US 20170061345A1

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2017/0061345 A1

Jones, III et al. (43) Pub. Date: Mar. 2, 2017

(54) **SYSTEMS AND METHODS FOR ELECTRONICALLY MONITORING EMPLOYEES TO DETERMINE POTENTIAL RISK**

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(21) Appl. No.: **15/248,372**

(22) Filed: **Aug. 26, 2016**

Related U.S. Application Data

(60) Provisional application No. 62/210,744, filed on Aug. 27, 2015.

Publication Classification

(51) **Int. Cl.**

G06Q 10/06 (2006.01)

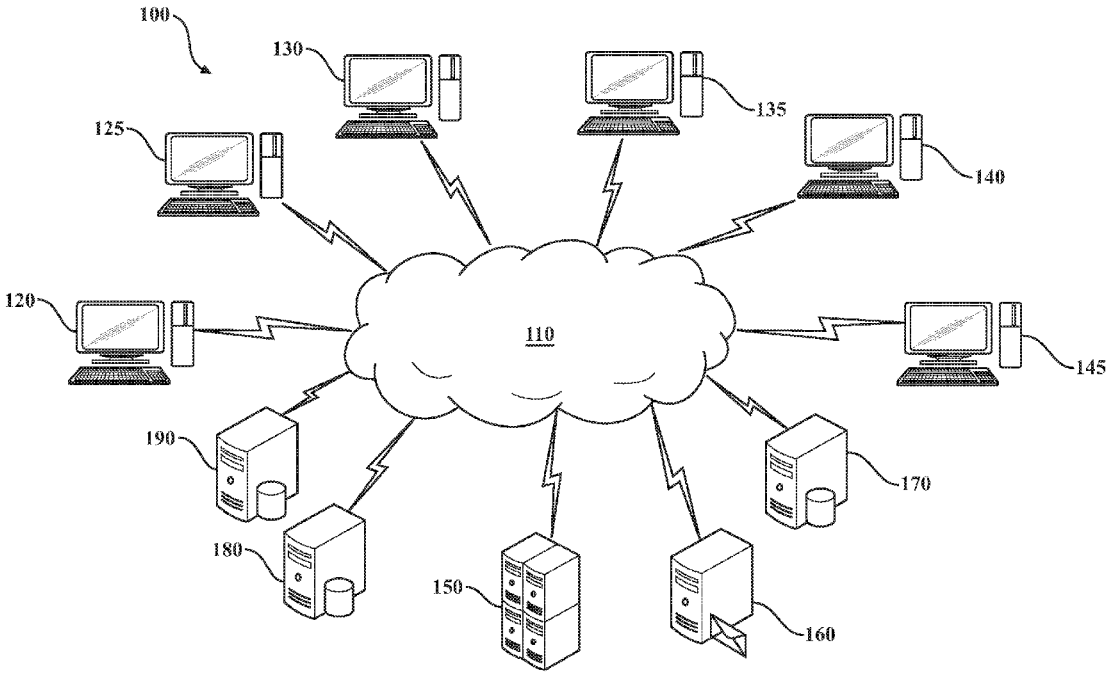
G06Q 50/00 (2006.01)

(52) **U.S. Cl.**

CPC ***G06Q 10/0635*** (2013.01); ***G06Q 50/01*** (2013.01)

(57) **ABSTRACT**

Systems, methods, and computer machines for electronically monitoring an employee's behavior to identify risk are described. A method includes receiving first data from legal databases that includes information regarding legal activity relating to the employee, receiving second data from financial databases that includes financial activity relating to the employee, receiving third data relating to activities electronically conducted by the employee on a network, receiving fourth data from social networking databases that includes social networking activity conducted by the employee, aggregating the first, second, third, and fourth data into an employee profile relating to the employee, determining legally Protected Information regarding the employee from the employee profile, determining anomalies associated with the employee based on the employee profile and the legally Protected Information, and generating an alert relating to the anomalies. The alert does not reveal to the user any references to the legally Protected Information which was used to process the alert.



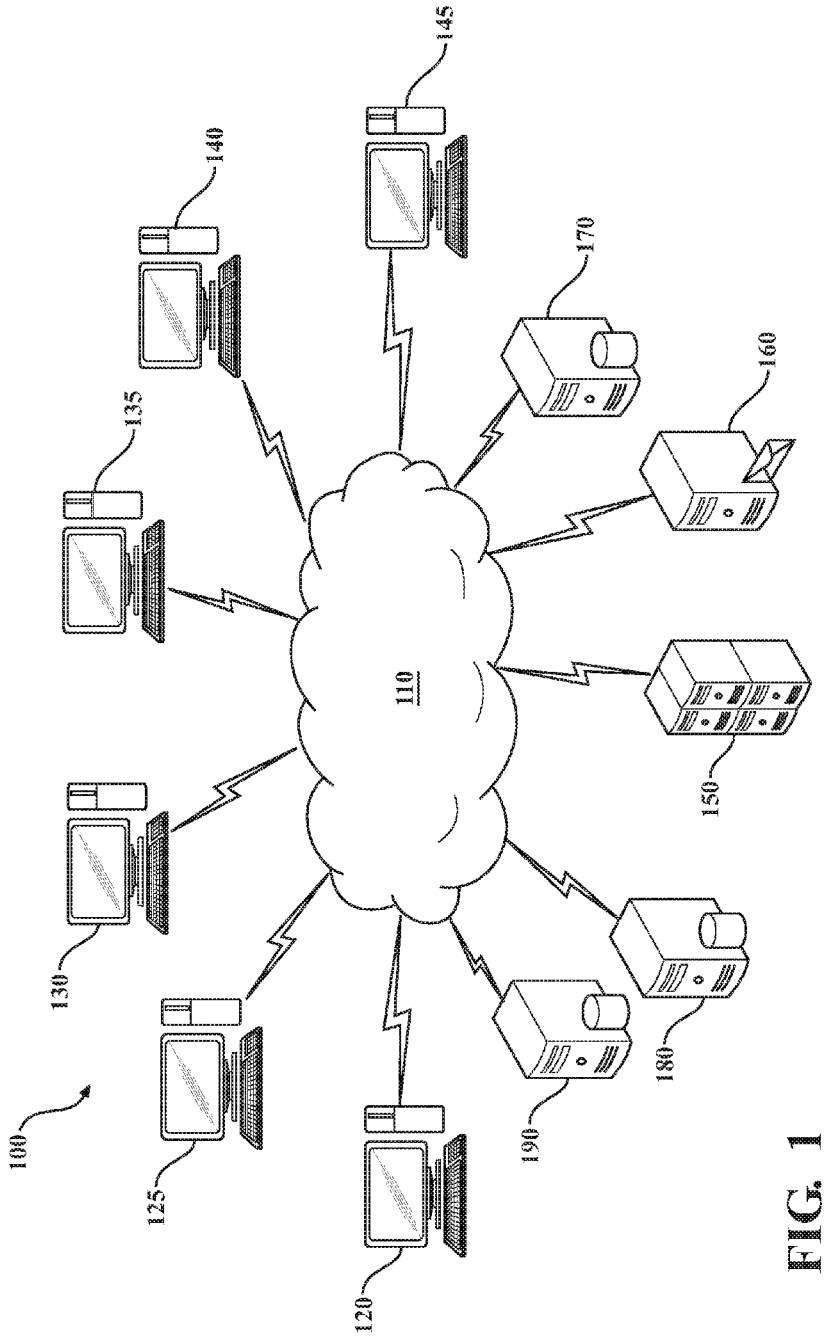


FIG. 1

FIG. 2A

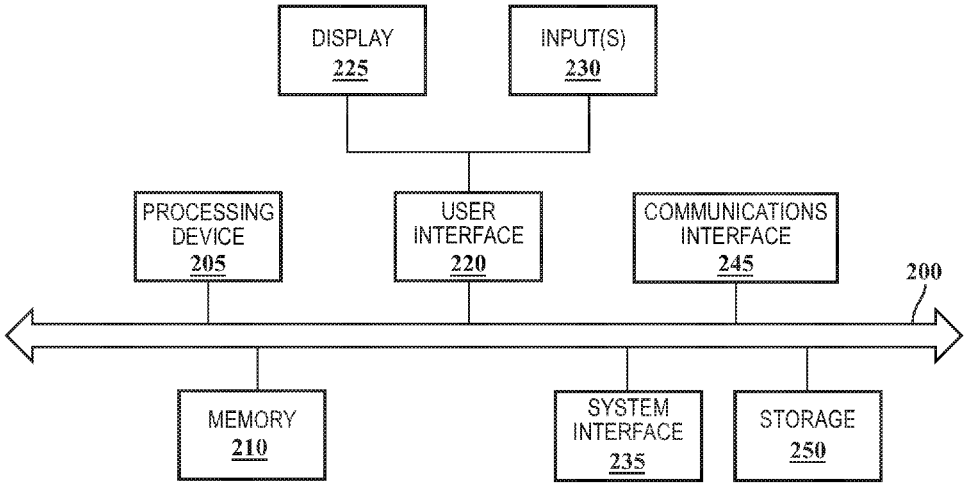
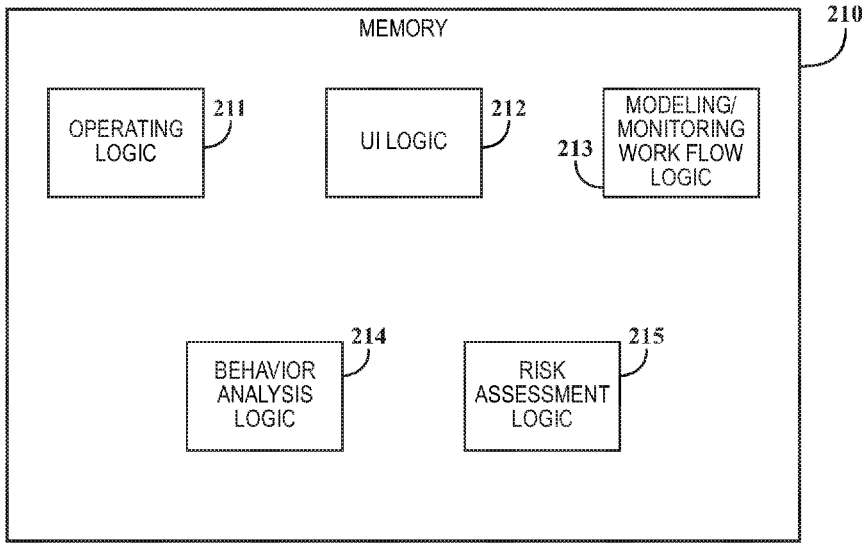

DISPLAY
225
INPUT(S)
230
PROCESSING DEVICE
205
USER INTERFACE
220
COMMUNICATIONS INTERFACE
245
200
MEMORY
210
SYSTEM INTERFACE
235
STORAGE
250

FIG. 2B


MEMORY
210
OPERATING LOGIC
211
UI LOGIC
212
MODELING/ MONITORING WORK FLOW LOGIC
213
BEHAVIOR ANALYSIS LOGIC
214
RISK ASSESSMENT LOGIC
215

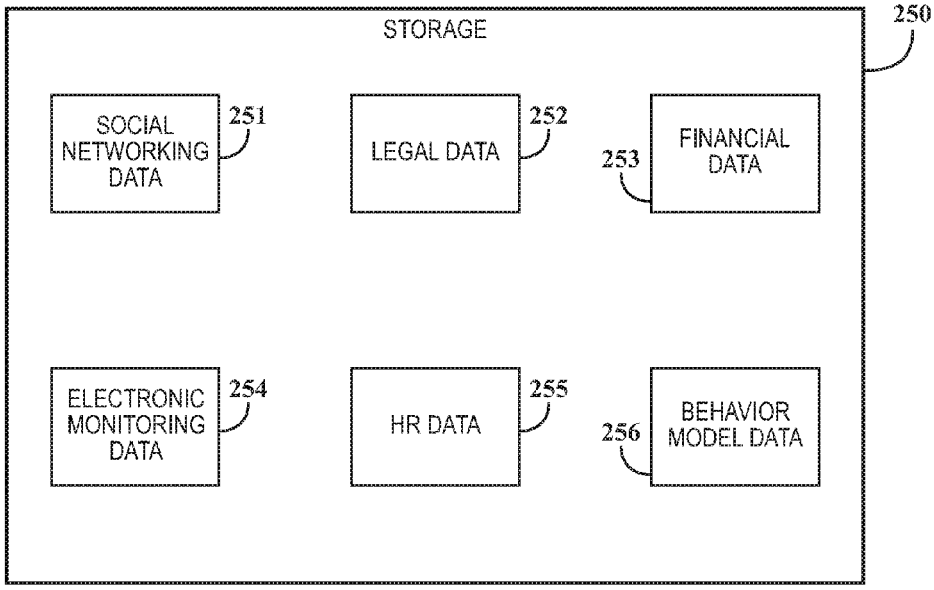

STORAGE
250
SOCIAL NETWORKING DATA
251
LEGAL DATA
252
FINANCIAL DATA
253
ELECTRONIC MONITORING DATA
254
HR DATA
255
BEHAVIOR MODEL DATA
256

FIG. 2C

FIG. 3

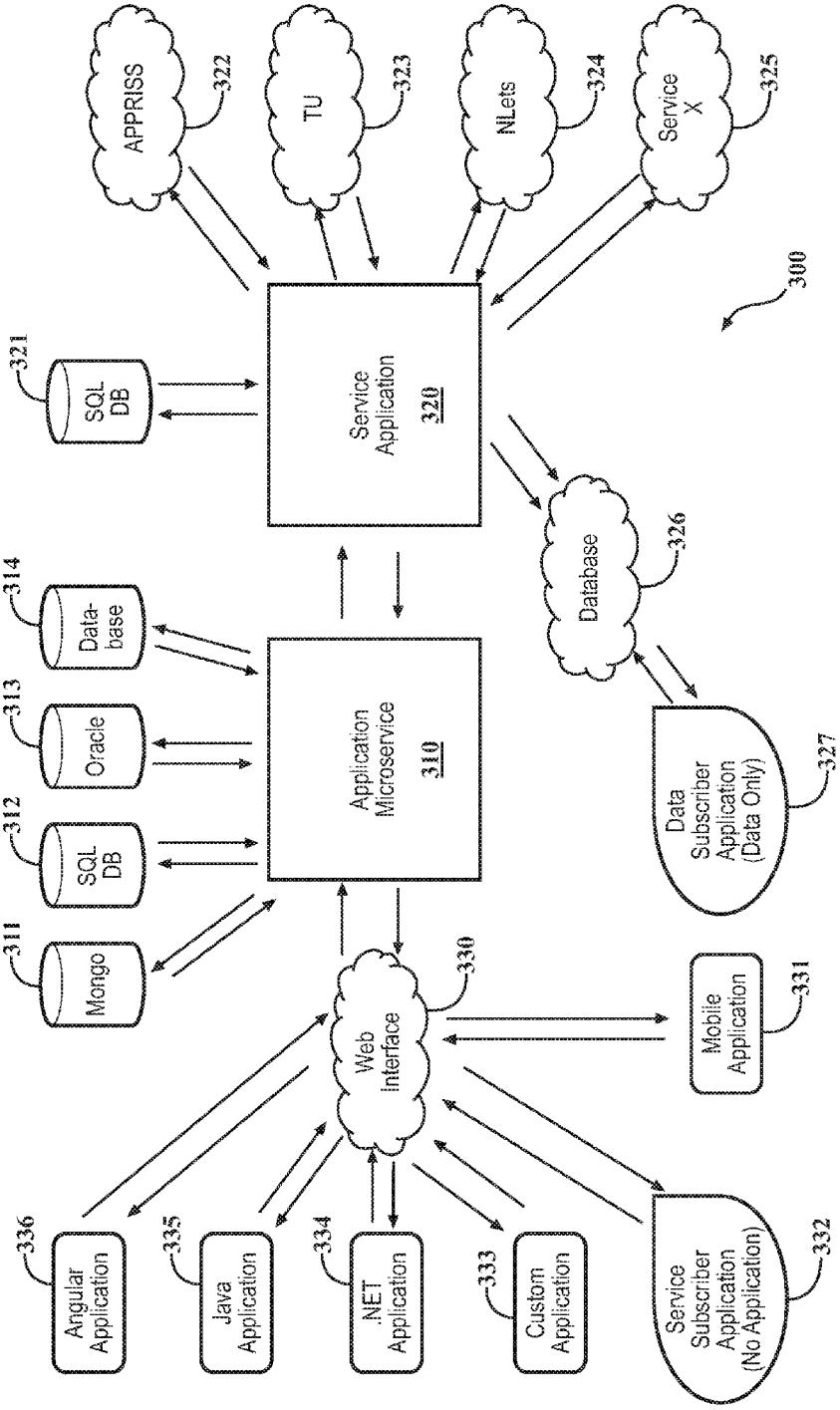
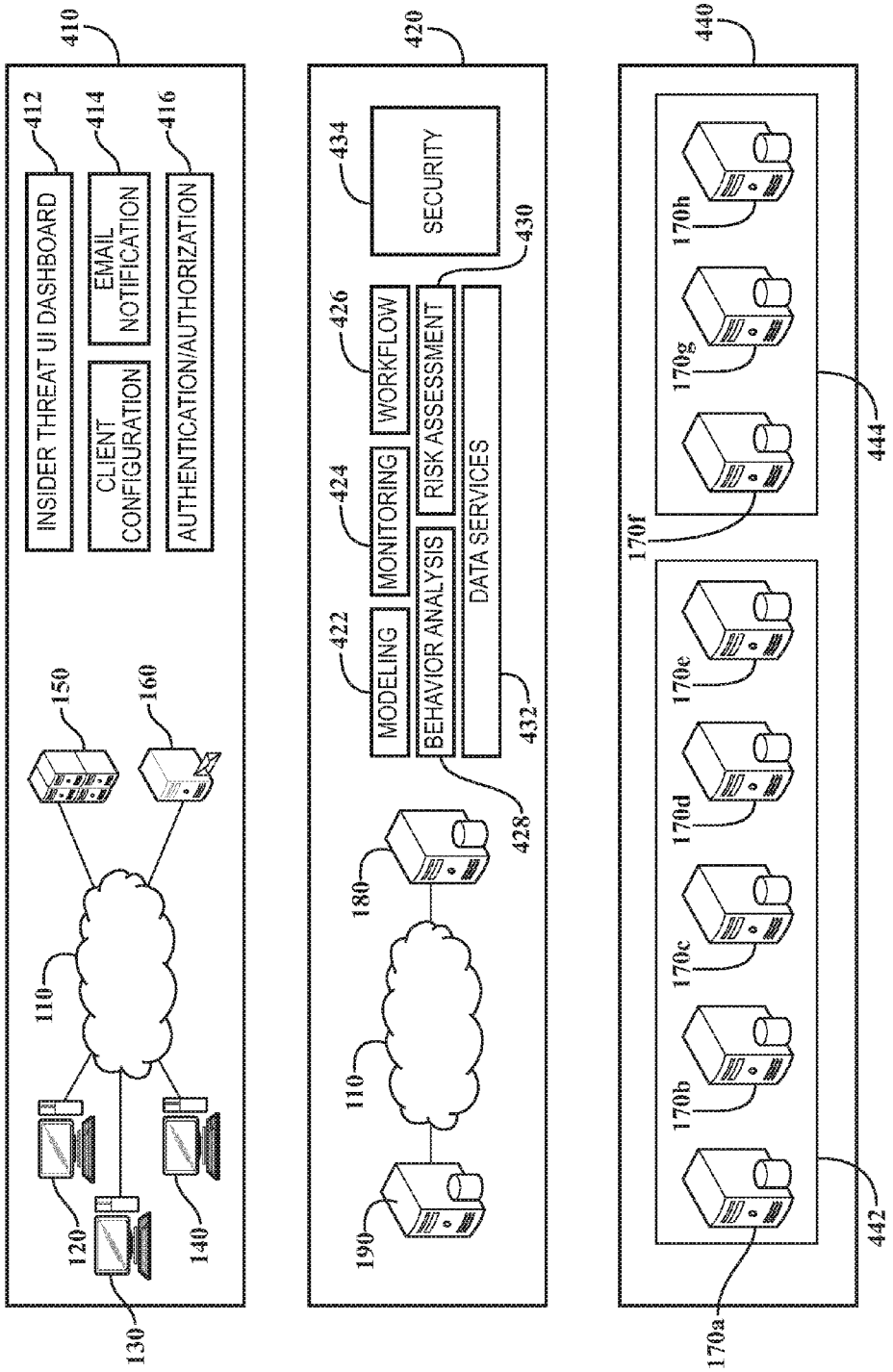

APPRISS
322
TU
323
NLets
324
Service X
325
300
321
SQL DB
Service Application
320
Database
326
314
Data-base
313
Oracle
312
SQL DB
311
Mongo
Application Microservice
310
Data Subscriber Application (Data Only)
327
330
Web Interface
Mobile Application
331
336
Angular Application
335
Java Application
334
.NET Application
333
Custom Application
Service Subscriber Application (No Application)
332

FIG. 4


410
412
414
416
INSIDER THREAT UI DASHBOARD
CLIENT CONFIGURATION
EMAIL NOTIFICATION
AUTHENTICATION/AUTHORIZATION
150
160
110
120
130
140
420
434
SECURITY
430
426
WORKFLOW
424
MONITORING
RISK ASSESSMENT
422
MODELING
BEHAVIOR ANALYSIS
DATA SERVICES
432
428
180
110
190
440
170h
170g
444
170f
170e
170d
170c
170b
442
170a

