include creation date, recently changed, kind, size, name and favorite. The user may interact with the sorting tabs **1135** to manipulate which files are displayed in the listed documents. If any of the listed documents are interacted with, they may be shown as a large file preview. The listed documents also includes reminder notes, such as reminder **1145**. The user may make such reminder notes either for himself or for other users who have access to the files with the reminders through a cloud storage. Additionally, reminders may also have been created by someone other than the user here, and therefore the user may be viewing reminders created by others. The list of documents also includes a checkbox **1150** and a favorite star **1155**. The favorite star **1155** can be toggled on and off so the user can designate or undesignated a file as a favorite. The checkbox **1150** may be utilized by the user when the user wishes to perform the same action on several files. To do this, multiple files may be checked, or selected, and the action can then be carried out on all the files that have been checked.

[0188] FIG. **12** is a representation of a GUI **1200** demonstrating a dynamic birds-eye view of a user's data in accordance with an illustrative embodiment. In alternative embodiments, fewer, additional, and/or different components may be displayed on the GUI.

[0189] The GUI **1200** demonstrates a state of a dynamic view of all of the user's data, which may be termed a birds-eye view. The birds-eye view assists the user to understand the structure of all of the data in his entire network. In addition, this dynamic view presents any history of file changes to the user.

[0190] The GUI **1200** includes an e-mails tab **1205** and a files tab **1210**. Here the Macintosh HD is selected from the workspace as evidenced by an arrow **1215**. Here, the search term "#GREEN" has been entered into the search field **1220**. Hence, any of the documents represented in the birds-eye view are related to the search term. However, in other embodiments, a dynamic display like the one in FIG. **12** may be displayed without search terms being entered. For example, if there were no search term entered in GUI **1200** but all else was the same, the various displays in the GUI **1200** would represent all of the files on the user's Macintosh HD, and not just the files associated with a search term.

[0191] The groups of files, or amalgamations, shown in the GUI **1200** all represent different things. For example, group **1225** represents all photos on the user's Macintosh HD that relate to the search term. If the group **1225** is selected, the photos may be displayed and examined in greater detail. The relative size and prominence of the group **1225** conveys information to the user. Here, it may convey that the user has more pictures than music or video. In another embodiment, the relative prominence of group **1225** may be an indicator that the user accesses photos more often than music or video files. Similarly, groups **1230**, **1240**, and **1255** may also be relatively sized based on quantity of files or preference of the user. In another embodiment, the relative sizes of the groups may indicate a relevance to the search term or terms. The groups may also be displayed using different colors. This can make the display more pleasant to look at, or the colors may indicate certain properties or relevance of files. The groups **1240** and **1255** indicate groups of files that correspond to certain hashtags. Groups such as group **1230** represents groups of files that correspond to certain contacts of the user.

[0192] In another example, groups **1235** and **1250** are displayed. Here, all files relevant to the search term from the year 2013 are represented by group **1235**. Group **1235** is displayed more prominently than the other year groups (here **2011** and **2012**) because of a relevance factor. That is, the system considers the year 2013 to be more relevant than past years to the user, thus group **1235** is displayed more prominently. Group **1250** is displayed with a medium amount of prominence because it may also be considered relevant to the user, since it contains files from last week. However, group **1250** is still intentionally smaller than group **1235** to indicate the relatively smaller group of files that are from last week than are from the entire year 2013. Also displayed on the GUI **1200** is a search dialog **1245**. The search dialog **1245** offers an alternative to the search field **1220**. Any searches performed using the search dialog **1245** may be dynamically displayed. That is, if a user searches for something, the user may visibly see groups change shape, move, be added, disappear, or change color depending on the relevance of files in each group to the search performed. Furthermore, groups can be customized and configured by the user or can be automatically generated by the system.

[0193] The groups displayed on the GUI **1200** can be interacted with by the user in a unique way. Each of the groups is displayed as a physical object that can be moved and has mass, speed, inertia, acceleration, magnetic, gravity, and/or other physical forces. The groups will therefore move and interact according to physical laws. A user may interact with the groups by dragging, moving, etc. the groups around the GUI **1200**. The groups themselves also interact with each other. For example, a very small group may be pulled toward a larger group through a gravity force. Groups can change behavior, trajectory, color, and shape while a user moves a pointer or finger, types a search query, gets search results, moves items, scrolls through lists, or does other actions. A search can be performed by dragging a group or groups to the search dialog **1245**. A search term can be removed from the search by dragging it out of the search dialog **1245**. In one embodiment, the system is constantly estimated each group's importance to the user, and the physical size of the group indicates the relative importance calculation of that group to the user. Other facets of a group may also be used to indicate importance, such as position, shape, content, and dynamic effects of a group.

[0194] For example, the groups may interact in ways similar to how physical objects might interact. For example, if a user drags a group by touching and swiping a group through a touchscreen, any groups that the dragged group comes into contact with may be bumped and moved on the display. In other words, no two groups may occupy the same coordinate space on the GUI **1200**, so if one bumps into another one will have to yield. In this regard, when two groups collide, the relative inertia, mass, and velocity of the groups may be taken into account. In other words, if a smaller group bumps a larger group, the larger group may be considered to have a larger mass than the smaller group. Thus, the smaller group would be able to transfer inertia to the larger group that either causes the larger group to move only slowly, while causing the smaller group to bounce off the larger group with much more velocity. In an alternative embodiment, where the user is dragging a group as described above, the system may give the group super powers. That is, the user dragging a group may give the group virtually unlimited mass, causing any group in its path to bounce off of it and out of the way. In this way, if a user wants to place a group in a particular place, they cannot be stopped from doing so.

[0195] In another example, certain groups may be subject to certain magnetic forces. For example, one group may subjected to a force between itself and a first type of groups, but not a second type of groups. For example, a photos group may be pulled toward other groups that contain other audio and/or visual media, such as videos, podcasts, music, and the like. In this way, by programming in a magnetic force between similar group types, the similar groups can be displayed together because of the magnetic forces acting upon them, as shown in one example in FIG. **12**. The system may also include negative magnetic forces. That, is some groups may also be programmed to repel each other. For example, a GUI may include groups related to personal photos and work photos. In order to prevent the two from mixing or being associated with each other, a repelling magnetic force may be programmed in.

[0196] Regarding mixing, the user may combine groups using the GUI **1200**. For example, a user may specify that one group envelope another to create a larger group representing the files of both the original two groups.

[0197] In an embodiment where a user may drag different groups around the GUI **1200**, a user may slow down and stop the movement of the group before releasing it. In this case, the group may not move after release, but for other forces acting on it, such as gravitational or magnetic forces. In another embodiment, the user may not slow down or stop the movement of a group being dragged before releasing the group. In this case, the moving group may maintain its inertia unless acted on by other forces. For example, the group may crash into other groups, cause the group to bounce and/or the other groups to move on the GUI **1200**.

[0198] Regarding searching, a user may search by either typing into the search dialog **1245** or dragging other groups to the search dialog **1245**. For example, if the user wishes to see group representations of files that only relate to the hashtag "sea," the group **1255** may be dragged by the user to the search dialog **1245**. Once the group **1255** has been placed in the search dialog **1245**, the group **1255** may no longer be subjected to the forces it would otherwise be subjected to. That is, the group **1255** is stuck in the search dialog **1245**. The system will perform the search by changing the relative sizes of the other remaining groups displayed on the GUI **1200** to indicate files that are relevant to the hashtag "sea." The chang-

ing of the sizes may be demonstrated immediately, or may be animated as a transition over time. Regardless of how quickly the groups change size to indicate the search results, the forces present between groups may change, and the groups will react accordingly. For example, if a group gets bigger, it may push other groups out of the way, while exerting a larger gravitational force on the other groups. If a group gets smaller, the gravitational force exerted on other groups may be reduced. The changes in gravitational forces based on search results may cause the groups to actually move on the GUI **1200** after the search is performed.

[0199] Although circles are used to represent groups in FIG. **12**, other shapes may be used in other embodiments. In such embodiments, the shape of a group may impact how the groups physically interact. For example, a circle bouncing off a circle in the GUI **1200** may not happen in the exact same way as a circle bouncing off of a triangle, the bounce angle may be different due to the different shape.

[0200] FIG. **13** is a representation of a GUI **1300** demonstrating a multi-level view including a hierarchical tree structure in accordance with an illustrative embodiment. In alternative embodiments, fewer, additional, and/or different components may be displayed on the GUI. The GUI **1300** includes an e-mails tab **1305** and a files tab **1310**. Here the files tab **1310** is selected. Further, the Macintosh HD is selected from the workspace. In the workspace, a pointer has been directed by a user to the attachments/dropbox location **1315**. As a result, the system has displayed a highlighted box around the attachments/dropbox location **1315**. Further, in the workspace, certain locations also indicate how many files are physically stored at each location. For example, the Macintosh HD has 241 files stored on it's hard drive. In an alternative embodiment, such a number may indicate something different, such as files indexed from this location within the last week or month.

[0201] The GUI **1300** also includes a search analysis section **1320**. This section indicates trends, data, and/or statistics regarding the search results. For example, 44 of the search results are associated with the tag "GREEN" and eleven of the search results are from files from the year 2012. In alternative embodiments, other statistics may also be displayed, such as size of files, author of files, sender of files, number of versions or changes from original, or importance.

[0202] A search term "REDCAT" has been entered into a search dialog **1325**. Accordingly, each one of the files or file representations in the GUI **1300** are related to the search term. A file tree hierarchy **1330** is shown in the GUI **1300**. The file tree hierarchy **1330** shows a navigable hierarchy that shows folders and sub-folders where relevant search results are located. Each level of the hierarchy also includes an indicator **1335** of how many relevant search results are in each folder. The folders displayed here can represent physical or virtual folders. A search results section **1340** may show the contents of a folder selected from the file tree hierarchy **1330**. In another embodiment, the system may automatically populate the search results **1340** with various relevant search results **1360**, such as photo **1350** and document **1365**. The search results **1360** may also be modified or sorted using a drop down menu **1345**. Here it is indicated that the results have been modified.

[0203] There are also subsections of the search results **1360**. Here, the subsections include media and document type results, though other types may be included in other embodiments such as contacts and messages. The media results also include a show all button **1347**. By interacting with the show all button **1347**, all of the media results may be displayed. In the alternative, if the user would like to view more results, an arrow **1355** may be interacted with to scroll through the different media results that are not currently displayed.