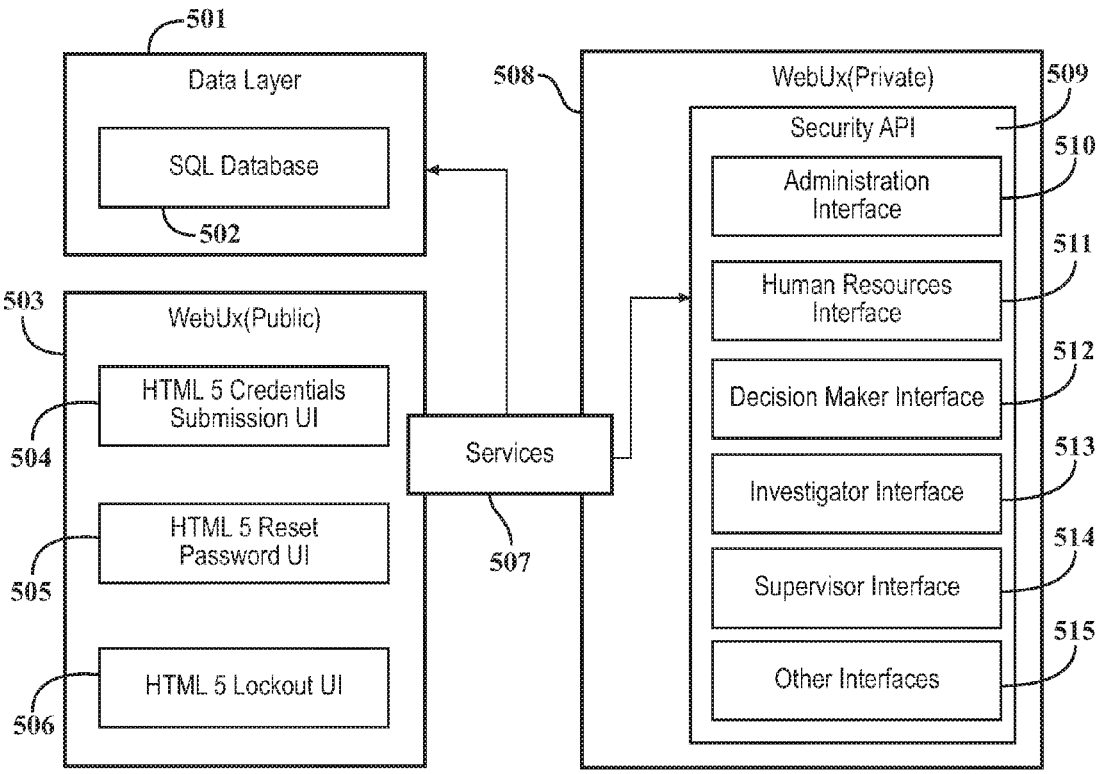

501
Data Layer
SQL Database
502
503
WebUx(Public)
HTML 5 Credentials Submission UI
504
HTML 5 Reset Password UI
505
HTML 5 Lockout UI
506
Services
507
508
WebUx(Private)
509
Security API
510
Administration Interface
511
Human Resources Interface
512
Decision Maker Interface
513
Investigator Interface
514
Supervisor Interface
515
Other Interfaces

FIG. 5

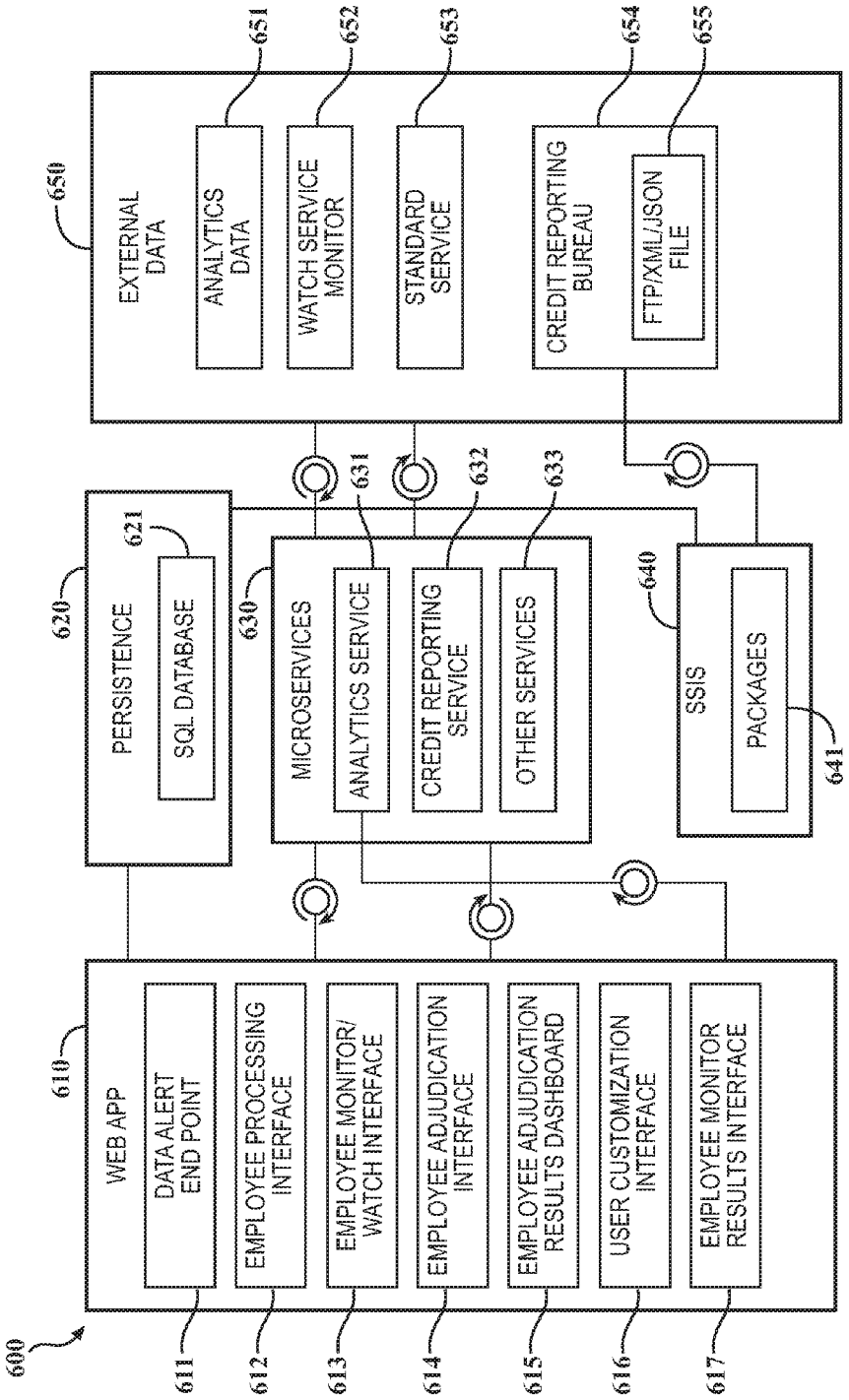

600
610
WEB APP
DATA ALERT END POINT
EMPLOYEE PROCESSING INTERFACE
EMPLOYEE MONITOR/ WATCH INTERFACE
EMPLOYEE ADJUDICATION INTERFACE
EMPLOYEE ADJUDICATION RESULTS DASHBOARD
USER CUSTOMIZATION INTERFACE
EMPLOYEE MONITOR RESULTS INTERFACE
611
612
613
614
615
616
617
620
PERSISTENCE
621
SQL DATABASE
630
MICROSERVICES
631
ANALYTICS SERVICE
632
CREDIT REPORTING SERVICE
633
OTHER SERVICES
640
SSIS
PACKAGES
641
650
EXTERNAL DATA
651
ANALYTICS DATA
652
WATCH SERVICE MONITOR
653
STANDARD SERVICE
654
CREDIT REPORTING BUREAU
655
FTP/XML/JSON FILE

FIG. 6

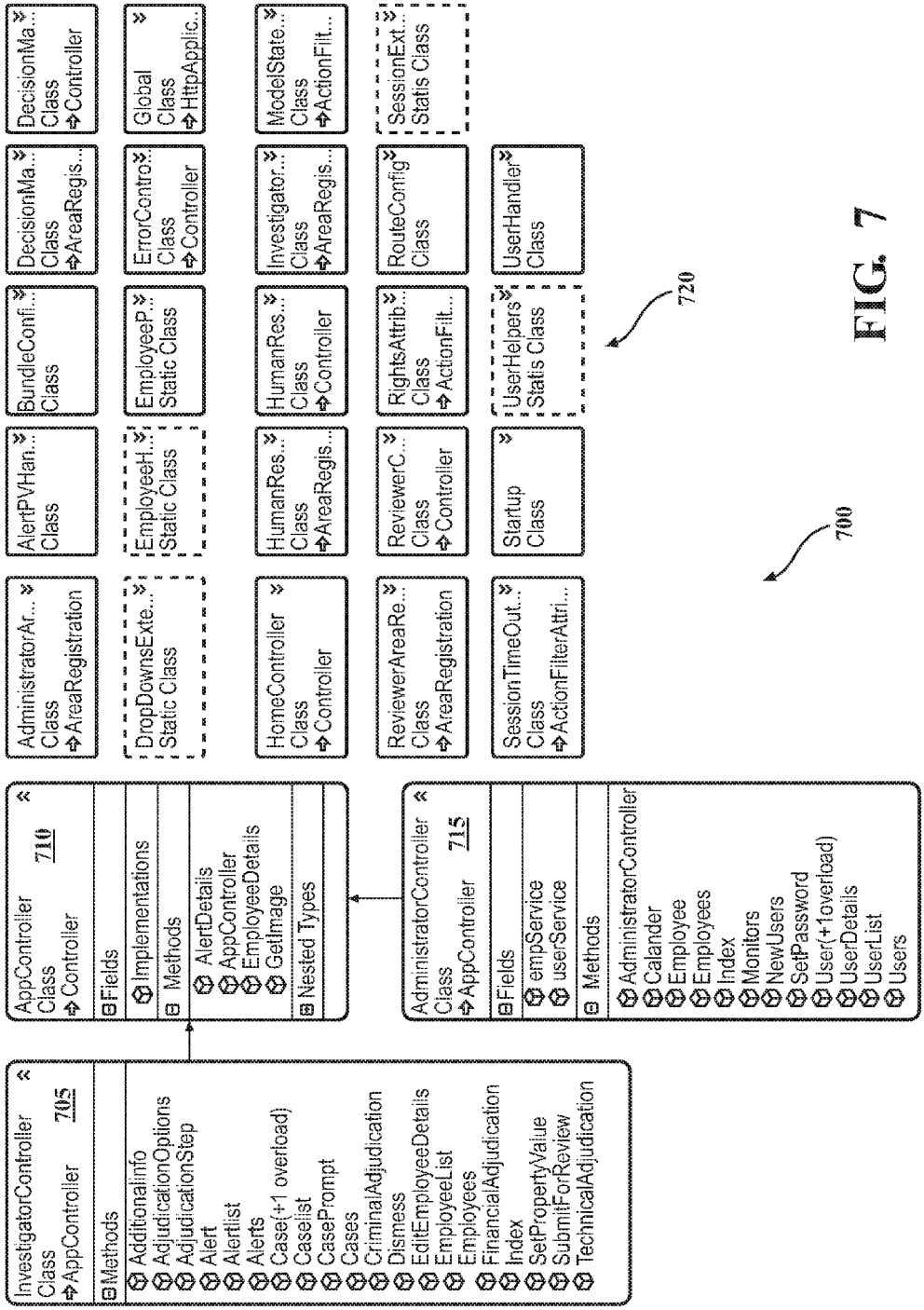

InvestigatorController
Class
AppController
705
Methods
AdditionalInfo
AdjudicationOptions
AdjudicationStep
Alert
Alertlist
Alerts
Case(+1 overload)
Caselist
CasePrompt
Cases
CriminalAdjudication
Dismess
EditEmployeeDetails
EmployeeList
Employees
FinancialAdjudication
Index
SetPropertyValue
SubmitForReview
TechnicalAdjudication
AppController
Class
Controller
710
Fields
Implementations
Methods
AlertDetails
AppController
EmployeeDetails
GetImage
Nested Types
AdministratorController
Class
AppController
715
Fields
empService
userService
Methods
AdministratorController
Calander
Employee
Employees
Index
Monitors
NewUsers
SetPassword
User(+1overload)
UserDetails
UserList
Users
AdministratorAr...
Class
AreaRegistration
DropDownsExte...
Static Class
HomeController
Class
Controller
ReviewerAreaRe...
Class
AreaRegistration
SessionTimeOut...
Class
ActionFilterAttri...
AlertPVHan...
Class
EmployeeH...
Static Class
HumanRes...
Class
AreaRegis...
ReviewerC...
Class
Controller
Startup
Class
BundleConfi...
Class
EmployeeP...
Static Class
HumanRes...
Class
Controller
RightsAttrib...
Class
ActionFilt...
UserHelpers
Statis Class
DecisionMa...
Class
AreaRegis...
ErrorContro...
Class
Controller
Investigator...
Class
AreaRegis...
RouteConfig
Class
UserHandler
Class
DecisionMa...
Class
Controller
Global
Class
HttpApplic...
ModelState...
Class
ActionFilt...
SessionExt...
Statis Class
720
700

FIG. 7

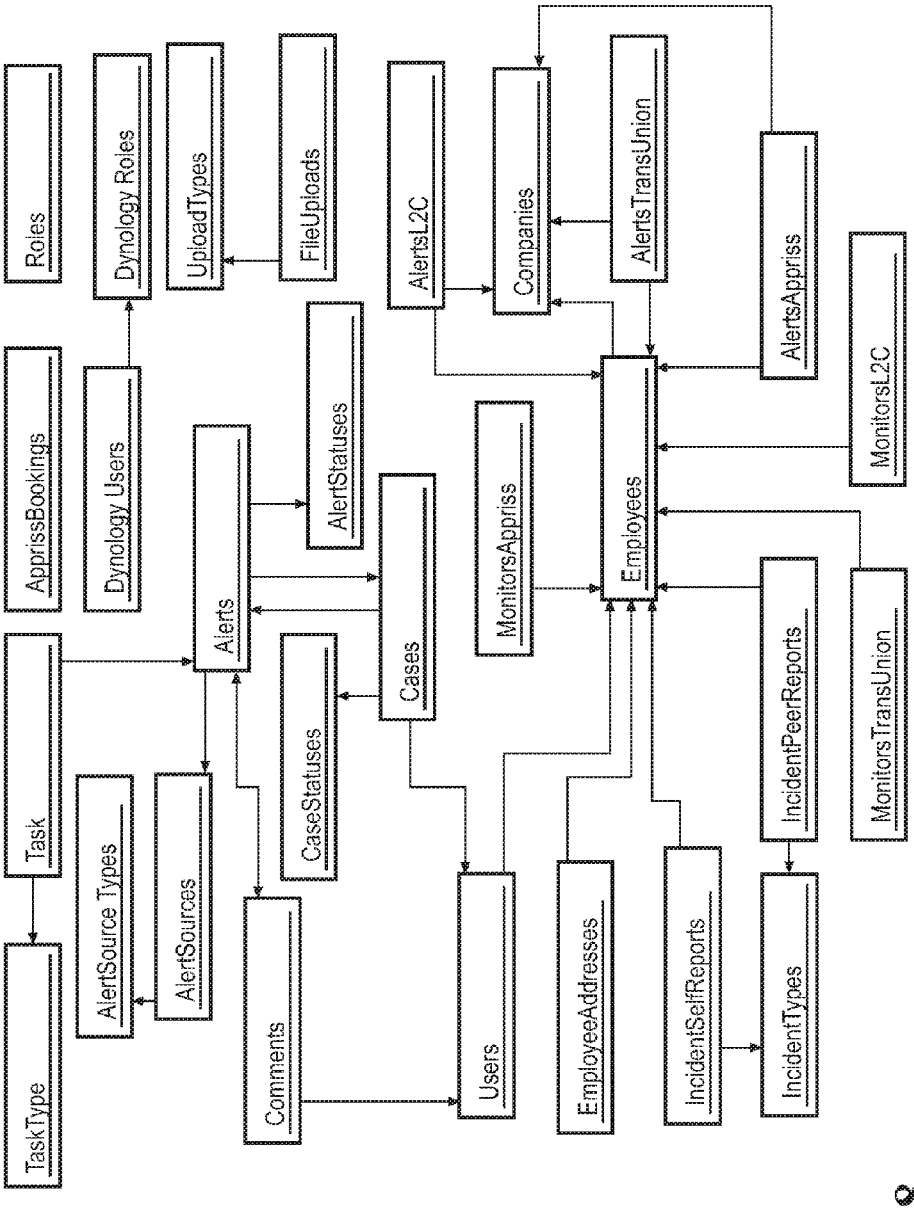

Roles
Dynology Roles
UploadTypes
FileUploads
AlertsL2C
Companies
AlertsTransUnion
AlertsAppriss
MonitorsL2C
ApprissBookings
Dynology Users
AlertStatuses
Alerts
Cases
MonitorsAppriss
Employees
Task
AlertSource Types
AlertSources
CaseStatuses
Comments
Users
EmployeeAddresses
IncidentSelfReports
IncidentPeerReports
IncidentTypes
MonitorsTransUnion
TaskType

FIG. 8

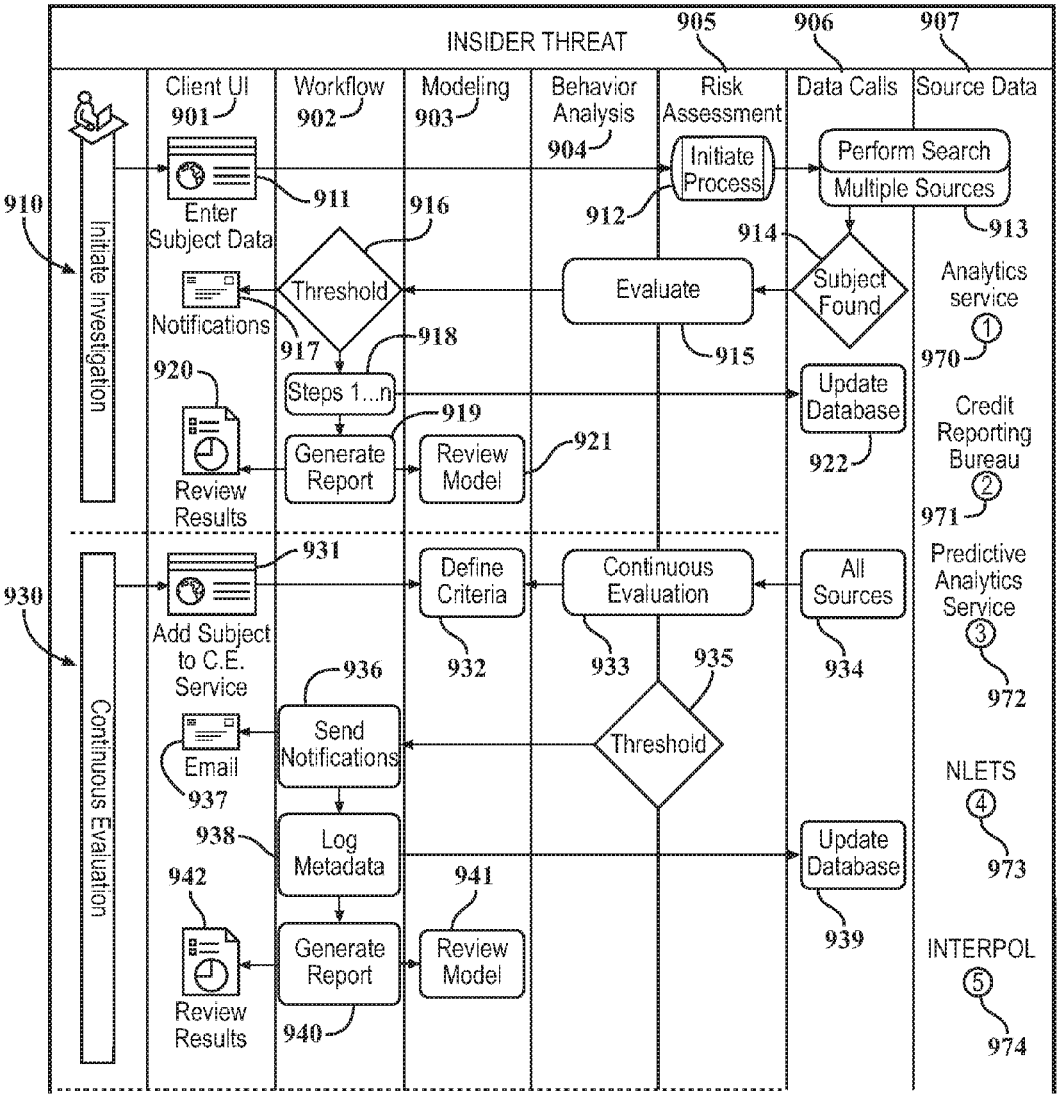

INSIDER THREAT
905
906
907
Client UI
901
Workflow
902
Modeling
903
Behavior Analysis
904
Risk Assessment
Data Calls
Source Data
910
Initiate investigation
Enter Subject Data
911
916
Initiate Process
912
Perform Search Multiple Sources
913
914
Threshold
Evaluate
Subject Found
Analytics service
1
970
Notifications
917
918
915
920
Steps 1...n
Update Database
922
Credit Reporting Bureau
2
971
919
Generate Report
Review Model
921
Review Results
930
Continuous Evaluation
931
Define Criteria
Continuous Evaluation
All Sources
Predictive Analytics Service
3
972
Add Subject to C.E. Service
932
933
934
935
936
Send Notifications
Threshold
NLETS
4
973
Email
937
938
Log Metadata
Update Database
939
941
942
Generate Report
Review Model
INTERPOL
5
974
Review Results
940