[0204] Here, document **1365** has been selected from among the search results. Accordingly in preview section **1375**, a preview **1380** of the document **1365** is displayed. Further information **1390** about the previewed file is also displayed. If a user has previously made a reminder regarding the file, the reminder is also displayed. Here, reminder **1385** is displayed along with the preview **1380**. At collaborators **1395**, the system may display who has collaborated on the file with the user. However, in this embodiment, nobody has collaborated on the file.

[0205] FIG. **14** is a representation of a GUI **1400** demonstrating a multi-level view including a document preview in accordance with an illustrative embodiment. In alternative embodiments, fewer, additional, and/or different components may be displayed on the GUI. The GUI **1400** shows an alternative display to the GUI **1300** of FIG. **13**. The GUI **1400** includes an e-mails tab **1405** and a files tab **1410**. Here the files tab **1410** is selected. The workspace of GUI **1400** also demonstrates how the status of a device or location might be indicated. At location **1445**, external HD for films, there is an indication that the location is offline. Here search results are shown as folders, such as folders **1415**, **1420**, and **1425**, and documents, such as documents **1430** and **1435**. Here the documents in the search results including the documents **1430** and **1435** include an extracted first page preview. The selected document, document **1430**, also has text from the document displayed as preview **1440**, which may be easier to read than the first page preview.

[0206] FIG. **15** is a representation of a GUI **1500** demonstrating the contents of a specific device's storage in accordance with an illustrative embodiment. In alternative embodiments, fewer, additional, and/or different components may be displayed on the GUI. The GUI **1500** includes an e-mails tab **1505** and a files tab **1510**. Here, the files tab **1510** is selected. The GUI **1500** shows another alternative embodiment to the GUIs **1300** and **1400** for displaying search results. Here the preview on the right side of the GUI **1500** is similar to previous embodiments. However, the results are displayed as a list of documents and including metadata regarding the documents. The search results include documents **1525** and **1530**. Here, a priority icon **1520** is associated with the document **1525**. This indicates that the user has noted that the document **1525** is a priority. Further, although not visible in FIG. **15**, the priority icon **1520** and other priority icons may be color coded in order to determine relative priority for different documents. A check mark icon **1535** also appears next to certain documents in the search results. Such a check mark icon **1535** indicates that the document has been backed-up on the user's cloud storage. If the original file is on cloud storage, then a check mark may indicate that the document has been backed up in a second location.

[0207] FIG. **16** is a representation of a GUI **1600** demonstrating a multi-level view including a document preview and an icon based tagging section in accordance with an illustrative embodiment. In alternative embodiments, fewer, additional, and/or different components may be displayed on the GUI. FIG. **17** is a representation of a GUI **1700** demonstrating an e-mail interface with a sorted contact list, an e-mail correspondence chain, and an icon based tagging section in accor-

dance with an illustrative embodiment. In alternative embodiments, fewer, additional, and/or different components may be displayed on the GUI. Both the GUI **1600** and the GUI **1700** display combinations of elements and functionalities discussed previously with respect to other figures. The GUI **1600** and the GUI **1700** demonstrate alternative embodiments to the previously discussed figures.

[0208] FIG. **18** is a block diagram illustrating various computing and electronic storage devices that may be used in accordance with an illustrative embodiment. In alternative embodiments, fewer, additional, and/or different components may be included in the system. FIG. **18** includes a personal computing device **1800**, a portable storage device **1897**, a network **125**, a cloud storage system **1830**, a tablet device **1840**, and a mobile electronic device **1865**. The personal computing device **1800** includes a processor **1815** that is coupled to a memory **1805**. The personal computing device **1800** can store and recall data and applications in the memory **1805**. The processor **1815** may also display objects, applications, data, etc. on a display/interface **1810**. The display/interface **1810** may be a touchscreen, a game system controller, a remote control, a keyboard, a mouse, a trackpad, a microphone, a camera, a set of buttons, a standard electronic display screen, a television, a computer monitor, or any combination of those or similar components. The processor **1815** may also receive inputs from a user through the display/interface **1810**. The processor **1815** is also coupled to a transceiver **1820**. With this configuration, the processor **1815**, and subsequently the personal computing device **1800**, can communicate with other devices, such as the cloud storage system **1830** through a connection **1887** and the network **1825**. Although FIG. **18** shows one personal computing device **1800**, an alternative embodiment may include multiple personal computing devices.

[0209] The tablet device **1840** includes a processor **1855** that is coupled to a memory **1845**. The processor **1855** can store and recall data and applications in the memory **1845**. The processor **1855** may also display objects, applications, data, etc. on a display/interface **1850**. The display/interface **1850** may be a touchscreen as most tablets have, but may also include or incorporate a keyboard, a game system controller, a remote control, a mouse, a trackpad, a microphone, a camera, a set of buttons, a standard electronic display screen, a television, a computer monitor, or any combination of those or similar components. The processor **1855** may also receive inputs from a user through the display/interface **1850**. The processor **1855** is also coupled to a transceiver **1860**. With this configuration, the processor **1855**, and subsequently the tablet device **1840**, can communicate with other devices, such as the personal computing device **1800** through a connection **1895** and the network **1825**.