FIG. 9A

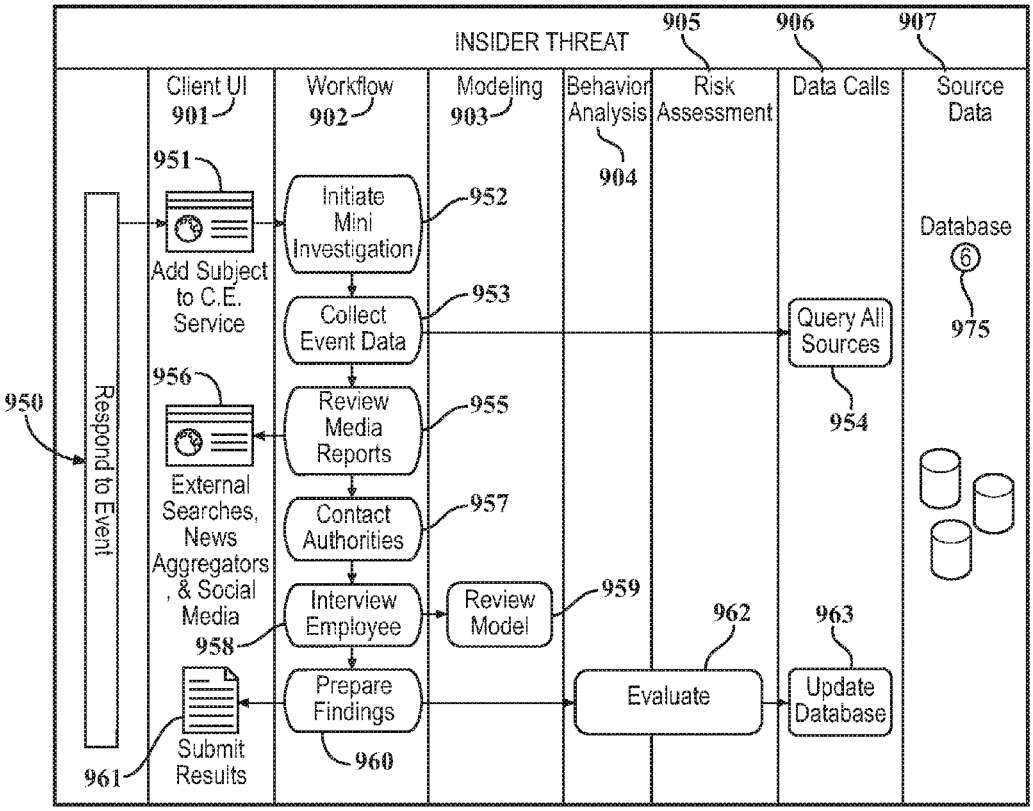

INSIDER THREAT
905
906
907
Client UI
901
Workflow
902
Modeling
903
Behavior Analysis
904
Risk Assessment
Data Calls
Source Data
950
Respond to Event
951
Add Subject to C.E. Service
Initiate Mini Investigation
952
Collect Event Data
953
Query All Sources
954
Database
975
956
External Searches, News Aggregators, & Social Media
958
Review Media Reports
955
Contact Authorities
957
Interview Employee
Review Model
959
962
963
Evaluate
Update Database
Prepare Findings
960
Submit Results
961

FIG. 9B

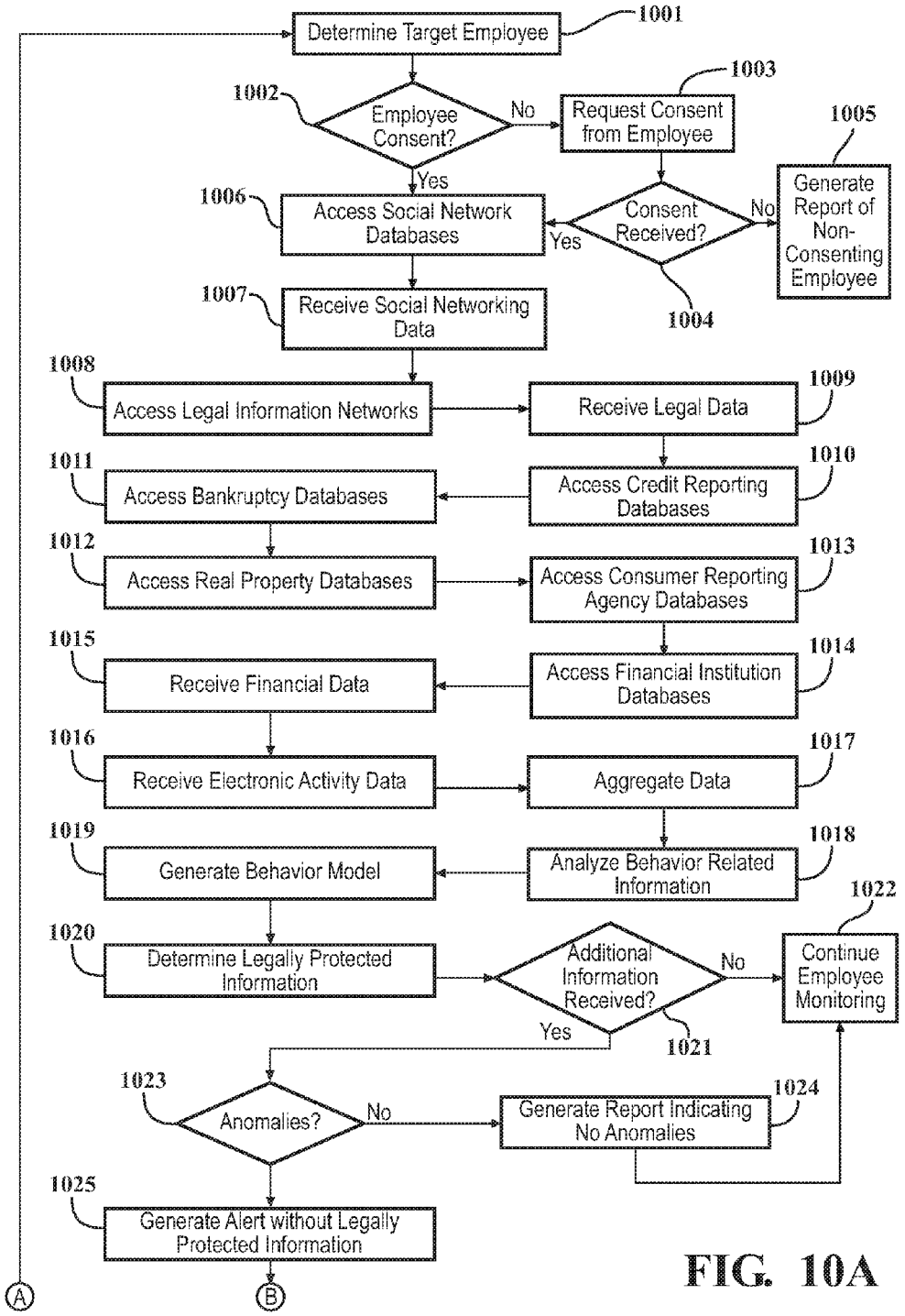

Determine Target Employee
1001
Employee Consent?
1002
No
Request Consent from Employee
1003
Yes
Consent Received?
1004
No
Generate Report of Non-Consenting Employee
1005
Yes
Access Social Network Databases
1006
Receive Social Networking Data
1007
Access Legal Information Networks
1008
Receive Legal Data
1009
Access Credit Reporting Databases
1010
Access Bankruptcy Databases
1011
Access Real Property Databases
1012
Access Consumer Reporting Agency Databases
1013
Access Financial Institution Databases
1014
Receive Financial Data
1015
Receive Electronic Activity Data
1016
Aggregate Data
1017
Analyze Behavior Related Information
1018
Generate Behavior Model
1019
Determine Legally Protected Information
1020
Additional Information Received?
1021
No
Continue Employee Monitoring
1022
Yes
Anomalies?
1023
No
Generate Report Indicating No Anomalies
1024
Generate Alert without Legally Protected Information
1025
A
B

FIG. 10A

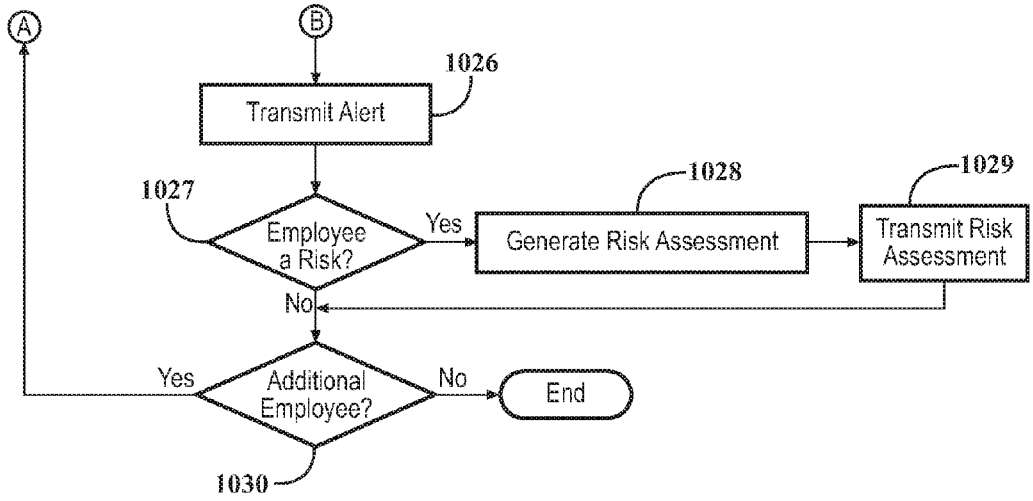

A
B
1026
Transmit Alert
1027
Employee a Risk?
Yes
1028
Generate Risk Assessment
1029
Transmit Risk Assessment
No
Yes
Additional Employee?
No
End
1030

FIG. 10B

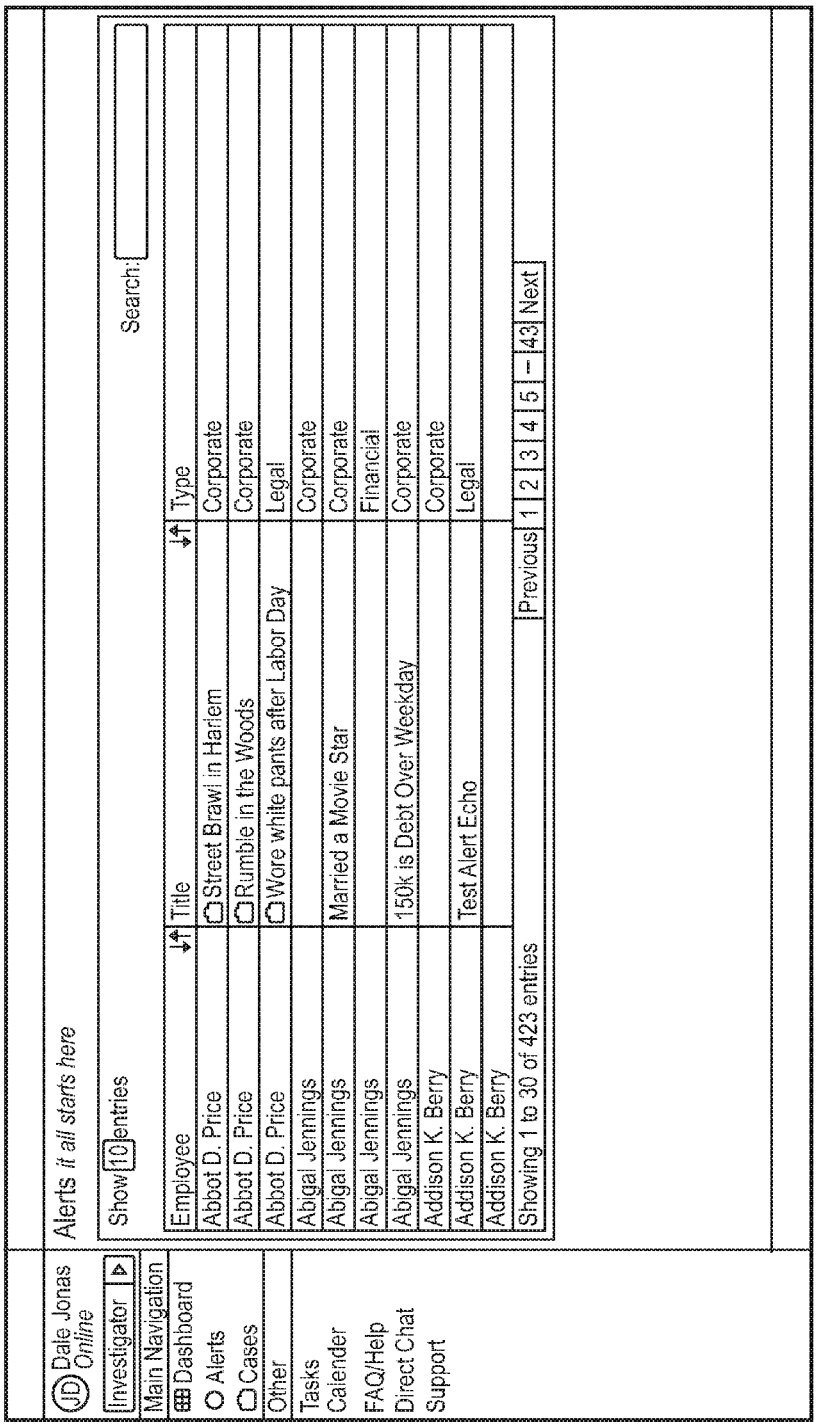

Dale Jonas
Online
Investigator
Main Navigation
Dashboard
Alerts
Cases
Other
Tasks
Calender
FAQ/Help
Direct Chat
Support
Alerts it all starts here
Show 10 entries
Search:
Employee
Title
Type
Abbot D. Price
Street Brawl in Harlem
Corporate
Abbot D. Price
Rumble in the Woods
Corporate
Abbot D. Price
Wore white pants after Labor Day
Legal
Abigal Jennings
Corporate
Abigal Jennings
Married a Movie Star
Corporate
Abigal Jennings
Financial
Abigal Jennings
150k is Debt Over Weekday
Corporate
Addison K. Berry
Corporate
Addison K. Berry
Test Alert Echo
Legal
Addison K. Berry
Showing 1 to 30 of 423 entries
Previous 1 2 3 4 5 – 43 Next

FIG. 11

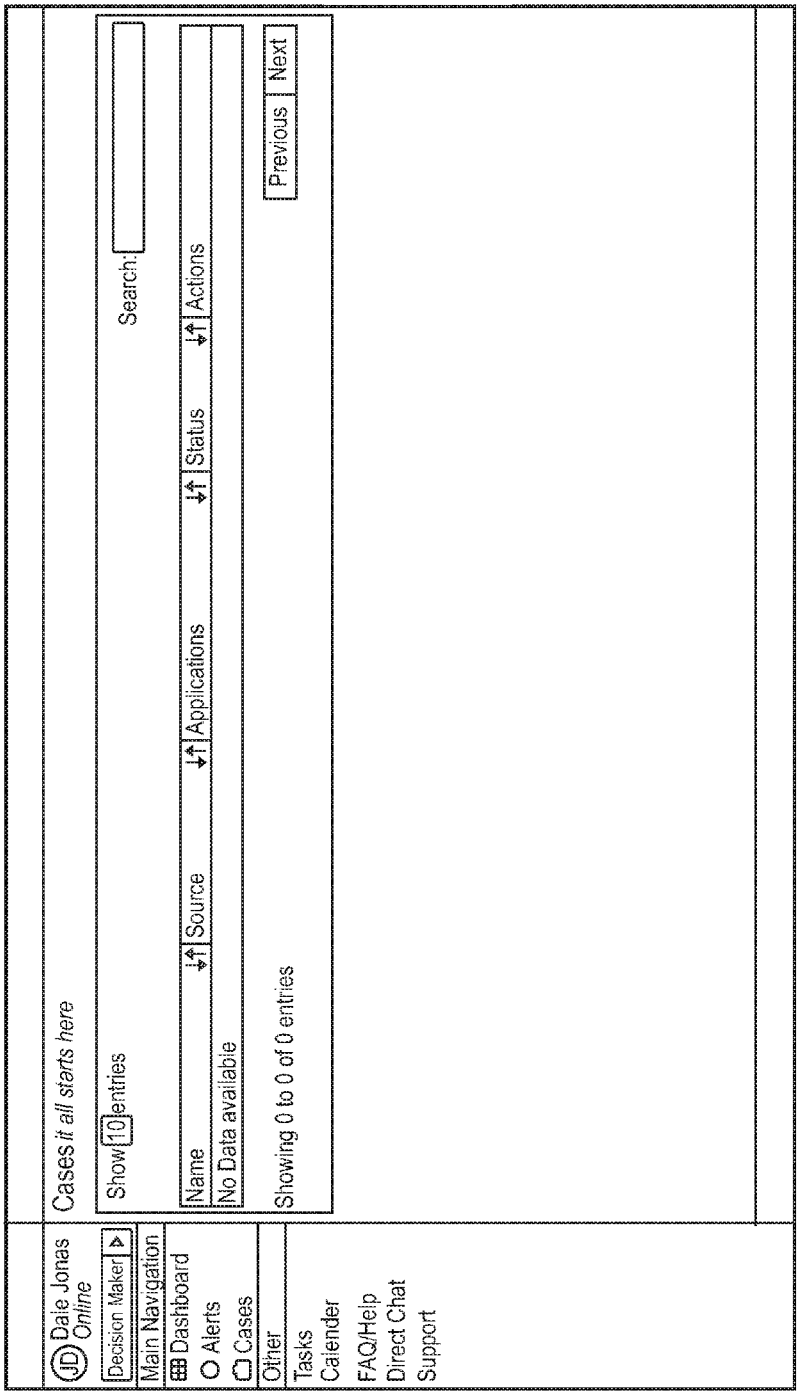

Dale Jonas
Online
Decision Maker
Main Navigation
Dashboard
Alerts
Cases
Offer
Tasks
Calender
FAQ/Help
Direct Chat
Support
Cases it all starts here
Show 10 entries
Search:
Name
Source
Applications
Status
Actions
No Data available
Showing 0 to 0 of 0 entries
Previous
Next

FIG. 12

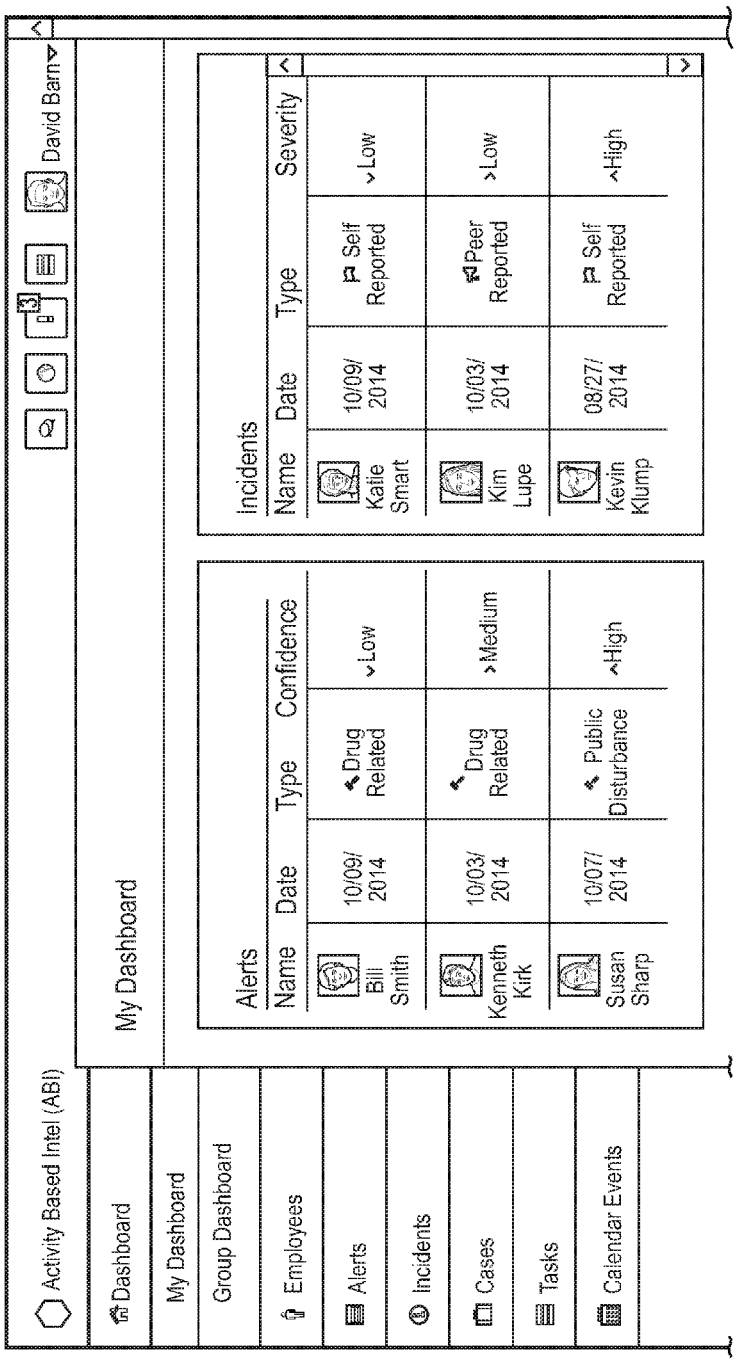

Activity Based Intel (ABI)
David Barn
Dashboard
My Dashboard
Group Dashboard
Employees
Alerts
Incidents
Cases
Tasks
Calendar Events
My Dashboard
Alerts
Name
Date
Type
Confidence
Bill Smith
10/09/2014
Drug Related
Low
Kenneth Kirk
10/03/2014
Drug Related
Medium
Susan Sharp
10/07/2014
Public Disturbance
High
Incidents
Name
Date
Type
Severity
Katie Smart
10/09/2014
Self Reported
Low
Kim Lupe
10/03/2014
Peer Reported
Low
Kevin Klump
08/27/2014
Self Reported
High