[0210] The mobile electronic device **1865** includes a processor **1875** that is coupled to a memory **1885**. The processor **1875** can store and recall data and applications in the memory **1885**. The processor **1875** may also display objects, applications, data, etc. on a display/interface **1880**. The display/interface **1880** may be a touchscreen, a game system controller, a keyboard, a remote control, a mouse, a trackpad, a microphone, a camera, a set of buttons, a standard electronic display screen, a television, a computer monitor, or any combination of those or similar components. The processor **1875** may also receive inputs from a user through the display/interface **1880**. The processor **1875** is also coupled to a transceiver **1870**. With this configuration, the processor **1875**, and subsequently the viewer electronic device **1865**, can communicate with other devices, such as the tablet device **1840** through a connection **1890** and the network **1825**. Although FIG. **18** shows only one mobile electronic device **1865**, an alternative embodiment may include multiple mobile electronic devices.

[0211] FIG. **18** also includes the cloud storage system **1830**. The cloud storage system **1830** may include a number of servers that may have memory and processors. The cloud storage system **1830** is connected to the network through a connection **1835** and may communicate with other devices such as the mobile electronic device **1865**.

[0212] FIG. **18** also includes the portable storage device **1897**. This portable storage device **1897** may be a removable USB drive for example. Since such a portable memory does not have a processor, the portable storage device **1897** must be connected to a computing device for the information and files stored on the portable storage device **1897** can be read by such devices. Accordingly, in this embodiment, the portable storage device **1897** is plugged into the personal computing device **1800**, which can read the data from the portable storage device **1897** and communicate its contents or data related to its contents to any of the other devices that have access to the network **1825**.

[0213] The devices shown in the illustrative embodiment may be utilized in various ways. For example, any of the connections **1887**, **1890**, **1895**, and **1835** may be varied. Any of the connections **187**, **190**, **195**, and **135** may be a hard wired connection. A hard wired connection may involve connecting the devices through a USB (universal serial bus) port (like connection **1899**), serial port, parallel port, or other type of wired connection that can facilitate the transfer of data and information between a processor of a device and a second processor of a second device. In another embodiment, any of the connections **1887**, **1890**, **1895**, and **1835** may be a dock where one device may plug into another device. While plugged into a dock, the client-device may also have its batteries charged or otherwise be serviced. In other embodiments, any of the connections **1887**, **1890**, **1895**, and **1835** may be a wireless connection. These connections may take the form of any sort of wireless connection, including but not limited to Bluetooth connectivity, Wi-Fi connectivity, or another wireless protocol. Other possible modes of wireless communication may include near-field communications, such as passive radio-frequency identification (RFID) and active (RFID) technologies. RFID and similar near-field communications may allow the various devices to communicate in short range when they are placed proximate to one another. In an embodiment using near field communication, two devices may have to physically (or very nearly) come into contact, and one or both of the devices may sense various data such as acceleration, position, orientation, velocity, change in velocity, IP address, and other sensor data. The system can then use the various sensor data to confirm a transmission of data over the internet between the two devices. In yet another embodiment, the devices may connect through an internet (or other network) connection. That is, any of the connections **1887**, **1890**, **1895**, and **1835** may represent several different computing devices and network components that allow the various devices to communicate through the internet, either through a hard-wired or wireless connection. Any of the connections **1887**, **1890**, **1895**, and **1835** may also be a combination of several modes of connection. The network **1825** may also include similar components described above with

respect to the connections **1887**, **1890**, **1895**, and **1835**. In addition, the network **1825** may include intermediate servers, routing devices, processors, data traffic management services, and wired or un-wired connections.

[0214] To operate different embodiments of the system or programs disclosed herein, the various devices may communicate using the software systems and methods disclosed herein. Software applications may be manually installed on the devices or downloaded from the internet. Such software applications may allow the various devices in FIG. **18** to perform some or all of the processes and functions described herein. Additionally, the embodiments disclosed herein are not limited to being performed only on the disclosed devices in FIG. **18**. It will be appreciated that many various combinations of computing devices may execute the methods and systems disclosed herein. Examples of such computing devices may include smart phones, personal computers, servers, laptop computers, tablets, blackberries, RFID enabled devices, video game console systems, smart TV devices, or any combinations of these or similar devices.

[0215] In one embodiment, a download of a program to the mobile electronic device **1865** involves the processor **1875** receiving data through the transceiver **1870** through connection **1890** and the network **1825**. The network **1825** may be connected to the internet. The processor **1875** may store the data (like the program) in the memory **1885**. The processor **1875** can execute the program at any time. In another embodiment, some aspects of a program may not be downloaded to the viewer electronic device **1865**. For example, the program may be an application that accesses additional data or resources located in a server, or even the cloud storage system **1830** which may include one or more servers. In another example, the program may be an internet-based application, where the program is executed by a web browser and stored in a server that is part of the network **1825** or the cloud storage system **1830**. In the latter example, temporary files and/or a web browser may be used on the mobile electronic device **1865** in order to execute the program, system, application, etc. In additional embodiments, the tablet device **1840** and the personal computing device **1800** may use, store, or download software applications and web based programs in a similar way.