FIG. 13A

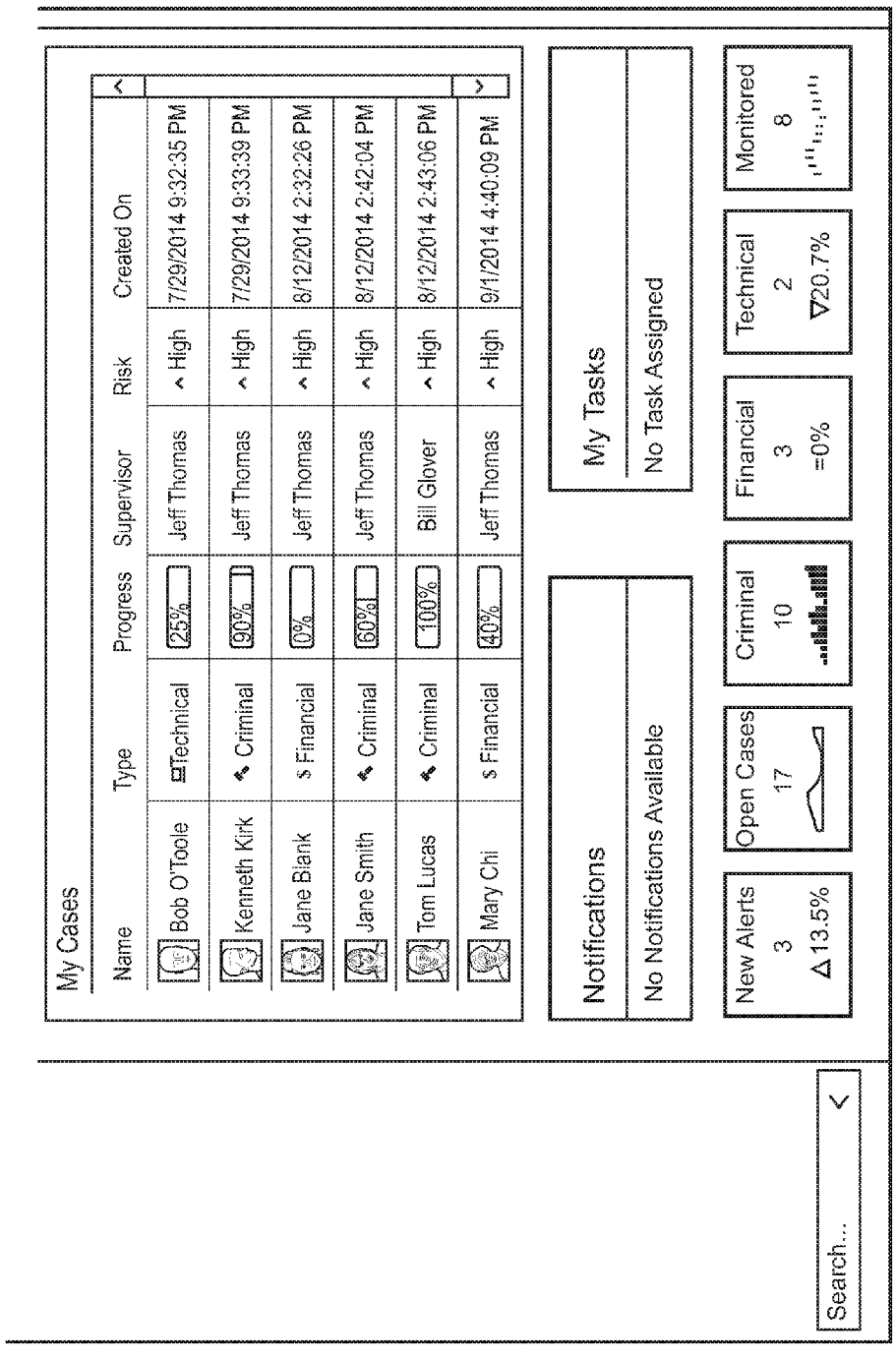

My Cases
Name
Type
Progress
Supervisor
Risk
Created On
Bob O'Toole
Technical
25%
Jeff Thomas
High
7/29/2014 9:32:35 PM
Kenneth Kirk
Criminal
90%
Jeff Thomas
High
7/29/2014 9:33:39 PM
Jane Blank
Financial
0%
Jeff Thomas
High
8/12/2014 2:32:26 PM
Jane Smith
Criminal
60%
Jeff Thomas
High
8/12/2014 2:42:04 PM
Tom Lucas
Criminal
100%
Bill Glover
High
8/12/2014 2:43:06 PM
Mary Chi
Financial
40%
Jeff Thomas
High
9/1/2014 4:40:09 PM
Notifications
No Notifications Available
My Tasks
No Task Assigned
New Alerts
3
Δ13.5%
Open Cases
17
Criminal
10
Financial
3
=0%
Technical
2
▽20.7%
Monitored
8
Search...

FIG. 13B

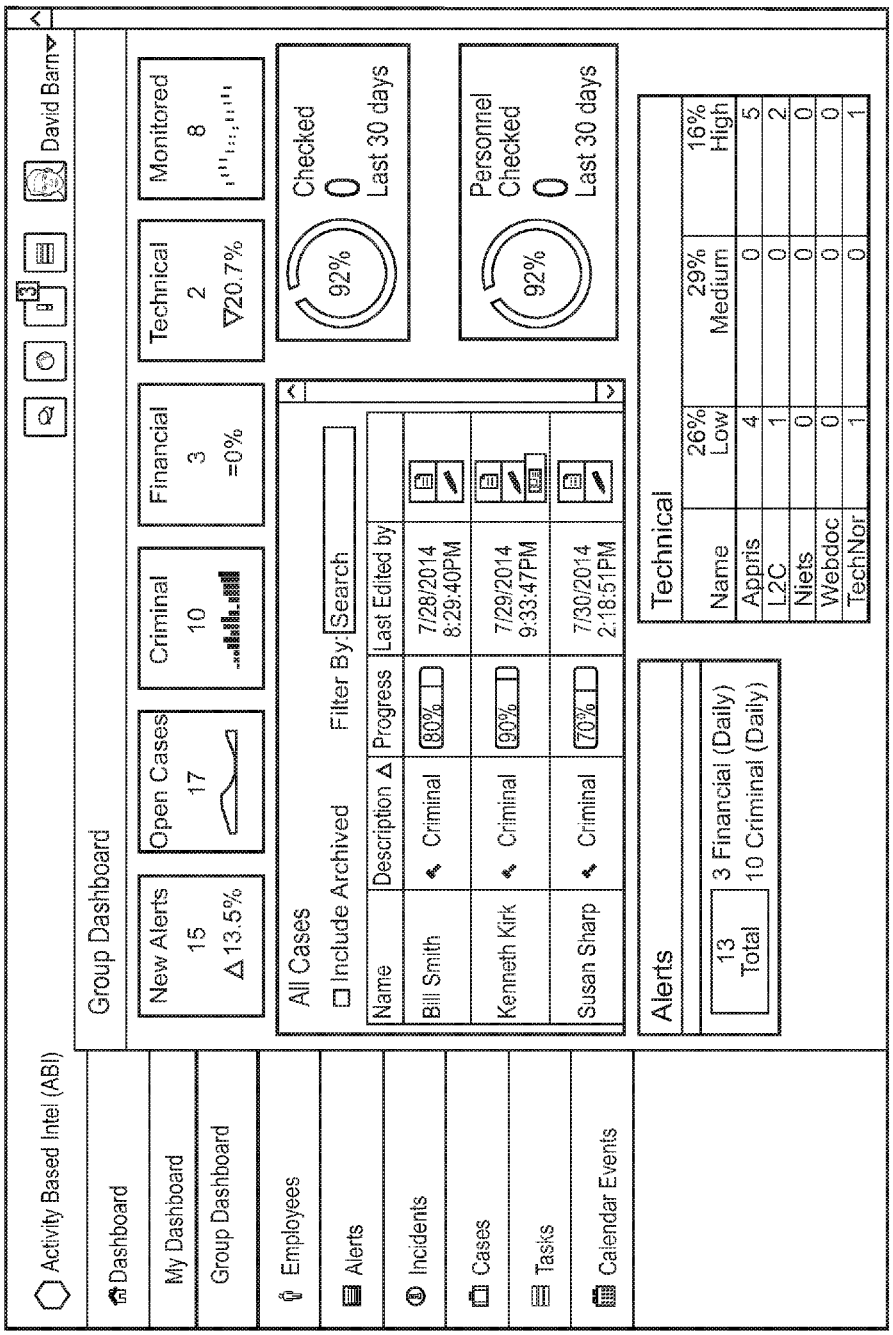

Activity Based Intel (ABI)
David Barn
Dashboard
My Dashboard
Group Dashboard
Employees
Alerts
Incidents
Cases
Tasks
Calendar Events
Group Dashboard
New Alerts
15
Δ13.5%
Open Cases
17
Criminal
10
Financial
3
=0%
Technical
2
▽20.7%
Monitored
8
All Cases
Include Archived
Filter By:
Search
Name
Description Δ
Progress
Last Edited by
Bill Smith
Criminal
80%
7/28/2014
8:29:40PM
Kenneth Kirk
Criminal
90%
7/29/2014
9:33:47PM
Susan Sharp
Criminal
70%
7/30/2014
2:18:51PM
Checked
0
Last 30 days
92%
Personnel
Checked
0
Last 30 days
92%
Alerts
13
Total
3 Financial (Daily)
10 Criminal (Daily)
Technical
Name
26%
Low
29%
Medium
16%
High
Appris
4
0
5
L2C
1
0
2
Niets
0
0
0
Webdoc
0
0
0
TechNor
1
0
1

FIG. 14

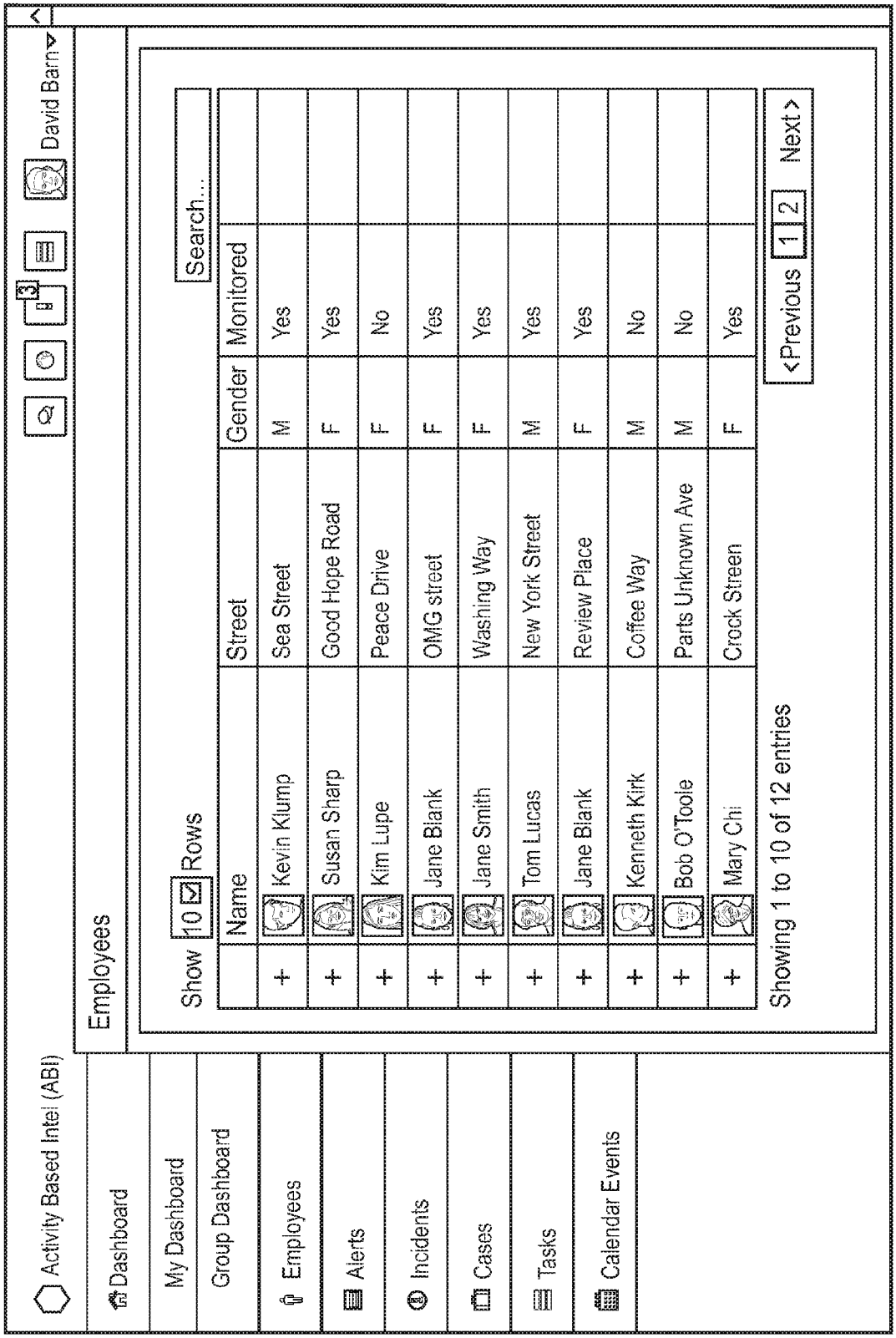

Activity Based Intel (ABI)
David Barn
Dashboard
My Dashboard
Group Dashboard
Employees
Alerts
Incidents
Cases
Tasks
Calendar Events
Employees
Show 10 Rows
Search...
Name
Street
Gender
Monitored
Kevin Klump
Sea Street
M
Yes
Susan Sharp
Good Hope Road
F
Yes
Kim Lupe
Peace Drive
F
No
Jane Blank
OMG street
F
Yes
Jane Smith
Washing Way
F
Yes
Tom Lucas
New York Street
M
Yes
Jane Blank
Review Place
F
Yes
Kenneth Kirk
Coffee Way
M
No
Bob O'Toole
Parts Unknown Ave
M
No
Mary Chi
Crock Streen
F
Yes
Showing 1 to 10 of 12 entries
<Previous 1 2 Next >

FIG. 15

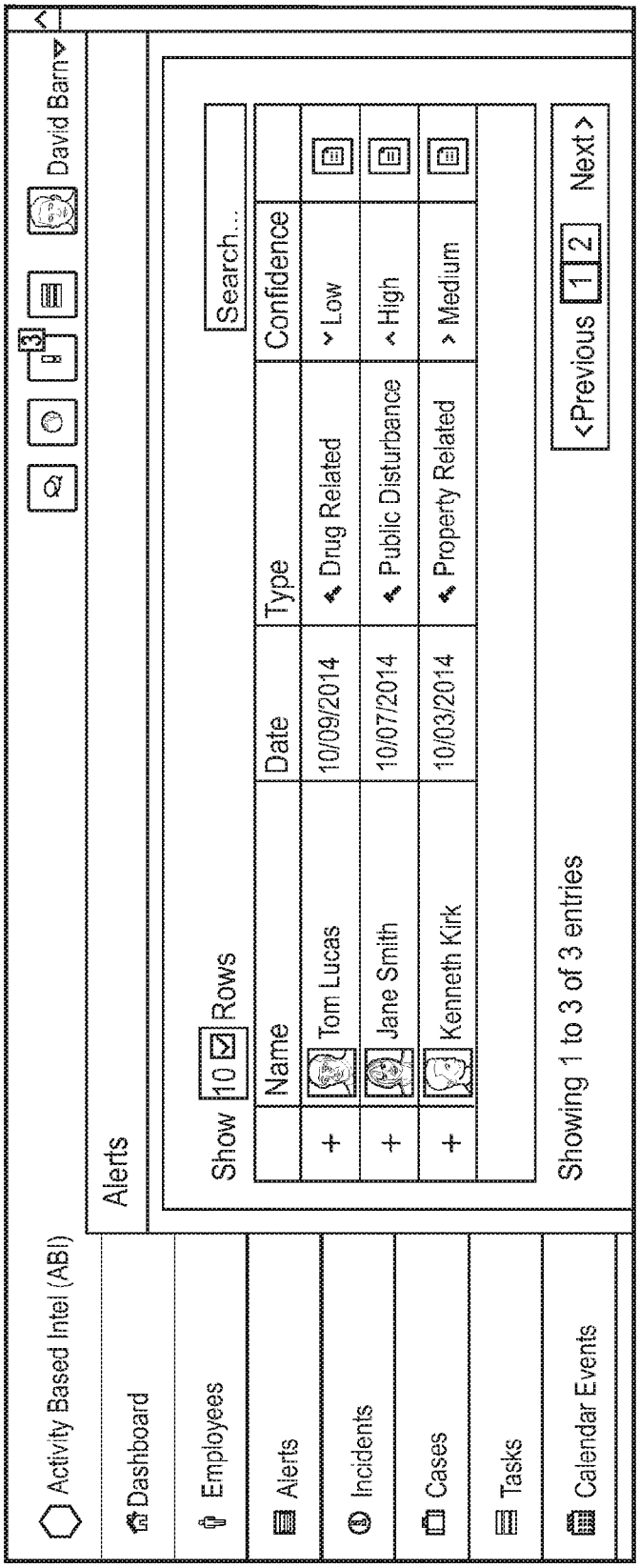

Activity Based Intel (ABI)
David Barn
Dashboard
Employees
Alerts
Incidents
Cases
Tasks
Calendar Events
Alerts
Show 10 Rows
Search...
Name
Date
Type
Confidence
Tom Lucas
10/09/2014
Drug Related
Low
Jane Smith
10/07/2014
Public Disturbance
High
Kenneth Kirk
10/03/2014
Property Related
Medium
Showing 1 to 3 of 3 entries
<Previous 1 2 Next>

FIG. 16

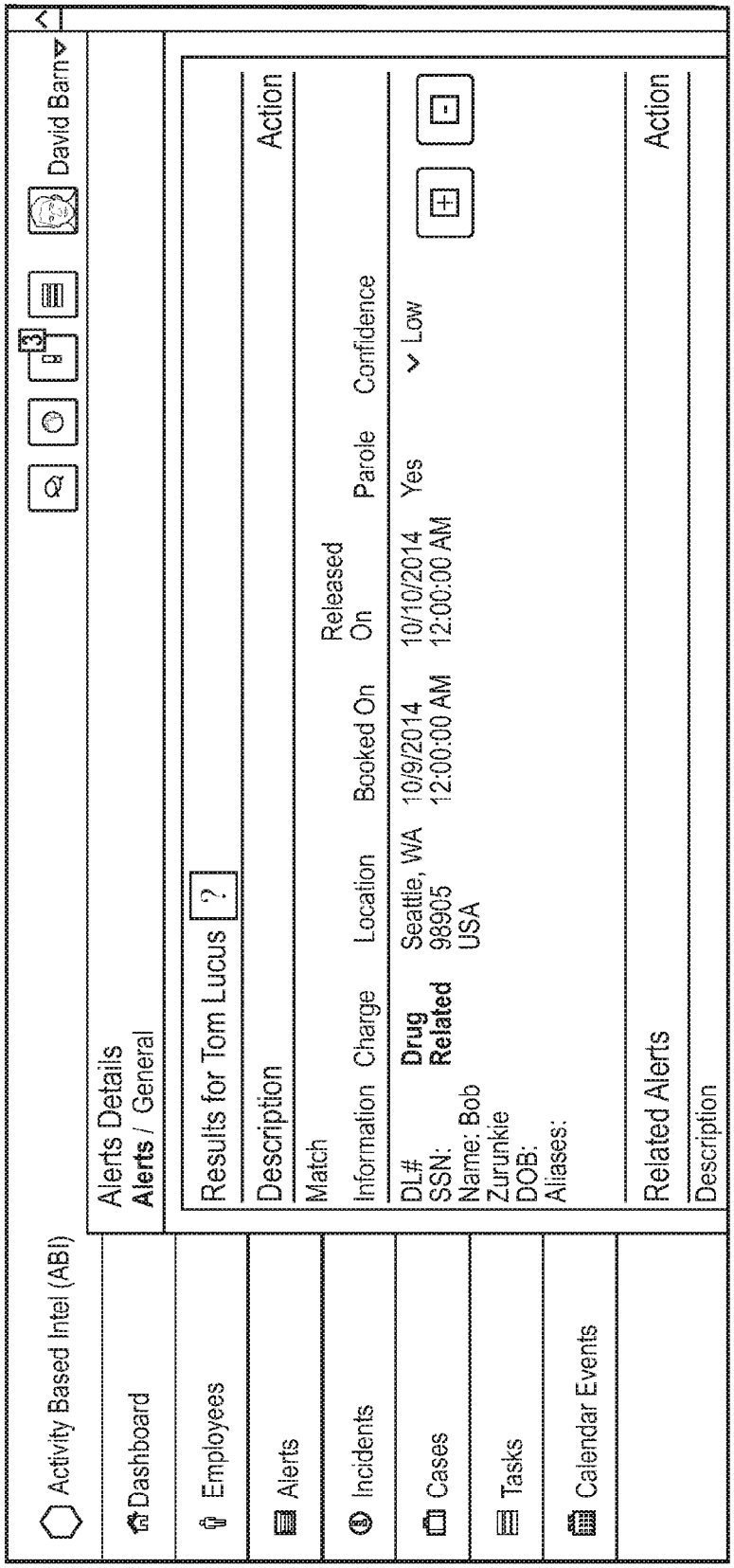

Activity Based Intel (ABI)
David Barn
Dashboard
Employees
Alerts
Incidents
Cases
Tasks
Calendar Events
Alerts Details
Alerts / General
Results for Tom Lucus
Description
Action
Match Information
Charge
Location
Booked On
Released On
Parole
Confidence
DL#
SSN:
Name: Bob Zurunkie
DOB:
Aliases:
Drug Related
Seattle, WA 98905 USA
10/9/2014 12:00:00 AM
10/10/2014 12:00:00 AM
Yes
Low
Related Alerts
Action
Description

FIG. 17

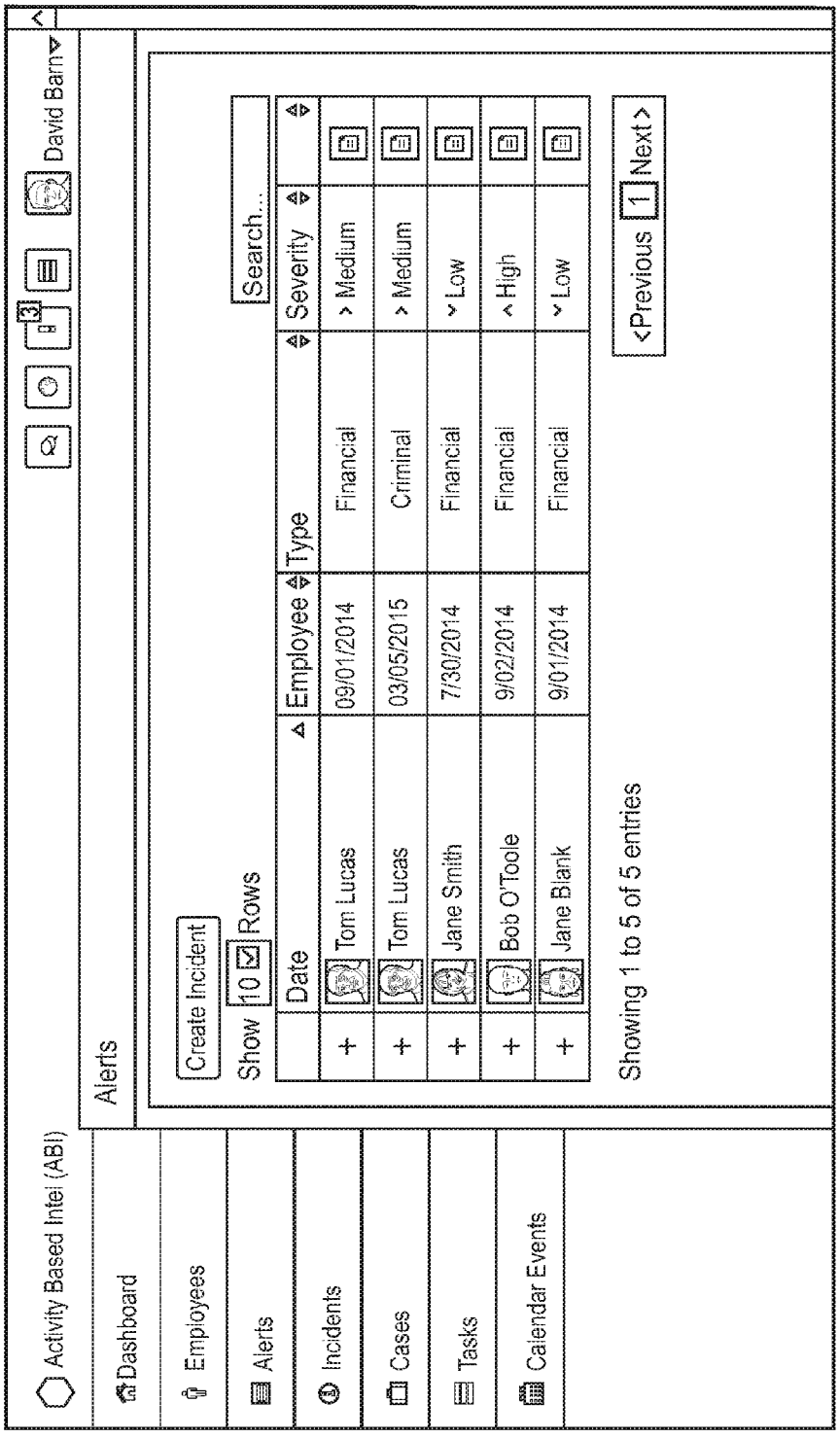

Activity Based Intel (ABI)
David Barn
Dashboard
Employees
Alerts
Incidents
Cases
Tasks
Calendar Events
Alerts
Create Incident
Search...
Show 10 Rows
Date
Employee
Type
Severity
09/01/2014 Tom Lucas Financial > Medium
03/05/2015 Tom Lucas Criminal > Medium
7/30/2014 Jane Smith Financial < Low
9/02/2014 Bob O'Toole Financial < High
9/01/2014 Jane Blank Financial < Low
Showing 1 to 5 of 5 entries
<Previous 1 Next >

FIG. 18

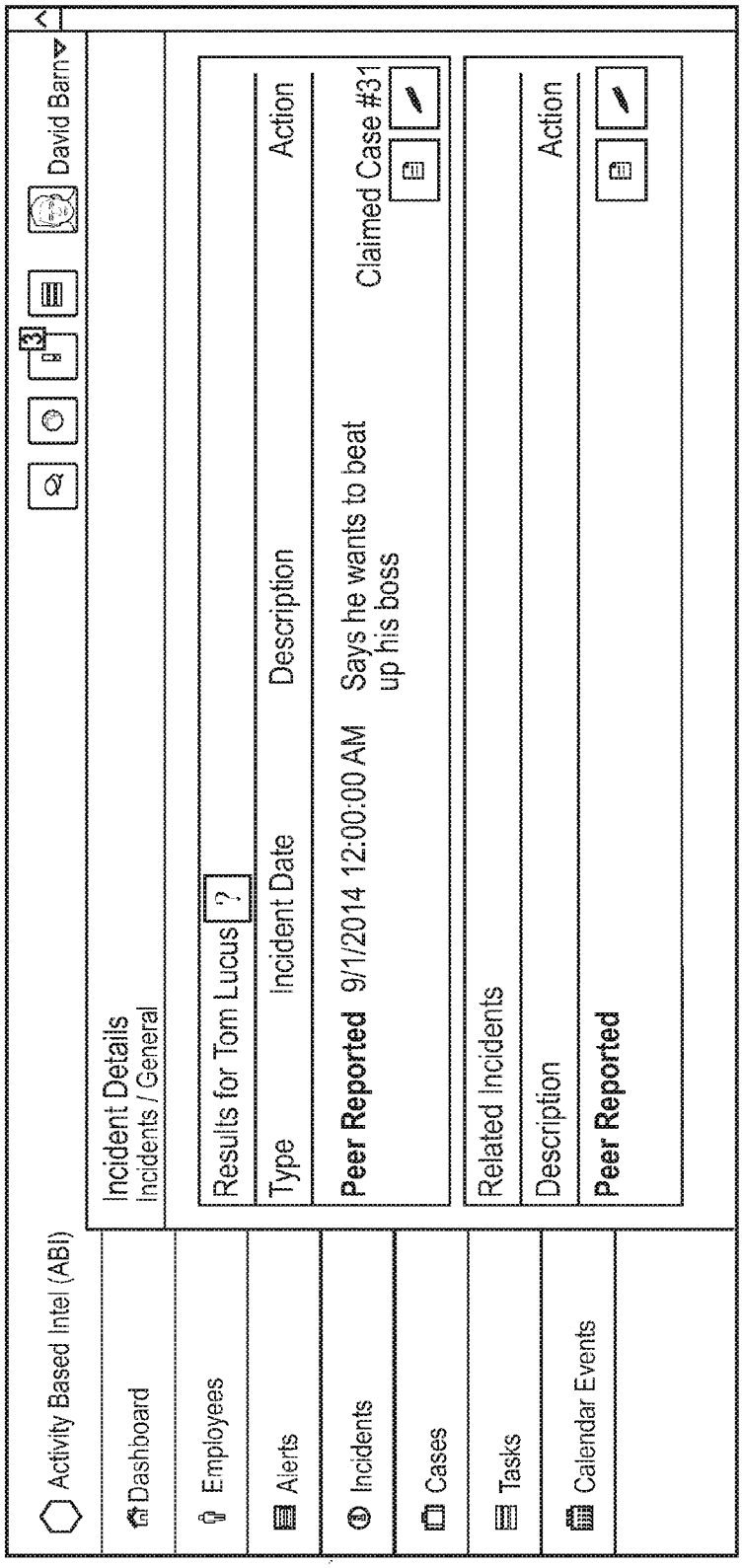

Activity Based Intel (ABI)
David Barn
Dashboard
Employees
Alerts
Incidents
Cases
Tasks
Calendar Events
Incident Details
Incidents / General
Results for Tom Lucus
Type
Incident Date
Description
Action
Peer Reported
9/1/2014 12:00:00 AM
Says he wants to beat up his boss
Claimed Case #31
Related Incidents
Description
Action
Peer Reported

FIG. 19

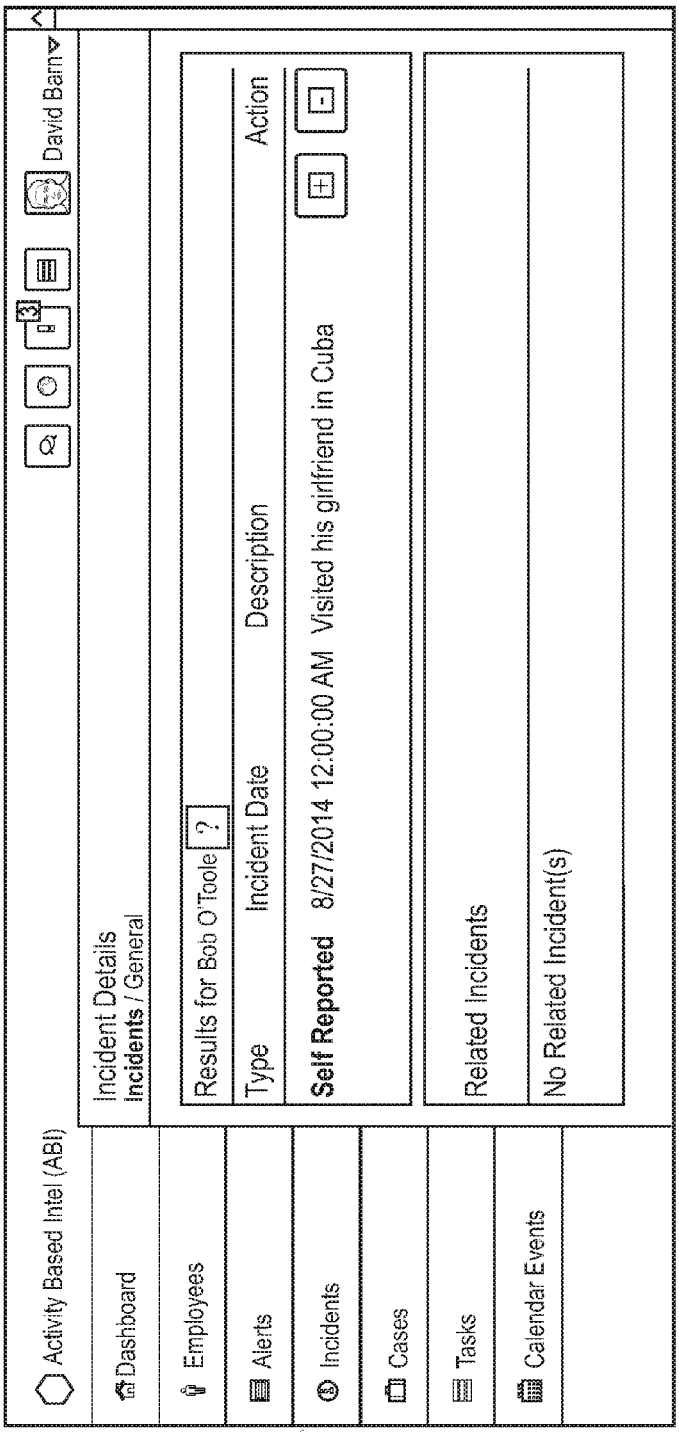

Activity Based Intel (ABI)
David Barn
Dashboard
Employees
Alerts
Incidents
Cases
Tasks
Calendar Events
Incident Details
Incidents / General
Results for Bob O'Toole ?
Type
Incident Date
Description
Action
Self Reported
8/27/2014 12:00:00 AM
Visited his girlfriend in Cuba
Related Incidents
No Related Incident(s)

FIG. 20

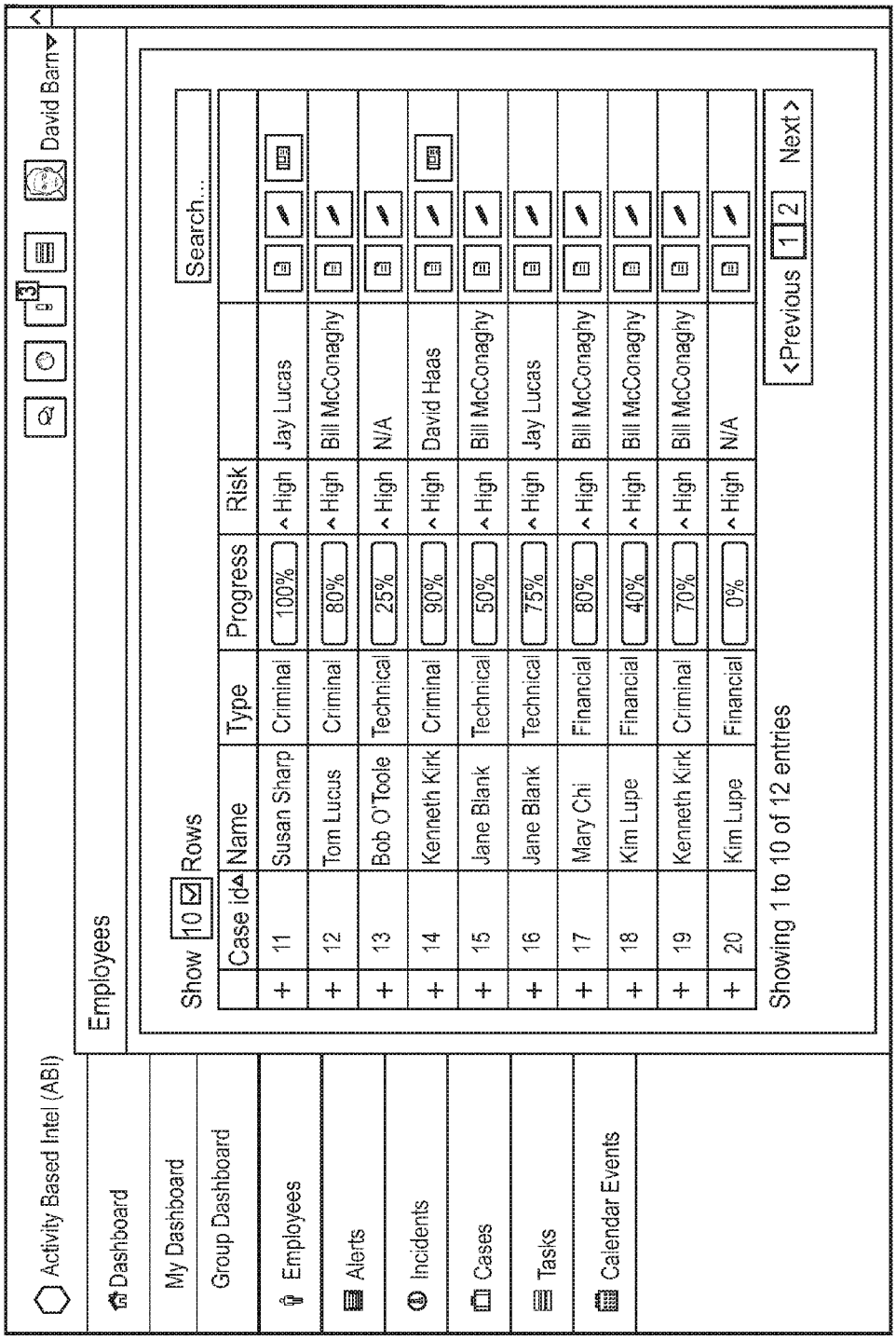

Activity Based Intel (ABI)
David Barn
Dashboard
My Dashboard
Group Dashboard
Employees
Alerts
Incidents
Cases
Tasks
Calendar Events
Employees
Show 10 Rows
Search...
Case id
Name
Type
Progress
Risk
11 Susan Sharp Criminal 100% High Jay Lucas
12 Tom Lucus Criminal 80% High Bill McConaghy
13 Bob O'Toole Technical 25% High N/A
14 Kenneth Kirk Criminal 90% High David Haas
15 Jane Blank Technical 50% High Bill McConaghy
16 Jane Blank Technical 75% High Jay Lucas
17 Mary Chi Financial 80% High Bill McConaghy
18 Kim Lupe Financial 40% High Bill McConaghy
19 Kenneth Kirk Criminal 70% High Bill McConaghy
20 Kim Lupe Financial 0% High N/A
Showing 1 to 10 of 12 entries
<Previous 1 2 Next>

FIG. 21

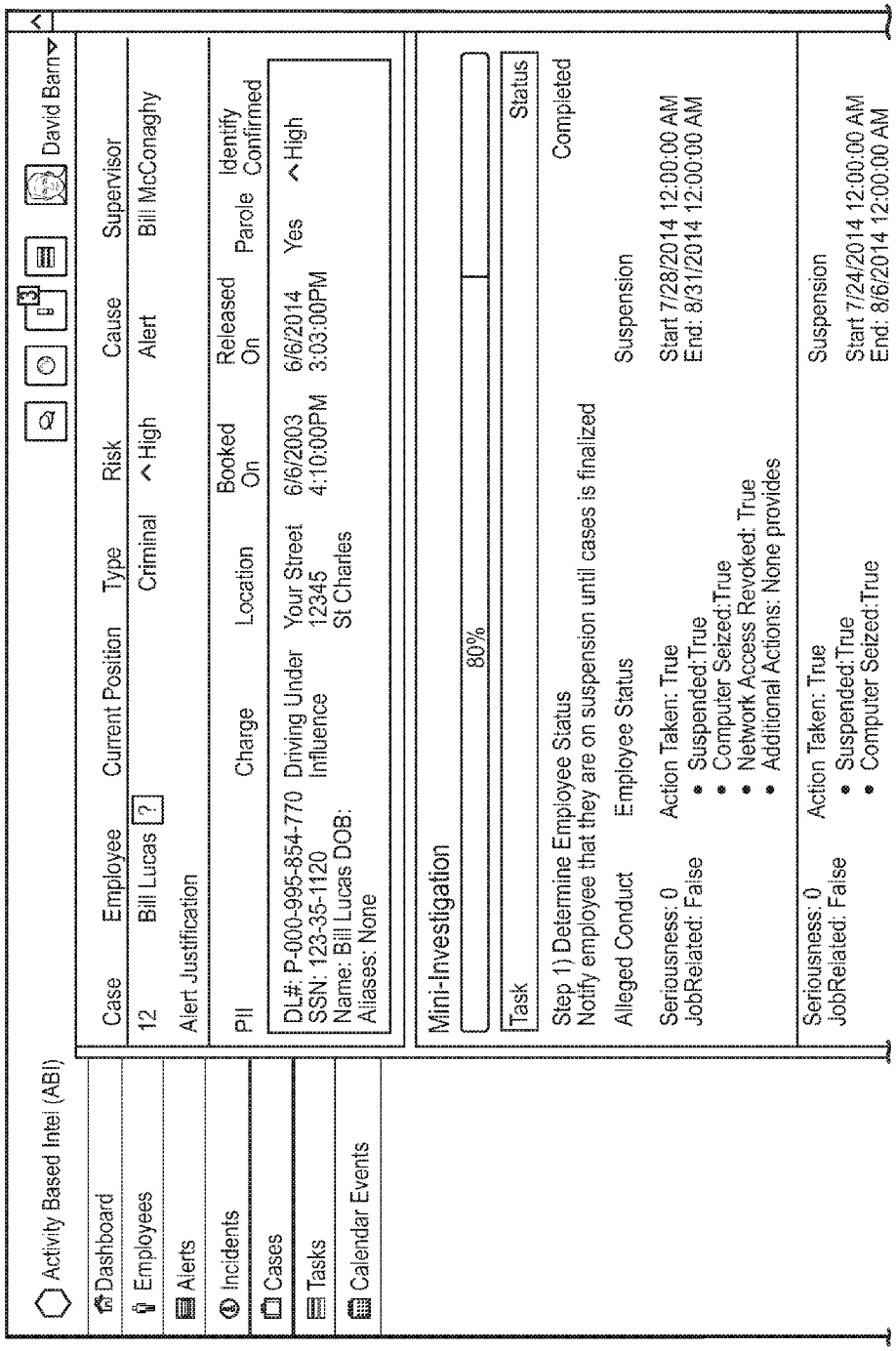

Activity Based Intel (ABI)
David Barn
Dashboard
Employees
Alerts
Incidents
Cases
Tasks
Calendar Events
Case
Employee
Current Position
Type
Risk
Cause
Supervisor
12
Bill Lucas
Criminal
High
Alert
Bill McConaghy
Alert Justification
PII
Charge
Location
Booked On
Released On
Parole
Identify Confirmed
DL#: P-000-995-854-770
SSN: 123-35-1120
Name: Bill Lucas DOB:
Aliases: None
Driving Under Influence
Your Street 12345 St Charles
6/6/2003 4:10:00PM
6/6/2014 3:03:06PM
Yes
High
Mini-Investigation
80%
Task
Status
Step 1) Determine Employee Status
Notify employee that they are on suspension until cases is finalized
Completed
Alleged Conduct
Employee Status
Suspension
Seriousness: 0
JobRelated: False
Action Taken: True
Suspended:True
Computer Seized:True
Network Access Revoked: True
Additional Actions: None provides
Start 7/28/2014 12:00:00 AM
End: 8/31/2014 12:00:00 AM
Seriousness: 0
JobRelated: False
Action Taken: True
Suspended:True
Computer Seized:True
Suspension
Start 7/24/2014 12:00:00 AM
End: 8/6/2014 12:00:00 AM