[0216] The configuration of the personal computing device **1800**, the portable storage device **1897**, the tablet device **1840**, the mobile electronic device **1865**, the network **1825**, and the cloud storage system **1830** is merely one physical system on which the disclosed embodiments may be executed. Other configurations of the devices shown exist to practice the disclosed embodiments. Further, configurations of additional or fewer devices than the ones shown in FIG. **18** may exist to practice the disclosed embodiments. Additionally, the devices shown in FIG. **18** may be combined to allow for fewer devices or separated where more than the five devices shown exist in a system.

[0217] FIG. **19** is a flow diagram illustrating a method **1900** of displaying representative information of files and e-mails on a GUI utilizing a two tab display in accordance with an illustrative embodiment. In alternative embodiments, fewer, additional, and/or different operations may be performed. Also, the use of a flow diagram is not meant to be limiting with respect to the order of operations performed. In an operation **1905**, the system determines the presence of electronic files, such as documents, photos, videos, messages, and contacts, on a several electronic devices of a user. Such devices could include a laptop, desktop computer, external hard drive, tablet, smart phone, etc. The system may also determine the presence of electronic files that the user has control of in cloud storage mediums. The index of all these electronic files may be stored on one of the user's devices or a cloud storage medium that the user's devices can access.

[0218] In an operation **1910**, representative information of the electronic files that has been indexed is displayed in a single window configuration. The electronic files are displayed on a first tab in the single window. In this embodiment, the electronic files displayed on the first tab do not include messages and contacts. However, in other embodiments, messages and contacts may be displayed.

[0219] In an operation **1915**, a second tab is also displayed in the single window configuration. In an operation **1920**, an input is received from the user to navigate to the second tab in the single window. The input may be through a touchscreen, traditional mouse, track pad, or other user input device. In an operation **1920**, e-mail files that have been indexed in the operation **1905** are displayed in the second tab. Accordingly, the method **1900** allows for indexing of electronic files, and a two tab display of information representing those files. The two tabs each display information regarding different types of electronic files. The two tabs can be switched back and forth quite easily from a single interaction or input from the user.

[0220] FIG. **20** is a flow diagram illustrating a method **2000** of determining files a user has access to and displaying representative information of the files on a GUI in accordance with an illustrative embodiment. In alternative embodiments, fewer, additional, and/or different operations may be performed. Also, the use of a flow diagram is not meant to be limiting with respect to the order of operations performed. In an operation **2005**, a presence of electronic files on user devices is determined and the files are indexed. This operation may be performed similarly to operation **1905** of FIG. **19**, discussed above.

[0221] In an operation **2010**, the system further determines and indexes any electronic files that have been shared with the user or that the user has access to. For example, if a document is shared with the user on a cloud storage medium, the system can determine a presence of the document and index the document. In another example, the system may determine photos that have been shared with the user through photo sharing websites such as Flickr™ or Facebook™. In an additional example, even if a file has not been shared with the user, its presence may still be determined by the system as relevant to the users. For example, if a photo has not been shared with the user, but the user has been tagged in the photo in an online social network, then the system may determine the photo relevant and index it. In an operation **2015**, representative information of the indexed files is displayed. The representative information includes both location information and descriptive information. That is, information on where a file is located and what a file is are both displayed.

[0222] FIG. **21** is a flow diagram illustrating a method **2100** of determining the status of various electronic devices and displaying that status on a GUI in accordance with an illustrative embodiment. In alternative embodiments, fewer, additional, and/or different operations may be performed. Also, the use of a flow diagram is not meant to be limiting with respect to the order of operations performed. In an operation **2105**, a status of various electronic devices is determined. For example, a status of an electronic device may be a connection status, an online status, an offline status, a passive status, an

active status, a connected status, an unconnected status, a currently operational status, a currently non-operational status, or a set in a lower functional mode status. For example, a lower functional mode may be a sleep, hibernate, or screen saver type mode. In another example, a lower functional mode may indicate that a device is locked or not logged into. In another example, a lower functional mode may indicate that a mobile device is on, but that most of the inputs are currently disabled and a display is turned off (for example, when someone darkens their phone while it is in his or her pocket or handbag).

[0223] In an operation **2110**, the status of each electronic device is displayed. The status of each device may be indicated on a GUI. In an operation **2115**, the status of each device is displayed along with representative information of electronic files. In other words, for an electronic file stored on an electronic device, the system will display a status along with the file whether the device where that file is stored is online or offline.

[0224] FIG. **22** is a flow diagram illustrating a method **2200** of extracting data from an electronic file and displaying a preview of the file on a GUI in accordance with an illustrative embodiment. In alternative embodiments, fewer, additional, and/or different operations may be performed. Also, the use of a flow diagram is not meant to be limiting with respect to the order of operations performed. In an operation **2205**, data is extracted from an electronic file. In an operation **2210**, the extracted data is used to generate a visual preview of the electronic file. For example, if the file is a document, a smaller version of the first page of the document may be used as a preview. In another example, if the file is a photo, a thumbnail of the photo can be generated to use as a preview. In an operation **2215**, the visual preview generated from the extracted data is actually displayed on a GUI.

[0225] FIG. **23** is a flow diagram illustrating a method **2300** of receiving an input from a user and displaying a context menu on a GUI in accordance with an illustrative embodiment. In alternative embodiments, fewer, additional, and/or different operations may be performed. Also, the use of a flow diagram is not meant to be limiting with respect to the order of operations performed. In an operation **2305**, the system receives an input from a motion translation device. In an operation **2310**, when a pointer is located over representative information of a file and a further input is received such as a mouse click, a context menu relating to the electronic file is displayed.

[0226] FIG. **24** is a flow diagram illustrating a method **2400** of receiving an input from a user an opening an electronic file to be displayed on a GUI in accordance with an illustrative embodiment. In alternative embodiments, fewer, additional, and/or different operations may be performed. Also, the use of a flow diagram is not meant to be limiting with respect to the order of operations performed. In an operation **2405**, the system receives an input from a motion translation device. In an operation **2410**, when a pointer is located over representative information of a file and a further input is received such as a mouse click, the electronic file is opened from an online device. In other words, a file is opened from a device that is currently accessible. The system may open the file with a predetermined primary application or a predetermined secondary application. For example, a Microsoft Word™ document may be opened and viewed in Word™ or Google™ Docs. The system may have a predefined preference for Microsoft Word™, but if that application is not available, the system can attempt to open the file with other applications.

[0227] FIG. **25** is a representation of a GUI **2500** demonstrating a tagging system and a context menu in accordance with an illustrative embodiment. In alternative embodiments, fewer, additional, and/or different components may be displayed on the GUI. The GUI **2500** is similar to the GUI **1400** discussed above with respect to FIG. **14**, with some differences that will be noted here (and the difference that FIG. **25** only shows a portion of the view shown in the GUI **1400**).

[0228] The GUI **2500** includes a search dialog **2505**. Here, the search dialog **2505** has the search term "REDCAT" entered. Accordingly, results shown, such as folder **2510** and document **2515** are related to the search term. In the top tags section of the GUI **2500**, different tag indicators are displayed. For example, tag **2530** and **2535** are shown on the GUI **2500**. The different tag symbols, including the tags **2530** and **2535** are each shown with a different pattern to so that the tags can be easily identified elsewhere. In other embodiments, other visual aspects could be used to indicate the different tags, such as different colors, different icons, or different text as shown in the tags below the tags **2530** and **2535**.

[0229] In the search results, the folder **2510** is associated with the tag **2530**, as indicated by tag indicator **2520**. The pattern within the tag indicator **2520** and the tag **2530** are the same, indicating that the tag **2530** applies to the folder **2510**. Similarly, the tag indicator **2525** associated with the document **2515** matches the patter of the tag **2535**. Accordingly, the document **2515** is associated with the tag **2535**.

[0230] Further, a pointer **2545** is shown on the GUI **2500**. Accordingly, the outline of the tag **2535** appears different than the other tags because the pointer **2545** is located over the tag **2535**. Although here the outline of the tag **2535** is different, the tag **2535** could change in other ways to indicate the pointer is over the tag **2535**. Further, the presence of the pointer **2545** over the tag **2535** also causes the system to display the tag dialog box **2540**. The tag dialog box **2540** could also be referred to as a context menu. That is, the content of what is shown in the tag dialog box **2540** is dependent on the context of how and where the box is displayed (here, the context relates specifically to the tag **2535**). Although here the tag dialog box **2540** is automatically displayed based on the presence of the pointer **2545** over the tag **2535**, in other embodiments a user may need a further input such as a mouse click to cause the tag dialog box **2540** to be displayed.

[0231] The tag dialog box **2540** indicates that tag info is being displayed. The tag dialog box **2540** further displays an "X" which if interacted with by the user causes the tag dialog box **2540** to close and cease being displayed on the GUI **2500**. The tag dialog box **2540** also includes descriptive words relating to the tag. Here, the tag is related to "fishing documents." Accordingly, the document **2515** is classified as a fishing document. A user may interact with the descriptive words to redefine or further define the tag **2535**.

[0232] FIG. **26** is a flow diagram illustrating a method **2600** of generating tags associated with electronic files in accordance with an illustrative embodiment. In alternative embodiments, fewer, additional, and/or different operations may be performed. Also, the use of a flow diagram is not meant to be limiting with respect to the order of operations performed. In an operation **2605**, the system determines a presence of electronic files of different types that are stored on multiple devices as disclosed herein. The electronic files may be many

various types of files and the multiple electronic devices may be many various types of devices as disclosed herein.

[0233] In an operation **2610**, the system determines metadata of the electronic files. As disclosed herein, metadata may include data such as the size of a file, date created, date modified, version, author, creator, location data, and many other various data related to the electronic files. In an operation **2615**, the system generates tags for the electronic files based on the determined metadata. As disclosed herein, the generating of the tags may be automatic by the system or may be manually done by the user.

[0234] FIG. **27** is a flow diagram illustrating a method **2700** of displaying search results related to a tag search in accordance with an illustrative embodiment. In alternative embodiments, fewer, additional, and/or different operations may be performed. Also, the use of a flow diagram is not meant to be limiting with respect to the order of operations performed. In an operation **2705**, the system receives a search input that includes a tag. The search input may be input by a user by entering text, or, for example, the user may simply click on a tag on a GUI and the system understands this interaction to indicate a search input of that tag. In an alternative embodiment, the system may receive a search input including text, but the system can determine that the text is similar to a tag.