FIG. 22A

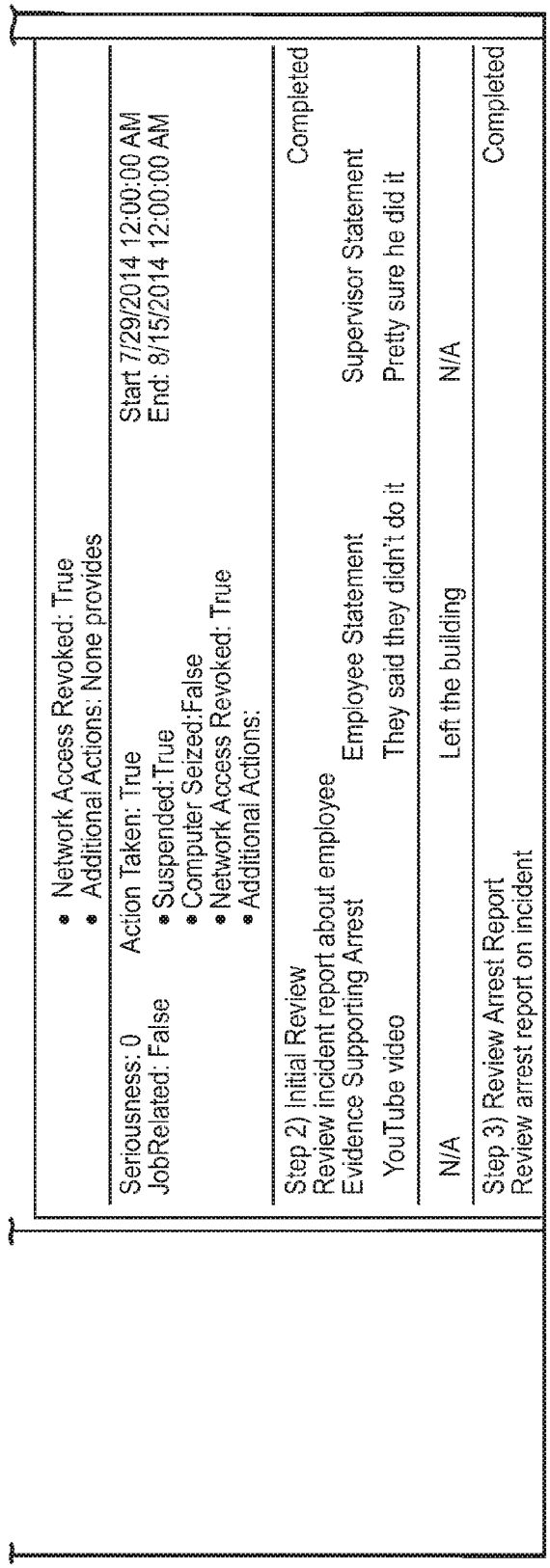

• Network Access Revoked: True
• Additional Actions: None provides
Seriousness: 0
JobRelated: False
Action Taken: True
• Suspended:True
• Computer Seized:False
• Network Access Revoked: True
• Additional Actions:
Start 7/29/2014 12:00:00 AM
End: 8/15/2014 12:00:00 AM
Step 2) Initial Review
Review incident report about employee
Evidence Supporting Arrest
YouTube video
Employee Statement
They said they didn't do it
Supervisor Statement
Pretty sure he did it
Completed
N/A
Left the building
N/A
Step 3) Review Arrest Report
Review arrest report on incident
Completed

FIG. 22B

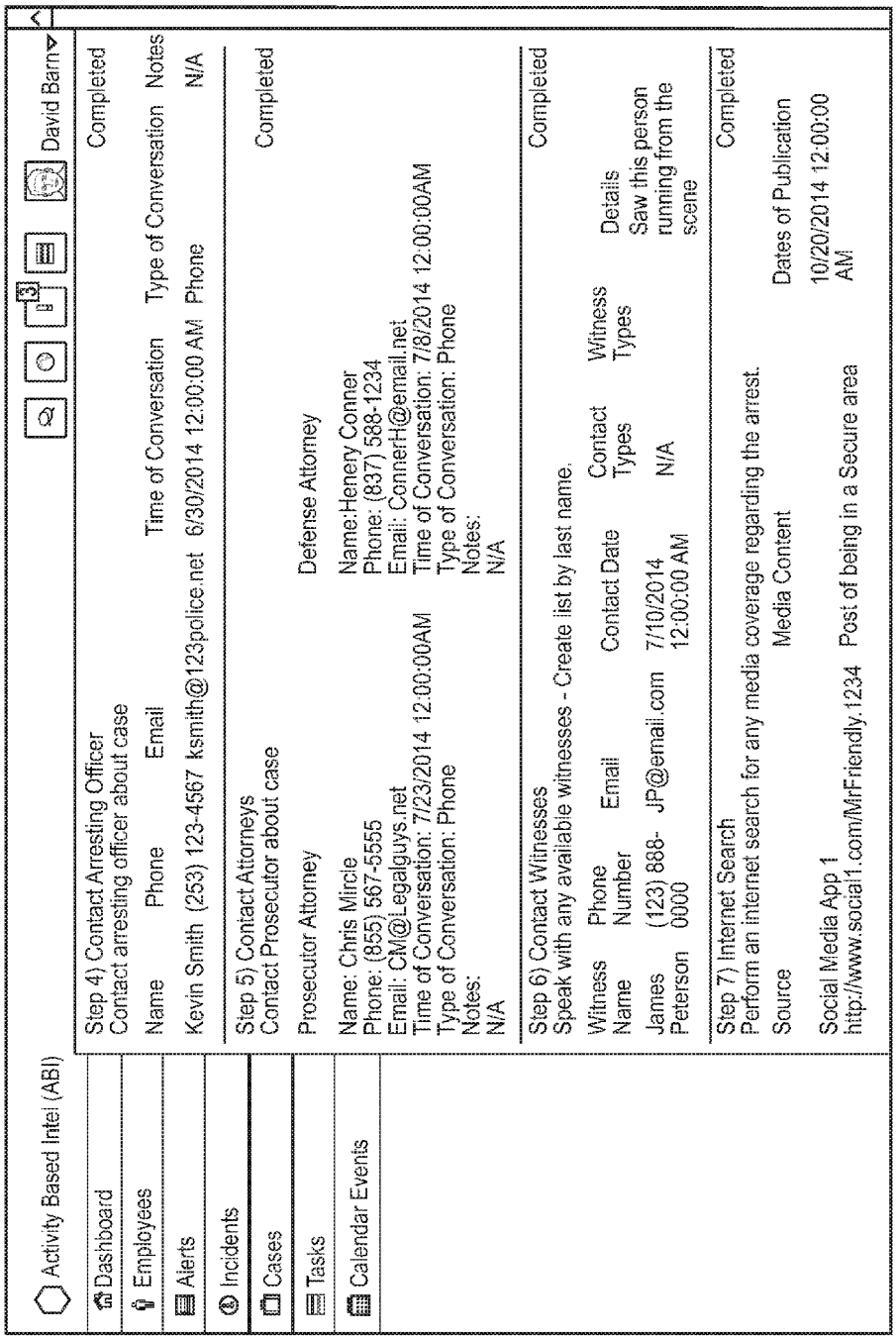

Activity Based Intel (ABI)
David Barn
Dashboard
Employees
Alerts
Incidents
Cases
Tasks
Calendar Events
Step 4) Contact Arresting Officer
Contact arresting officer about case
Completed
Name Phone Email Time of Conversation Type of Conversation Notes
Kevin Smith (253) 123-4567 ksmith@123police.net 6/30/2014 12:00:00 AM Phone N/A
Step 5) Contact Attorneys
Contact Prosecutor about case
Completed
Prosecutor Attorney
Name: Chris Mircie
Phone: (855) 567-5555
Email: CM@Legalguys.net
Time of Conversation: 7/23/2014 12:00:00AM
Type of Conversation: Phone
Notes:
N/A
Defense Attorney
Name:Henery Conner
Phone: (837) 588-1234
Email: ConnerH@email.net
Time of Conversation: 7/8/2014 12:00:00AM
Type of Conversation: Phone
Notes:
N/A
Step 6) Contact Witnesses
Speak with any available witnesses - Create list by last name.
Completed
Witness Name
Phone Number
Email
Contact Date
Contact Types
Witness Types
Details
James Peterson
(123) 888-0000
JP@email.com
7/10/2014 12:00:00 AM
N/A
Saw this person running from the scene
Step 7) Internet Search
Perform an internet search for any media coverage regarding the arrest.
Completed
Source
Media Content
Dates of Publication
Social Media App 1
http://www.social1.com/MrFriendly.1234
Post of being in a Secure area
10/20/2014 12:00:00 AM

FIG. 23

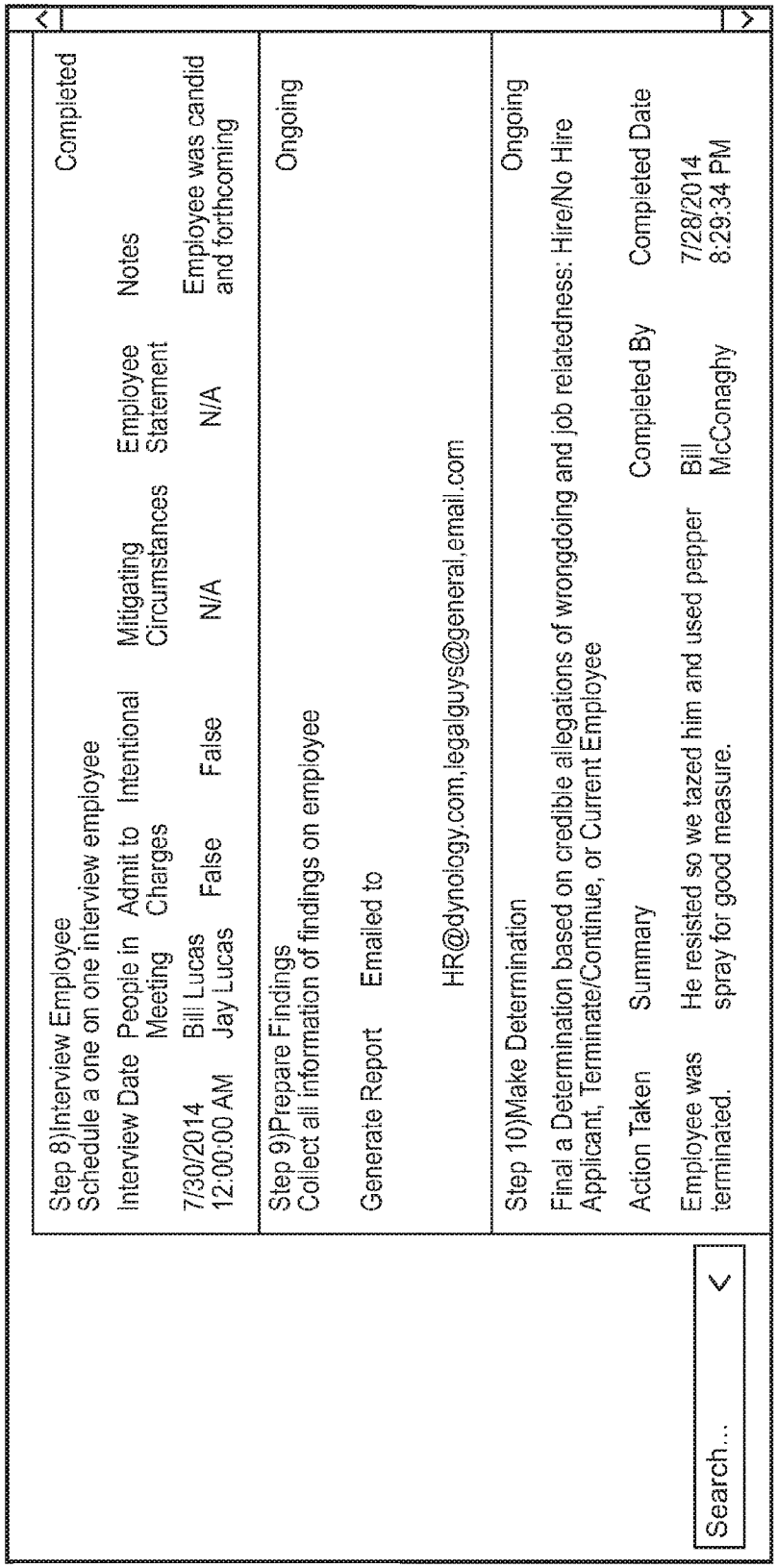

Step 8)Interview Employee
Schedule a one on one interview employee
Completed
Interview Date
People in Meeting
Admit to Charges
Intentional
Mitigating Circumstances
Employee Statement
Notes
7/30/2014 12:00:00 AM
Bill Lucas
Jay Lucas
False
False
N/A
N/A
Employee was candid and forthcoming
Step 9)Prepare Findings
Collect all information of findings on employee
Ongoing
Generate Report
Emailed to
HR@dynoiogy.com,legalguys@general.email.com
Step 10)Make Determination
Ongoing
Final a Determination based on credible allegations of wrongdoing and job relatedness: Hire/No Hire
Applicant, Terminate/Continue, or Current Employee
Action Taken
Summary
Completed By
Completed Date
Employee was terminated.
He resisted so we tazed him and used pepper spray for good measure.
Bill McConaghy
7/28/2014 8:29:34 PM
Search...

FIG. 24

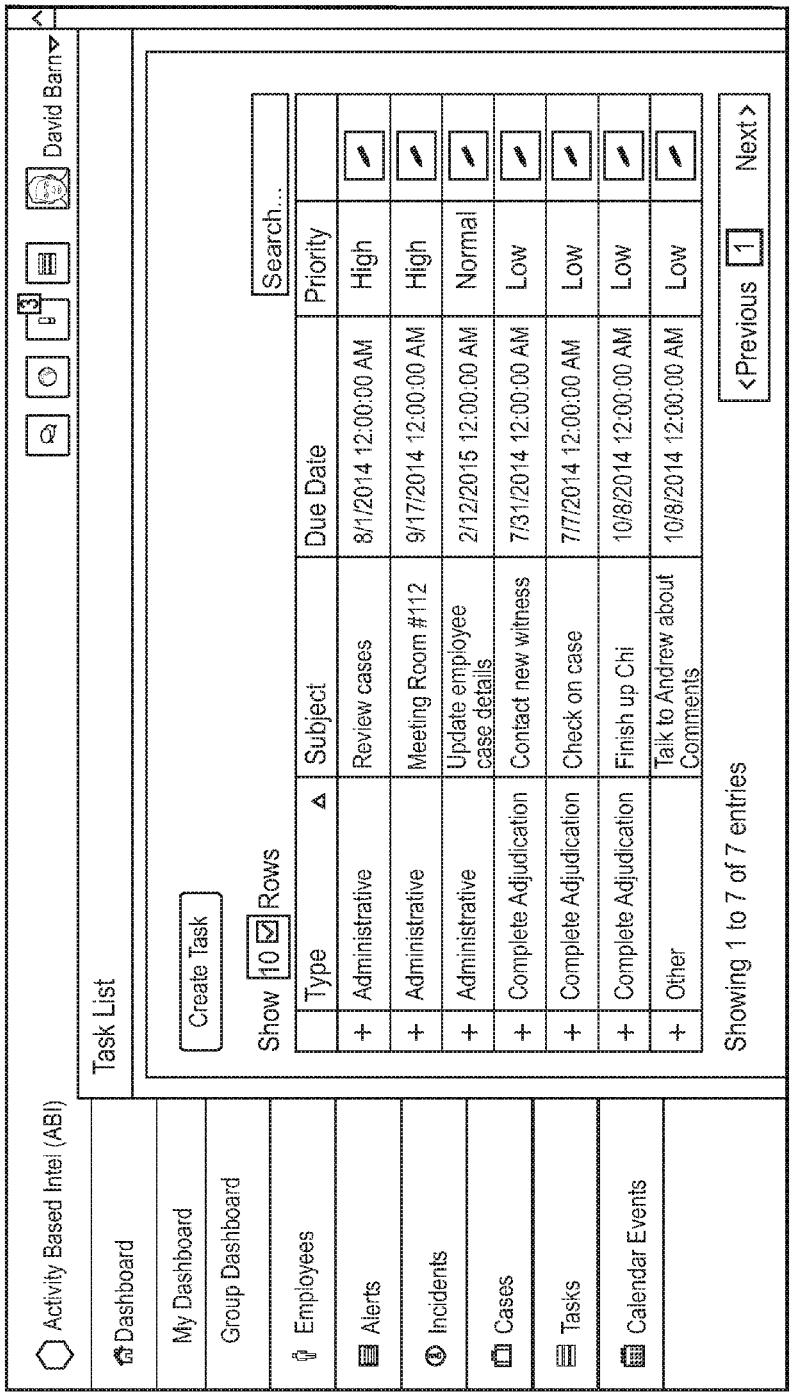

Activity Based Intel (ABI)
David Barn
Dashboard
My Dashboard
Group Dashboard
Employees
Alerts
Incidents
Cases
Tasks
Calendar Events
Task List
Create Task
Search...
Show 10 Rows
Type
Subject
Due Date
Priority
Administrative
Review cases
8/1/2014 12:00:00 AM
High
Administrative
Meeting Room #112
9/17/2014 12:00:00 AM
High
Administrative
Update employee case details
2/12/2015 12:00:00 AM
Normal
Complete Adjudication
Contact new witness
7/31/2014 12:00:00 AM
Low
Complete Adjudication
Check on case
7/7/2014 12:00:00 AM
Low
Complete Adjudication
Finish up Chi
10/8/2014 12:00:00 AM
Low
Other
Talk to Andrew about Comments
10/8/2014 12:00:00 AM
Low
Showing 1 to 7 of 7 entries
<Previous 1 Next>

FIG. 25

SYSTEMS AND METHODS FOR ELECTRONICALLY MONITORING EMPLOYEES TO DETERMINE POTENTIAL RISK

CROSS-REFERENCE TO RELATED APPLICATION

[0001] This application claims priority to U.S. Provisional Patent Application Ser. No. 62/210,744, filed Aug. 27, 2015 and entitled "SYSTEM AND METHOD FOR DETECTING AN EMPLOYEE-RELATED RISK," the contents of which is incorporated herein in its entirety.

TECHNICAL FIELD

[0002] The present specification generally relates to systems and methods for monitoring employee activity and, more specifically, to systems and methods for determining whether a combination of monitored activity and other factors of an employee pose a risk to an organization, its employees and customers.

BACKGROUND

[0003] Certain organizations may be susceptible to adverse actions that are taken by people who have access to various resources owned and/or operated by the organization, regardless of whether the adverse actions are intentional. As such, organizations may monitor every person's activity, both offline and online within the organization's network, as well as activity outside the organization's network when the activity is conducted on a device owned by the organization.

[0004] Since certain activity may not appear to be adverse in a vacuum, organizations may rely on services for monitoring other online and offline activity, including background checks, to determine whether the activity or other behavior is actually adverse to the organization's interest. However, some of this additional activity may be legally protected ("Protected Information") and potentially subject to compliance with federal and state laws regarding privacy, which may prevent the use of Protected Information to exercise an administrative action. Furthermore, background screening is typically limited to historic data at a particular point in time instead of continuously obtained information.

[0005] Accordingly, a need exists for systems and methods that continually monitor individuals for adverse activity toward an organization and which provides a risk assessment that is compliant with federal and state laws and regulations.

SUMMARY

[0006] In an embodiment, a method of electronically evaluating a behavior of an employee to identify risk includes receiving, by a processing device, first data from one or more legal databases. The first data includes information regarding legal activity relating to the employee. The method further includes receiving, by the processing device, second data from one or more financial databases. The second data includes financial activity relating to the employee. The method further includes receiving, by the processing device, third data relating to one or more activities electronically conducted by the employee on a network communicatively coupled to the processing device and fourth data from one or more social networking databases. The fourth data includes social networking activity conducted online by the employee. The method further includes aggregating, by the processing device, the first data, the second data, the third data, and the fourth data into an employee profile relating to the employee, determining, by the processing device, legally Protected Information regarding the employee from the employee profile, determining, by the processing device, one or more anomalies associated with the employee based on the employee profile and the legally Protected Information, and generating, by the processing device, an alert relating to the one or more anomalies. The alert does not reveal to the user any references to the legally Protected Information which was used to process the alert.