[0235] In an operation **2710**, the system identifies electronic files associated with the tag. In an operation **2715**, the system displays on a GUI representative information of the electronic files identified that are associated with the tag. The system may display the electronic files on any number of GUIs as disclosed herein. Furthermore, the system may determine particular electronic files of which to display the representative information of more prominently based on an importance level of that electronic file's associated tags.

[0236] FIG. **28** is a flow diagram illustrating a method **2800** of utilizing a watchdog tag in accordance with an illustrative embodiment. In alternative embodiments, fewer, additional, and/or different operations may be performed. Also, the use of a flow diagram is not meant to be limiting with respect to the order of operations performed. In an operation **2805**, the system receives a watchdog input. The watchdog input is defined here to mean that a user interacts with a tag in way that indicates to the system that the user wishes to designate that tag as a watchdog tag.

[0237] In an operation **2810**, the system designates a watchdog tag in response to the watchdog input from the user. In an operation **2815**, the system identifies during a baseline search electronic files related to the watchdog tag. In this embodiment, the baseline search is performed relatively soon after the system has designated the watchdog tag, so that the baseline of electronic files associated with the watchdog tag can be established as soon as possible after the system receives the watchdog input from the user.

[0238] In an operation **2820**, the system identifies electronic files during a follow up search any electronic files associated with the watchdog tag. In an operation **2825**, the system determines a difference between the results of the baseline search and the follow up search results. In an operation, **2830**, the system sends a notification to the user regarding the determined different between the baseline search results and the follow up search results. In an alternative embodiment, the system may not determine a difference between the baseline search results and the follow up search results. In that case, a notification would not be sent to the user because there would be no difference to notify the user of. In another alternative embodiment, the system may determine whether differences between the baseline search results and the follow up search results have reached a certain predetermined threshold before notifying the user. In this way, the system may avoid sending annoying or useless notifications to a user regarding trivial changes and differences between the baseline search results and the follow up search results. Instead, the system would only send notifications to the user when the changes and differences between the two results were enough. Such changes may relate to a total number of electronic files changed, or the metric may rather be a certain percentage of a single electronic file must be changed to meet the predetermined threshold for notification.

[0239] FIG. **29** is a flow diagram illustrating a method **2900** of displaying electronic files with high importance tags in accordance with an illustrative embodiment. In alternative embodiments, fewer, additional, and/or different operations may be performed. Also, the use of a flow diagram is not meant to be limiting with respect to the order of operations performed. In an operation **2905**, the system determines that a tag is of high importance. The system may make this determination according to various systems and methods as already described herein in detail.

[0240] In an operation **2910**, the system displays on a GUI an electronic file associated with the tag of high importance more prominently than an electronic file that is not associated with the tag of high importance. The display may be in accordance with various systems and methods as disclosed herein. For example, a more prominently displayed electronic file may include a preview of the file, while a less prominently displayed file may not include a preview.

[0241] FIG. **30** is a flow diagram illustrating a method **3000** of indexing tags associated with electronic files in accordance with an illustrative embodiment. In alternative embodiments, fewer, additional, and/or different operations may be performed. Also, the use of a flow diagram is not meant to be limiting with respect to the order of operations performed. In an operation **3005**, the system generates an index of tags related to various electronic files in accordance with systems and methods disclosed herein. In an operation **3010**, the system stores the index on a single one of a plurality of electronic devices. For example, the system may store the index in a cloud storage system, a user's laptop, or a user's smart phone. Advantageously, this allows a user to search tags of various electronic files, even if the electronic files themselves are being stored on an electronic device that is not currently available.

[0242] FIG. **31** is a flow diagram illustrating a method **3100** of moving files according to an optimal storage utilization of an electronic device in accordance with an illustrative embodiment. In alternative embodiments, fewer, additional, and/or different operations may be performed. Also, the use of a flow diagram is not meant to be limiting with respect to the order of operations performed. In an operation **3105**, a current storage utilization level of a first device is determined by the system. The current storage utilization level represents an amount of storage that is being used by a particular electronic device. In other embodiments, the system may determine and utilize current storage utilization levels of multiple devices combined or all of the devices of a user combined. In another alternative embodiment, the system may utilize a current storage utilization level that indicates an average storage utilization level of multiple devices.

[0243] In an operation **3110**, the system determines that the current storage utilization level of the first device exceeds an optimal storage utilization level. Such an optimal storage utilization level may be a default level set by the system. The default level may be tailored to a specific device. For example, a tablet may have a default optimal storage utilization level of 65% or less, while an external hard drive may have a default optimal storage utilization level of 95% or less. In an alternative embodiment, the user may set and determine the optimal storage utilization levels for all or some of the user's devices.

[0244] In an operation **3115**, the system determines that a first file on the first device is associated with a tag of a particular importance level. In an operation **3120**, the file is moved from the first device to the second device. In an alternative embodiment, the electronic file being associated with a tag of a particular importance level would cause the system to not relocate the file, and instead relocate a file that is not associated with the tag.

[0245] In an illustrative embodiment, any of the operations described herein can be implemented at least in part as computer-readable instructions stored on a computer-readable medium or memory. Upon execution of the computer-readable instructions by a processor, the computer-readable instructions can cause a computing device to perform the operations.

[0246] The foregoing description of illustrative embodiments has been presented for purposes of illustration and of description. It is not intended to be exhaustive or limiting with respect to the precise form disclosed, and modifications and variations are possible in light of the above teachings or may be acquired from practice of the disclosed embodiments. It is intended that the scope of the invention be defined by the claims appended hereto and their equivalents.

What is claimed is:

1. A method according to a set of instructions stored on a memory of a computing device, the method comprising:

identifying, by a processor of the computing device, a plurality of electronic files stored on a plurality of electronic devices, wherein the plurality of electronic files comprises different file types, and further wherein the plurality of electronic files are associated with a user;

determining, by the processor, metadata of the plurality of electronic files; and

generating, by the processor, tags for the plurality of electronic files based on the metadata.

2. The method of claim **1**, wherein the tags are automatically generated.

3. The method of claim **1**, wherein the electronic files comprise e-mail messages, text messages, instant messages, social network messages, contacts, tasks, or calendar entries.

4. The method of claim **3**, wherein the tags specify an organization or person associated with the plurality of electronic files.

5. The method of claim **1**, wherein the electronic files comprise tasks or calendar entries and further wherein the tags specify a location and a time interval associated with the plurality of electronic files.

6. The method of claim **1**, further comprising:

receiving, by the processor, a search input comprising a first tag;

identifying, by the processor, a first group of the plurality of electronic files that are associated with the first tag; and

displaying, by the processor, on a graphical user interface (GUI), representative information of at least one of the first group of the plurality of electronic files, wherein the representative information comprises descriptive information relating to the at least one of the first group of the plurality of electronic files.

7. The method of claim **6**, wherein the representative information further comprises a second tag related to the at least one of the first group of the plurality of electronic files.

8. The method of claim **7**, further comprising:

receiving, by the processor, a watchdog designation input;

designating, by the processor, the second tag as a watchdog tag in response to the watchdog designation input;

identifying, by the processor, during a baseline search, a first group of watched electronic files that are related to the watchdog tag; and

identifying, by the processor, during a follow up search, a second group of watched electronic files that are related to the watchdog tag.

9. The method of claim **8**, wherein a predetermined amount of time passes between the identifying of the first group of watched electronic files and the identifying of the second group of watched electronic files.

10. The method of claim **8**, further comprising:

determining, by the processor, a first difference between the first group of watched electronic files and the second group of watched electronic files; and

sending, by the processor, a notification in response to the first difference.

11. The method of claim **10**, wherein the notification indicates the first difference.

12. The method of claim **8**, further comprising determining by the processor that the first group of watched electronic files and the second group of watched electronic files are not different.

13. The method of claim **8**, further comprising:

determining, by the processor, a magnitude of differences between the first group of watched electronic files and the second group of watched electronic files;

determining, by the processor, that the magnitude of differences is equal to or greater than a predetermined threshold magnitude of differences; and

sending, by the processor, a notification in response to the determining that the magnitude of differences is equal to or greater than a predetermined threshold magnitude of differences.

14. The method of claim **6**, further comprising:

determining, by the processor, a second tag associated with a second one of the plurality of electronic files and is further associated with a predetermined level of importance; and

displaying, by the processor, on the GUI, a second representative information of the second one of the plurality of electronic files, wherein the second representative information comprises descriptive information relating to the second one of the plurality of electronic files, and further wherein the second representative information is displayed more prominently on the GUI than the representative information.

15. The method of claim **1**, wherein the generating tags for the plurality of electronic files based on the metadata further comprises:

determining, by the processor, important metadata and unimportant metadata from the metadata of the plurality of electronic files;

generating, by the processor, tags for the plurality of electronic files based on the important metadata and not on the unimportant metadata.

16. The method of claim **1**, further comprising:

generating, by the processor, an index comprising the tags and the metadata of the plurality of electronic files;

storing, by the processor, the index on a single one of the plurality of electronic devices.

17. The method of claim **1**, further comprising:

determining, by the processor, a current storage utilization level of a first electronic device of the plurality of electronic devices;

determining, by the processor, that the current storage utilization level of the first electronic device exceeds an optimal storage utilization level of the electronic device;

determining, by the processor, at least one of the plurality of electronic files that is associated with a first tag of a predetermined importance level; and

automatically moving, by the processor, the at least one of the plurality of electronic files from the first electronic device to a second electronic device of the plurality of devices in response to determining that the current storage utilization level exceeds the optimal storage utilization level.

18. The method of claim **1**, further comprising, receiving, by the processor a user defined command to modify at least one of the tags.

19. An apparatus comprising:

a memory;

a processor operatively coupled to the memory; and

a first set of instructions stored on the memory and configured to be executed by the processor, wherein the processor is configured to:

identify a plurality of electronic files stored on a plurality of electronic devices, wherein the plurality of electronic files comprises different file types, and further wherein the plurality of electronic files are associated with a user;

determine metadata of the plurality of electronic files; and

generate tags for the plurality of electronic files based on the metadata.

20. A non-transitory computer readable medium having instructions stored thereon that, upon execution by a computing device, cause the computing device to perform operations, wherein the instructions comprise:

instructions to identify a plurality of electronic files stored on a plurality of electronic devices, wherein the plurality of electronic files comprises different file types, and further wherein the plurality of electronic files are associated with a user;

instructions to determine metadata of the plurality of electronic files; and

instructions to generate tags for the plurality of electronic files based on the metadata.

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