[0007] In an embodiment, a system of electronically evaluating a behavior of an employee to identify risk includes a processing device and a non-transitory, processor-readable storage medium. The non-transitory, processor-readable storage medium includes one or more programming instructions that, when executed, cause the processing device to receive first data from one or more legal databases. The first data includes information regarding legal activity relating to the employee. The non-transitory, processor-readable storage medium further includes one or more programming instructions that, when executed, cause the processing device to receive second data from one or more financial databases. The second data includes financial activity relating to the employee. The non-transitory, processor-readable storage medium further includes one or more programming instructions that, when executed, cause the processing device to receive third data relating to one or more activities electronically conducted by the employee on a network communicatively coupled to the processing device and fourth data from one or more social networking databases. The fourth data includes social networking activity conducted by the employee. The non-transitory, processor-readable storage medium further includes one or more programming instructions that, when executed, cause the processing device to aggregate the first data, the second data, the third data, and the fourth data into an employee profile relating to the employee, determine legally Protected Information regarding the employee from the employee profile, determine one or more anomalies associated with the employee based on the employee profile and the legally Protected Information, and generate an alert relating to the one or more anomalies. The alert does not reveal to the user any references to the legally Protected Information which was used to process the alert.

[0008] In an embodiment, a computer machine for electronically evaluating a behavior of an employee to identify risk includes a first hardware component that receives first data from one or more legal databases, second data from one or more financial databases, third data from a network communicatively coupled to the first hardware component, and fourth data from one or more social networking databases. The first data includes information regarding legal activity relating to the employee, the second data includes financial activity relating to the employee, the third data relates to one or more activities electronically conducted by the employee on the network, and the fourth data includes social networking activity conducted by the employee. The computer machine further includes a second hardware component that aggregates the first data, the second data, the third data, and the fourth data into an employee profile

relating to the employee, a third hardware component that determines legally Protected Information regarding the employee from the employee profile and determines one or more anomalies associated with the employee based on the employee profile and the legally Protected Information, and a fourth hardware component that generates an alert relating to the one or more anomalies. The alert does not contain references to the legally Protected Information.

[0009] These and additional features provided by the embodiments described herein will be more fully understood in view of the following detailed description, in conjunction with the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] The embodiments set forth in the drawings are illustrative and exemplary in nature and not intended to limit the subject matter defined by the claims. The following detailed description of the illustrative embodiments can be understood when read in conjunction with the following drawings, where like structure is indicated with like reference numerals and in which:

[0011] FIG. **1** schematically depicts an illustrative computing network for monitoring one or more individuals on a network, determining risk, and providing tools for mitigating risk according to one or more embodiments shown and described herein;

[0012] FIG. **2**A schematically depicts a block diagram of illustrative hardware of a computing device that monitors one or more individuals on a network, determines risk, and provides tools for mitigating risk according to one or more embodiments shown and described herein;

[0013] FIG. **2**B schematically depicts a block diagram of software modules contained within a memory of a computing device according to one or more embodiments shown and described herein;

[0014] FIG. **2**C schematically depicts a block diagram of various data contained within a data storage component of a computing device according to one or more embodiments shown and described herein;

[0015] FIG. **3** schematically depicts a block diagram of an illustrative architecture of a system for monitoring one or more individuals on a network, determining risk, and providing tools for mitigating risk according to one or more embodiments shown and described herein;

[0016] FIG. **4** schematically depicts an illustrative system architecture along with various system components necessary for monitoring one or more individuals on a network, determining risk, and providing tools for mitigating risk according to one or more embodiments shown and described herein;

[0017] FIG. **5** schematically depicts a block diagram of an illustrative data component architecture for monitoring one or more individuals on a network, determining risk, and providing tools for mitigating risk according to one or more embodiments shown and described herein;

[0018] FIG. **6** schematically depicts a block diagram of an illustrative application architecture for monitoring one or more individuals on a network, determining risk, and providing tools for mitigating risk according to one or more embodiments shown and described herein;

[0019] FIG. **7** schematically depicts an illustrative class diagram for an application that monitors one or more individuals on a network, determines risk, and provides tools for mitigating risk according to one or more embodiments shown and described herein;

[0020] FIG. **8** schematically depicts a block diagram of an illustrative database schema for an application that monitors one or more individuals on a network, determines risk, and provides tools for mitigating risk according to one or more embodiments shown and described herein;

[0021] FIG. **9**A schematically depicts a first portion of a sequence diagram of various illustrative interactions between modules in an application that monitors one or more individuals on a network, determines risk, and provides tools for mitigating risk according to one or more embodiments shown and described herein;

[0022] FIG. **9**B schematically depicts a second portion of a sequence diagram of various illustrative interactions between modules in an application that monitors one or more individuals on a network, determines risk, and provides tools for mitigating risk according to one or more embodiments shown and described herein;

[0023] FIG. **10**A depicts a flow diagram of an illustrative method of evaluating a behavior of an employee according to one or more embodiments shown and described herein;

[0024] FIG. **10**B is a continuation of the flow diagram of FIG. **10**A;

[0025] FIG. **11** depicts an illustrative screen shot of an alerts user interface for an investigator user according to one or more embodiments shown and described herein;

[0026] FIG. **12** depicts an illustrative screen shot of a cases user interface for a decision maker user according to one or more embodiments shown and described herein according to one or more embodiments shown and described herein;

[0027] FIG. **13**A depicts an illustrative screen shot of a first section of a homepage portion of the user interface according to one or more embodiments shown and described herein;

[0028] FIG. **13**B depicts an illustrative screen shot of a second section of the homepage portion of the user interface of FIG. **13**A.

[0029] FIG. **14** is depicts an illustrative screen shot of another homepage portion of the user interface according to one or more embodiments shown and described herein;

[0030] FIG. **15** depicts an illustrative screen shot of a page showing a list of employees according to one or more embodiments shown and described herein;

[0031] FIG. **16** depicts an illustrative screen shot of a page showing generated alerts according to one or more embodiments shown and described herein;

[0032] FIG. **17** depicts an illustrative screen shot of a page showing alert details for a specific employee according to one or more embodiments shown and described herein;

[0033] FIG. **18** depicts an illustrative screen shot of a page showing recorded incidents according to one or more embodiments shown and described herein;

[0034] FIG. **19** depicts an illustrative screen shot of a page showing incident results for specific personnel according to one or more embodiments shown and described herein;

[0035] FIG. **20** depicts an illustrative screen shot of a page showing incident results for another personnel according to one or more embodiments shown and described herein;

[0036] FIG. **21** depicts an illustrative screen shot of a page showing managed cases according to one or more embodiments shown and described herein;

[0037] FIG. **22**A depicts an illustrative screen shot of a first portion of a page showing a specific case according to one or more embodiments shown and described herein;

[0038] FIG. **22**B depicts an illustrative screen shot of a second portion of the page depicted in FIG. **22**A;

[0039] FIG. **23** depicts an enlarged view of a bottom portion of the page shown in FIG. **22**;

[0040] FIG. **24** depicts an enlarged view of an end portion of the page shown in FIG. **23**; and

[0041] FIG. **25** depicts an illustrative screen shot of a page showing a list of tasks according to one or more embodiments shown and described herein.

DETAILED DESCRIPTION

[0042] The embodiments described herein are generally directed to systems and methods that monitor the actions of one or more employees on an organization's network and receive information from external sources to determine whether any anomalies exist that might result in actions that are or could potentially be adverse to the organization's interests. If an anomaly is detected, an alert may be generated and supplied to one or more other users for further investigation and/or potential adverse or corrective action. The information that is received from external sources includes legally Protected Information, which is used in determining whether an anomaly is detected. However, to protect the employee's privacy rights in compliance with federal and state laws, the alert that is generated and supplied (either alone or as part of a report) does not contain any of the legally Protected Information so as to avoid having the legally Protected Information improperly used by the users in deciding how to respond to the alert. In addition to the foregoing, the systems and methods described herein may provide a user interface to the one or more other users for responding to the alert, which may be specifically tailored for each of the one or more other users based on the user's role in responding to the alert.

[0043] Employees of the organization may intentionally or inadvertently cause risk to the organization by providing access to any of the organization's resources and/or property, stealing from the organization, causing harm to come to the organization's assets and/or other individuals associated with the organization, and/or the like. Such actions may occur as a result of factors or events taking place in the employee's personal life, financial distress, work dissatisfaction, and may be evidenced or predicted by activities and behaviors conducted by the employee. The employee's actions may place an organization at risk in many ways, including damaging the organization's brand, reputation, and name; stealing or otherwise harming the organization financially; compromising the organization's intellectual property; and an employee's actions within the organization (e.g., in the workplace) may cause other employees physical harm, or otherwise create a hostile environment. It is known that certain factors in an employee's life can be indicative of future adverse actions or future criminal behavior.

[0044] In a nonlimiting example of how an employee may harm an organization, the employee may intentionally or unintentionally be responsible for data breaches, which can result in the loss or copying of sensitive data held by an organization. The acquisition of such data by third parties can be used to commit criminal acts or cause harm to the organization. That is, data breaches can cause an organization to lose revenue or suffer other damages for which recovery may be impossible or difficult. Some of these risks may be mitigated by observing the employee's actions, life events, behavior, financial activity, legal activity (e.g., law enforcement and judicial activity), and/or the like, and taking action as soon as possible, which may be even before the individual executes a threat to the organization. For example, the individual may lose his/her access to sensitive information, be fired, reprimanded, provided with counseling, transferred, educated, and/or the like. The systems and methods described herein address these issues in a manner that provides a more accurate correlation of behavior to criminal acts while providing the employer with a compliant, repeatable workflow and process that protects the privacy of the employees, and helps protect the organization against potential inadvertent unlawful employment practice (s).

[0045] As used herein, an "organization" generally refers to any entity that has a plurality of individuals associated therewith. As such, an organization may include, but is not limited to, a place of business, a government entity, a charitable organization, a financial institution, an educational institution, a medical institution, an interest group, and/or the like.

[0046] An "employee" as used herein generally relates to an individual that is not only employed by an organization, but is also associated with an organization in such a manner as to have access to the organization's proprietary information, which may include, but is not limited to, an owner, a member, an elected official, a volunteer, a contractor, an authorized individual, a teacher, a student, an agent and/or the like. The employee may come in contact with, or have access to, resources owned and/or operated by the organization, networked or standalone computers, buildings owned and/or occupied by the organization, tangible goods owned by the organization, funds, data, intellectual property, and/or the like.

[0047] As used herein, "legally Protected Information" refers to information pertaining to an employee to which the employee has an expectation of privacy. As such, the legally Protected Information includes Regulated Data, which is data that is protected from public disclosure by various laws, rules, policies, and/or the like, and cannot be divulged without express authorization from the employee. Nonlimiting examples of laws, rules, policies, and/or the like include laws enacted by the Fair Credit Reporting Act (FCRA), the Health Insurance Portability and Accountability Act (HIPAA), and the Gramm-Leach-Bliley Act (GLBA). In some embodiments, the Regulated Data may only be regulated based on how it is used (e.g., data that is obtained under the FCRA). That is, some public data may not be used for disciplinary purposes, even if such data is public. Such data may be considered Regulated Data in these instances. Moreover, the Regulated Data may not be used for the purposes of disciplinary action or the like against the employee. Other illustrative examples of legally Protected Information include, but are not limited to, financial records (including credit reports or the like), medical records, certain legal records, private information held regarding the employee (i.e., personally identifiable information), and/or the like.

[0048] As used herein, a "user" is an individual that reviews and processes any alerts generated by the methods or systems described herein, to include initiating an external review of an employee, interviewing an employee, or taking

disciplinary action against the employee. A user may be an employee of the organization or may be an individual employed by an organization providing risk assessment services. The term user may secede another term, such as "administrative," "investigator," "decision maker," "reviewer," or "analyst" or the like so as to distinguish between the different roles a user performs.

[0049] As used herein, the term "anomaly" generally refers to received data or information regarding an employee that deviates from expected information regarding that employee. As such, a baseline regarding the employee's behavior is established such that the systems and methods described herein can determine whether an anomaly exists when information or data is received. Such a baseline is established by analyzing an employee's behavior and determining what is considered normal or typical for that employee.

[0050] FIG. **1** depicts an illustrative computing network **100** that is used to monitor an employee's activity, obtain information regarding the employee, and generate an alert if anomalies are discovered according to embodiments shown and described herein. As illustrated in FIG. **1**, a computer network **110** may include a wide area network (WAN), such as the Internet, a local area network (LAN), a mobile communications network, a public service telephone network (PSTN), a personal area network (PAN), a metropolitan area network (MAN), a virtual private network (VPN), and/or another network. The computer network **110** may generally be configured to electronically connect one or more computing devices and/or components thereof. Illustrative computing devices may include, but are not limited to, one or more computing devices, such as an investigator user computing device **120**, a reviewer user computing device **125**, an administrative user computing device **130**, an analyst user computing device **135**, a decision maker user computing device **140**, and a general user computing device **145** and/or one or more server computing devices, such as an application server **150**, a mail transfer server **160**, an external source database server **170**, a client database server **180**, and a core database server **190**. Other computing devices not specifically recited should generally be understood.

[0051] The user computing devices may each generally be used as an interface between a user and the other components connected to the computer network **110**, and/or various other components communicatively coupled to the user computing devices (such as components communicatively coupled via one or more networks to the user computing devices), whether or not specifically described herein. Thus, the user computing devices may be used to perform one or more functions, such as receiving one or more inputs from a user or providing information to the user. Additionally, in the event that one or more of the server computing devices requires oversight, updating, or correction, one or more of the user computing devices may be configured to provide the desired oversight, updating, and/or correction. One or more of the user computing devices may also be used to input additional data into a data storage portion of one or more of the server computing devices.

[0052] As will be described in greater detail herein, each of the user computing devices may be specifically configured for a particular user or may be a general computer that can be particularly configured for any one of the particular users described herein. For example, the investigator user computing device **120** may provide a user interface for an investigator user, the reviewer user computing device **125** may provide a user interface for a reviewer user, the administrative computing device **130** may provide a user interface for an administrative user, the analyst user computing device **135** may provide a user interface for an analyst user, the decision maker user computing device **140** may provide a user interface for a decision maker user, and the general user computing device **145** may be used to provide any user interface, including a user interface described herein. In some embodiments, the general computing device **145** may be a computing device that is monitored for target employee activities.

[0053] The various server computing devices may each receive electronic data and/or the like from one or more sources (e.g., one or more of the user computing devices, one or more external feeds/sources, and/or one or more databases), direct operation of one or more other devices (e.g., one or more of the user computing devices), contain data relating to employee activity, contain legally Protected Information, contain social networking data, legal activity (e.g., law enforcement and judicial activity) data, financial data, information regarding one or more factors associated with an employee, risk assessment data, behavior model data and/or the like. In some embodiments, one or more of the various server computing devices may contain employee-specific information for each of a plurality of employees, including, but not limited to, information relating to at least one of a property owned by the employee, information regarding utilities used by the employee, information regarding travel completed by the employee, information regarding a club membership held by the employee, information regarding a political affiliation of the employee, information regarding a religious affiliation of the employee, information regarding a group membership held by the employee, information regarding a subscription held by the employee, information regarding a previous employment of the employee, information regarding a publication made by the employee, information regarding a license held by the employee, information regarding a registration held by the employee, and/or the like, as described in greater detail herein. In some embodiments, the information that is obtained may be also used to establish a baseline of typical or expected activity for a particular employee for the purposes of determining whether an anomaly exists, as described in greater detail herein.

[0054] It should be understood that while the user computing devices are depicted as personal computers and the server computing devices are depicted as servers, these are nonlimiting examples. More specifically, in some embodiments, any type of computing device (e.g., mobile computing device, personal computer, server, etc.) may be used for any of these components. Additionally, while each of these computing devices is illustrated in FIG. **1** as a single piece of hardware, this is also merely an example. More specifically, each of the user computing devices and the server computing devices may represent a plurality of computers, servers, databases, mobile devices, components, and/or the like.

[0055] In addition, it should be understood that while the embodiments depicted herein refer to a network of devices, the present disclosure is not solely limited to such a network. For example, in some embodiments, the various processes described herein may be completed by a single computing

device, such as a non-networked computing device or a networked computing device that does not use the network to complete the various processes described herein.

[0056] Illustrative hardware components of one of the user computing devices and/or the server computing devices are depicted in FIG. **2**A. A bus **200** may interconnect the various components. A processing device **205**, such as a computer processing unit (CPU), may be the central processing unit of the computing device, performing calculations and logic operations required to execute a program. The processing device **205**, alone or in conjunction with one or more of the other elements disclosed in FIG. **2**A, is an illustrative processing device, computing device, processor, or combination thereof, as such terms are used within this disclosure. Memory **210**, such as read only memory (ROM) and random access memory (RAM), may constitute an illustrative memory device (i.e., a non-transitory processor-readable storage medium). Such memory **210** may include one or more programming instructions thereon that, when executed by the processing device **205**, cause the processing device **205** to complete various processes, such as the processes described herein. Optionally, the program instructions may be stored on a tangible computer-readable medium such as a compact disc, a digital disk, flash memory, a memory card, a USB drive, an optical disc storage medium, such as a Blu-Ray™ disc, and/or other non-transitory processor-readable storage media.

[0057] In some embodiments, the program instructions contained on the memory **210** may be embodied as a plurality of software modules, where each module provides programming instructions for completing one or more tasks. For example, as shown in FIG. **2**B, the memory **210** may contain operating logic **211**, user interface (UI) logic **212**, modeling/monitoring/workflow logic **213**, behavior analysis logic **214**, and/or risk assessment logic **215**. These are merely illustrative examples, and alternative and/or additional logic modules may also be used to carry out the processes described herein. In addition, the various processes described herein may be completed by a combination of modules, and are not limited to a single specific module. The operating logic **211** may include an operating system and/or other software for managing components of a computing device. The UI logic **212** may include one or more software modules for providing a user interface to a user, including, but not limited to, an investigator user interface, a reviewer user interface, an administrative user interface, an analyst user interface, a decision maker user interface, and/or the like, as described in greater detail herein. The modeling/monitoring/workflow logic **213** may include one or more software modules for monitoring employee activity, generating models, or providing a workflow, as described in greater detail herein. The behavior analysis logic **214** may include one or more software modules for analyzing an employee's behavior based on the employee's activity within the organization's network and/or based on information obtained from one or more internal or external sources, and/or generating a behavior model, as described in greater detail herein. The risk assessment logic **215** may include one or more software modules for determining risk based on a particular employee's behavior, providing a risk assessment, determining one or more anomalies, and/or generating one or more reports.

[0058] Referring again to FIG. **2**A, a storage device **250**, which may generally be a storage medium that is separate from the memory **210**, may contain one or more data repositories for storing data that is used for evaluating a manufactured part and/or determining a manufactured part transformation. The storage device **250** may be any physical storage medium, including, but not limited to, a hard disk drive (HDD), memory, removable storage, and/or the like. While the storage device **250** is depicted as a local device, it should be understood that the storage device **250** may be a remote storage device, such as, for example, a remote server or the like.

[0059] Illustrative data that may be contained within the storage device **250** is depicted in FIG. **2**C. As shown in FIG. **2**C, the storage device **250** may include, for example, social networking data **251**, legal data **252** (e.g., law enforcement and judicial data), financial data **253**, electronic monitoring data **254**, human resources (HR) data **255**, behavior model data **256**, and/or the like. Social networking data **251** may include, for example, data that is obtained from one or more social networking sources. The social networking source is not limited by this disclosure and may be any existing or future social network that provides access to the information generated therein. In some embodiments, social networking data **251** may include data that is obtained via one or more social networking feeds (e.g., feeds are monitored for relevant data, which is downloaded when discovered). Legal data **252** may include, for example, data obtained from one or more of a law enforcement agency database, a judicial database, a regulated public records database, a regulated public information database, and/or the like. In some embodiments, the legal data **252** may be referred to as law enforcement and/or judicial data. Financial data **253** may include, for example, data obtained from one or more of a credit reporting database, a bankruptcy database, a real property record database, a consumer reporting agency database, a financial institution database, and/or the like. Electronic monitoring data **254** may include, for example, data that is generated from electronic monitoring of an employee's activities while the employee is logged into an organization's private network and/or using an electronic device (such as a computing device, a mobile device, or the like) that is owned and/or maintained by an organization. Thus, electronic monitoring data **254** may include, but is not limited to, browsing history, file transfer history, file editing history, communications data (e.g., email and voicemail data), keylogging and/or keystroke data, mouse click data, screen shot data, peripheral device access data, video monitoring data, and/or the like. Human resource (HR) data **255** may include, for example, data that is generally collected and/or maintained by a human resources department in embodiments where the organization is an employer and a target employee (i.e., an employee for whom data is being collected) is an employee, contractor, consultant, counsel, or the like. Thus, the HR data **255** may include one or more factors associated with an employee, including, but not limited to, a job category of the employee, a responsibilities category of the employee, a prior history of the employee, a performance review of the employee, a ranking of the employee, a written complaint regarding the employee, an award received by the employee, and/or the like. Behavior model data **256** may include, for example, data relating to an employee's behavior that may be used to generate a model and/or data relating to the generated behavior model, as described in greater detail herein.

[0060] Referring again to FIG. **2**A, an optional user interface **220** may permit information from the bus **200** to be displayed on a display **225** portion of the computing device in audio, visual, graphic, or alphanumeric format. Moreover, the user interface **220** may also include one or more inputs **230** that allow for transmission to and receipt of data from input devices such as a keyboard, a mouse, a joystick, a touch screen, a remote control, a pointing device, a video input device, an audio input device, a haptic feedback device, and/or the like. Such a user interface **220** may be used, for example, to allow a user to interact with the computing device or any component thereof.

[0061] A system interface **235** may generally provide the computing device with an ability to interface with one or more of the components of the computer network **110** (FIG. **1**). Communication with such components may occur using various communication ports (not shown). An illustrative communication port may be attached to a communications network, such as the Internet, an intranet, a local network, a direct connection, and/or the like.

[0062] A communications interface **245** may generally provide the computing device with an ability to interface with one or more external components, such as, for example, an external computing device, a remote server, and/or the like. Communication with external devices may occur using various communication ports (not shown). An illustrative communication port may be attached to a communications network, such as the Internet, an intranet, a local network, a direct connection, and/or the like.

[0063] It should be understood that the components illustrated in FIGS. **2**A-**2**C are merely illustrative and are not intended to limit the scope of this disclosure. More specifically, while the components in FIGS. **2**A-**2**C are illustrated as residing within one or more of the server computing devices and/or one or more of the user computing devices, these are nonlimiting examples. In some embodiments, one or more of the components may reside external to the one or more server computing devices and/or the one or more user computing devices. Similarly, one or more of the components may be embodied in other computing devices not specifically described herein.

[0064] The systems and methods described herein may generally provide user facing and backend portions for the purposes of monitoring an employee, receiving data, determining anomalies and assessing risk, generating behavior models, and providing reports, alerts, and risk assessments. For example, a user facing portion may be used to monitor an employee, receive data from an employee, provide reports, alerts, and risk assessments to a user and a backend portion may be used to receive data from non-organizational sources (e.g., external sources), determining anomalies and assessing risk, and generating behavior models. FIG. **3** depicts a block diagram of an illustrative architecture for providing the various user facing and backend portions.

[0065] An application microservice **310**, which is a service-oriented architecture, may provide the user-facing portion of the systems and methods described herein. The application microservice **310** may interface with one or more databases, such as, for example, a MongoDB **311**, a structured query language (SQL) database (DB) **312**, an Oracle DB **313**, and/or any other database **314** now known or later developed. The one or more databases may store data relating to user-facing functions, including user interfaces, user activity tracking data, and/or the like, as described in greater detail herein.

[0066] In some embodiments, the application microservice **310** may provide a web interface **330** for user-facing functions, such as the various user-facing functions described herein. Such user-facing functions may be provided by one or more applications that are tailored for a specific use or a specific purpose. Illustrative examples of the one or more applications include, but are not limited to, a mobile application **331**, a service subscriber application **332**, a custom application **333**, a .NET application, a Java application **335**, and an angular application **336**. The mobile application **331** may provide a specific user interface that is customized for user computing devices that are mobile devices. The service subscriber application **332** and/or the custom application **333** may each provide a particular user interface and/or custom interface based on the type of user, as described in greater detail herein. The .NET application **334** refers to a specific application interface that functions in a Microsoft® Windows® environment. The Java application **335** and the angular application **336** each refers to a specific application interface that functions in a Java Runtime Environment (JRE), such as via a web browser plugin.

[0067] The backend portion of the systems and methods described herein may be provided, for example, by a service application **320**. The service application **320** may interface with a plurality of sources, databases, live feeds, and/or the like to obtain information, determine anomalies and assess risk, generate behavior models, and/or the like. Illustrative sources, databases, life feeds, and/or the like include, but are not limited to, an SQL database **321**, an Appriss® source **322**, a credit reporting agency source **323** (e.g. TransUnion® (TU)), an international justice and public safety network (NLETS) source **324**, a data service source **325**, and a database source **326**, which may, in turn, interface with a data subscriber application **327**.

[0068] FIG. **4** depicts a topology diagram of an illustrative example of a system architecture along with various components of the computer network **110** (FIG. **1**) that are used in providing an application as described herein. In some embodiments, the system architecture may include a client presentation layer **410**, an application/code/logic/data layer **420**, and/or an external data source layer **440**.

[0069] The client presentation layer **410** is responsible for serving web pages (e.g., hypertext markup language (HTML) pages) via a hypertext transfer protocol (HTTP) to clients. The client presentation layer **410** sends out web pages in response to requests from browsers. A page request is generated when a client clicks a link on a web page in the browser.

[0070] The client presentation layer **410** may include, for example, one or more of the user computing devices (such as, but not limited to, the investigator user computing device **120**, the administrative user computing device **130**, and the decision maker user computing device **140**) communicatively coupled via the computer network **110** to the application server **150** and/or the mail transfer server **160** such that the servers provide an insider threat user interface dashboard **412**, a client configuration application **414**, an email notification application **416**, and/or an authentication/authorization application **418**. These applications may generally provide the user computing devices with one or more user interfaces for logging into the system, reviewing poten-

tial threats that have been discovered/determined, configure various personal settings, and/or to receive emails containing alerts, and/or the like, as described in greater detail herein.

[0071] The application/code/logic/data layer **420** presents application logic and data services. In addition, the application/code/logic/data layer **420** hosts business logic, business model classes and a back end database. The application/code/logic/data layer **420** may include, for example, a plurality of server computing devices (such as, but not limited to, the client database server **180** and the core database server **190**) communicatively coupled to one another via the computer network **110**. The server computing devices may provide a modeling application **422**, a monitoring application **424**, a workflow application **426**, a behavior analysis application **428**, a risk assessment application **430**, a data services application **432**, and/or a security application **434**. These applications may generally allow the systems and methods described herein to monitor an employee, analyze received data, generate alerts, generate risk assessments, generate behavior models, determine legally Protected Information to ensure that such legally Protected Information is not provided to a user via the client presentation layer **410**, and/or the like, as described in greater detail herein.

[0072] The external data source layer **440** generally transfers data to the application/code/logic/data layer **420**. As such, the external data source layer **440** includes (or interfaces with) external source database servers **170** (FIG. **1**) that provide data that is used for the purposes of analyzing data about a particular employee, generate alerts, generate behavior models, determine legally Protected Information, and/or the like. The data that is provided from these external source database servers **170** includes, but is not limited to, social networking activity data, legal activity data, financial activity data, and/or data containing other information about an employee, such as information relating to at least one of a property owned by the employee, information regarding utilities used by the employee, information regarding travel completed by the employee, information regarding a club membership held by the employee, information regarding a group membership held by the employee, information regarding a subscription held by the employee, information regarding a previous employment of the employee, information regarding a publication made by the employee, information regarding a license held by the employee, and information regarding a registration held by the employee.

[0073] The external source database server **170** in (or interfaced with) the external data source layer **440** may include one or more private sector servers **442** and/or one or more governmental servers **444**. Illustrative private sector servers **442** include, but are not limited to, an Appriss® server **170***a* or the like that contains government associated data, risk mitigation data, compliance model data, crash data, health information data, and/or the like; a credit reporting agency server **170***b*, such as an Equifax® server, a TransUnion® server, an Experian® server, a Callcredit server, a CreditorWatch server, a Veda Advantage server, a Creditinfo server, a governmental credit server, and/or the like; a predictive analytics database server **170***c*, such as that offered by L2C, Inc. (Atlanta, Ga.); an NLETS server **170***d* and/or another justice or public safety network server; and an intergovernmental organization (IGO) server **170***e* (e.g., servers offered by the United Nations (UN), the North Atlantic Treaty Organization (NATO), the World Trade Organization (WTO), the World Bank, the International Monetary Fund (IMF), the Islamic Development Bank, the International Criminal Court (ICC), and Interpol). Illustrative governmental servers **444** may include, but are not limited to, a regulatory server **170***f* (e.g., a server maintained or owned by a governmental regulatory agency), a legislative server **170***g* (e.g., a server maintained or owned by a legislative body, such as a congressional server), and a statute server **170***h*, such as a server that catalogs all of the various local, state/province, regional, and national statutes.

[0074] FIG. **5** depicts a block diagram of an illustrative data component architecture that may be provided in the client presentation layer **410** (FIG. **4**). The various services **507** that may be provided to a user via a public user interface **503** and/or a private user interface **508** may be determined based on information contained in a data layer **501** having an SQL database **502** or the like. The public user interface **503** may generally include various sub-interfaces for authenticating and logging in a user who wishes to use the private user interface **508**. As such, the public user interface **503** may authenticate the user as being part of a particular class of users, allow a user to change his/her password, and/or lock a user out if the user cannot be appropriately authenticated (e.g., if the user enters an incorrect password a preset number of times). The sub interfaces of the public user interface **503** may include, for example, a credentials submission user interface **504**, a password reset interface **505**, and a user lockout interface **506**.

[0075] Once a user has been appropriately authenticated, the user may be provided with access to the private user interface **508**, which may include access to a security application programming interface (API) **509** that provides a particular interface based on the class the user is a part of. Illustrative examples of such particular interfaces include, but are not limited to, an administrative interface **510** (which may be accessed by users in an administrative class), a human resources interface **511** (which may be accessed by users in a human resources class), a decision maker interface **512** (which may be accessed by users in a decision maker class), an investigator interface **513** (which may be accessed by users in an investigator class), a supervisor interface **514** (which may be accessed by users in a supervisor class), and one or more other interfaces **515** (which may be accessed by all registered users and/or users in particular classes). It should be understood that, in some embodiments, a user may be in more than one class, thereby allowing the user to access more than one of the user interfaces provided by the security API **509**.

[0076] Once a user is granted access to the application via a particular interface, an application architecture **600**, as depicted in FIG. **6** may define the various components and their interactions in the context of the entire system. That is, the application architecture **600** is the software that bridges the architectural gap between the application server **150** (FIG. **1**) and the application's business logic, thereby eliminating the complexities and excessive costs of constructing, deploying, and managing applications. The applications may be organized along business-level boundaries/layers via configuration (instead of programming). Illustrative boundaries may include, for example, a web application layer **610**, a persistence layer **620**, a microservices layer **630**, an SQL Server Integration Service (SSIS) layer **640**, and an external data layer **650**.

[0077] The web application layer **610** may provide access to the systems described herein via a standard internet browser. As such, HTML pages are delivered to a client browser by the application upon request by a user. The web pages may also include JavaScript functions where applicable. If JavaScript is turned off, server-side validations may be performed to ensure all validations are met. Accordingly, the web application layer **610** may include, for example, a data alert end point **611**, an employee processing interface **612**, an employee monitoring/watch interface **613**, an employee adjudication interface **614**, an employee adjudication results dashboard **615**, a user customization interface **616**, and an employee monitor results interface **617**.

[0078] The persistence layer **620**, which may also be referred to as the data access layer, may include the underlying resources that the application uses to deliver its functionality. This includes using a database, such as, for example, an SQL database **621** (including the SQL databases described in greater detail herein) to persist information. Data access objects using certain framework (e.g., Microsoft® model-view controller (MVC) .NET entity framework) may manage the interface to the database. The framework pattern may allow for the abstraction of the persistence from the business component and manages the connection to the data source to obtain and store data. As such, the framework encapsulates all access to a data store.

[0079] The microservices layer **630** may be a business objects/logics layer that implements the business rules for the application. The microservices layer **630** may host business service components, as well as business objects (BO). These business services include, for example, an analytics service **631** (e.g., an Appriss® service), a credit reporting service **632** (e.g., a TransUnion® service), and/or one or more other services **633**. Such services include dependent dynamic link libraries (DLLs) APIs to the business rules and operations required by the application. Business components are software units that process business logic.

[0080] The SSIS layer **640** may implement one or more extract, transform, and load (ETL) processes to import and/or export data from the external data source to a local database. As such, the SSIS layer **640** may include, for example, one or more SQL packages **641** for implementation, as such packages may be used within the scope of the present disclosure.

[0081] The external data layer **650** may generally be responsible for all of the data that is externally sourced (e.g., outside the application) but pulled into the application when needed (e.g., when data relating to a particular employee is needed for analysis). As such, the external data layer **650** may include, for example, analytics data **651**, a watch service monitor **652**, a standard service **653** (as such services are provided within the scope of the present disclosure), and/or a credit reporting bureau source **654**, which may provide certain FTP/XML/JSON files **655** relating to credit reports.

[0082] The various objects in the system described herein may be arranged in an object model, such as the object model **700** depicted in FIG. **7**. The object model **700** is generally a description of a structure of the objects in the system described herein, including their identities, relationships to other objects, attributes, and/or operations. The object model **700** may include one or more classes, such as, for example, an investigator controller class **705**, an app controller class **710**, a user controller class **715**, and/or one or more other classes **720**. In addition, the object model **700** may further include one or more events, functions, interfaces, methods, namespaces, objects, and properties.

[0083] A local database, such as, for example, a database contained within the client database server **180** and/or the core database server **190** (FIG. **1**) may be particularly structured for the purposes of appropriate and efficient data access. The database may be, for example, a Microsoft® SQL server database where information and data that are to be stored locally will be determined based on the external data sources (e.g., from one or more of the external source database servers **170** (FIG. **1**)). An illustrative data model structure of the local database is depicted in FIG. **8**. As generally shown in FIG. **8**, the data model provides a method for describing the data structures and includes a set of operations for manipulating and validating the data.

[0084] Referring now to FIGS. **9**A-**9**B, a general overview of the sequence of events in an application provided by the systems and methods described herein is shown. The general overview depicts the one or more layers that may be active in completing a particular process, including a client user interface layer **901**, a workflow layer **902**, a modeling layer **903**, a behavior analysis layer **904**, a risk assessment layer **905**, a data calls layer **906**, and a source data layer **907**. The source data layer **907** may provide access to one or more external sources, such as an analytics service **970**, a credit reporting bureau **971**, a predictive analytics service **972**, an NLETS service **973**, an intergovernmental organization service **974** (e.g., Interpol), and a local database **975**, as such services (and the databases/servers associated therewith) are described herein.

[0085] One general process may be to initiate an investigation at step **910**. This may generally include entering subject data relating to an employee to be investigated in the client user interface layer **901** at step **911**. The process may be initiated in the risk assessment layer **905** at step **912**, and a search for information/data relating to the selected employee may be completed in the data calls layer **906** and/or the source data layer **907** at step **913**.

[0086] At step **914**, a determination may be made as to whether data regarding the subject is found, and if so, an evaluation process may be completed in the behavior analysis layer **904** and the risk assessment layer **905**. The analysis at **915** is described in greater detail herein with respect to FIGS. **10**A and **10**B.

[0087] At step **916**, a determination may be made in the workflow layer **902** as to whether a certain threshold has been reached. That is, the determination may be made as to whether one or more anomalies associated with the employee have been detected. If not, a notification may be provided at step **917** in the client user interface layer **901**. Otherwise, one or more potential steps for minimizing the risk may be determined at step **918** and a report may be generated at step **919** in the workflow layer **902**. The results of the report may be provided to a user in the client user interface layer **901** at step **920** and/or a model may be generated and/or reviewed in the modeling layer **903** at step **921**.

[0088] Another general process may include continuously evaluating a particular employee at step **930**. This may generally include adding the employee to be monitored to a continuous evaluation service in the client user interface layer **901** at step **931**, defining certain criteria to monitor in

the modeling layer **903** at step **932**, and conducting a continuous evaluation in the behavior analysis layer **904** and the risk assessment layer **905** at step **933**. Such a continuous evaluation according to step **933** may include receiving data from one or more sources in the data calls layer **906** at step **934**. A determination is made at step **935** as to whether a threshold has been reached, and if so, notifications may be sent to one or more users at step **936** (via an email in the client user interface layer **901** at step **937**), metadata may be logged at step **938**, and a report may be generated at step **940**, all in the workflow layer **902**. As a result of the generated report, the results may be provided to a user at step **942** in the client user interface layer **901** and/or the model may be generated/reviewed in the modeling layer **903** at step **941**.

[0089] Yet another general process may be to respond to a detected event (e.g., an event resulting from a monitored employee's activity) at step **950**. This may generally include adding the monitored employee to a continuous evaluation service in the client user interface layer **901** at step **951** (if the employee has not already been added) and initiating a mini investigation of the employee in the workflow layer **902** at step **952**.

[0090] At step **953**, event data may be collected in the workflow layer **902**, which may include querying sources at the data calls layer **906** at step **954**. If any media reports are generated, they may be accessed at step **956** in the client user interface layer **901** and reviewed in the workflow layer **902** at step **955**. If necessary, at step **957**, authorities may be contacted and the employee may be interviewed (or a report of interview results may be provided) at step **958** in the workflow layer **902**. The generated model may be reviewed at step **959** in the modeling layer **903** and findings may be prepared at step **960** in the workflow layer **902**. The results may be provided to one or more users in the client user interface layer **901** at step **961** and/or the results may be evaluated in the behavior analysis layer **904** and risk assessment layer **905** at step **962**. In addition, the database may be updated with the results at step **963** in the data calls layer **906**.

[0091] FIGS. **10**A and **10**B provide a more detailed flow diagram of the various processes that may be completed to evaluate the behavior of a target employee to identify risk, which includes both online and offline behavior. The method described with respect to FIGS. **10**A and **10**B may generally be completed by the systems described herein, including the computing network **100** described with respect to FIG. **1** and/or the various components thereof. FIGS. **10**A and **10**B relate to steps for evaluating the behavior of a single target employee at a time. However, it should be understood that the steps described herein with respect to FIGS. **10**A and **10**B may be completed for a plurality of target employees at substantially the same time. As such, while the singular term "target employee" is used herein, it is meant to encompass a plurality of target employees as well. In addition, the term "target employee" merely characterizes a particular employee for which data is obtained. As such, the term "target employee" may be used interchangeably with "employee," "particular employee," "a number of employees," and/or the like.

[0092] At step **1001**, a target employee to be potentially monitored and/or investigated may be determined. Such a determination may generally include identifying a target employee, which may be an employee subject to continuous evaluation, an employee suspected of activity that is potentially adverse to the organization, an employee randomly selected from a particular population of employees, and/or one of each of the plurality of employees associated with an organization (e.g., in instances where all employees of an organization are monitored by the systems and methods described herein).

[0093] To ensure that the systems and methods described herein comply with one or more laws, such as privacy laws or the like, a determination may be made at step **1002** as to whether the target employee has consented to monitoring activities, including consent to accessing and/or receiving any of the data, particularly private data, from external sources, as described herein. In a nonlimiting example, consent may be company policy-based. In another nonlimiting example, in embodiments where a target employee is an employee, a contractor, or the like of the organization, the target employee may have provided consent as a condition of employment. In yet another nonlimiting example, in embodiments where the target employee is an authorized employee of a computing device owned and/or maintained by the organization, the target employee may have provided consent as a condition for using the computing device.

[0094] If a target employee's consent has not been obtained, consent may be requested at step **1003**. For example, consent may be requested by transmitting a request (e.g., sending an email) to the target employee and requesting that the target employee click a link, sign a document, or the like to indicate his/her consent to monitoring. Accordingly, at step **1004**, another determination is made as to whether the target employee's consent has been received in response to the request. If consent is not received, the system may optionally generate a report indicating that the target employee is a non-consenting employee at step **1005**. In addition, the system may not proceed to monitor the target employee as described herein or alternatively may only monitor publicly available information about the employee (i.e., private information is not monitored). As a result, in some embodiments, the target employee may be blocked from accessing certain resources, such as accessing computing devices owned and/or maintained by the organization, accessing the Internet, accessing a local intranet, and/or the like. In other embodiments, an incentive that may be provided to the target employee upon receiving the target employee's consent may be withheld (e.g., a monetary payment or the like may be withheld).

[0095] If consent has been received at step **1002** or **1004**, both public data and private data may be monitored. Monitoring may include, for example, conducting a scrape of the Internet for information regarding the target employee or may receive information specific to the target employee (or aggregate information containing information regarding the target employee) from one or more third party devices. The scrape generally refers to an executable software program that queries the Internet for information relating to the target employee. Monitoring may also include providing information to a data source regarding the employee such that the data source automatically pushes employee-related information whenever it is generated and/or available. Monitoring may also include receiving providing information to a data source regarding the employee at a particular interval (e.g., hourly, daily, or the like) and immediately receive updated information regarding the employee (if any information at all).

[0096] Some monitoring may include accessing social network databases at step **1006** and receiving social networking data at step **1007**. For example, if the employee has consented to monitoring as described hereinabove, the social network databases may be monitored and data may be received regardless of whether the employee has marked the information as private. Similarly, if the employee has not consented to monitoring as described hereinabove, the social network databases may be monitored and data may be received for public data only. In some embodiments, private social networking data may never be monitored or received, regardless of whether the employee has provided consent, which may be dependent upon the laws, regulations, or the like that are in effect in various state and local jurisdictions at the time.

[0097] In various embodiments, the social networking data may be received as a periodic data transfer from a social networking source and/or by monitoring a social networking feed, such as from the social network itself (e.g., Facebook®, Twitter®, Instagram®, Tumblr®, Snapchat®, and/or the like), from a social network feed aggregator, from a social network data provider, and/or the like. In some embodiments, the social networking data may be data that corresponds to the target employee, such as data from an employee account registered with the social networking site that is associated with the target employee. Data that corresponds to the target employee generally includes all of the target employee's activity on a social networking site, including posts made by the employee, posts made by others that reference the employee, data that is uploaded by the target employee (e.g., photos, videos, and/or the like), photos and videos where the target employee is tagged, items that the target employee has "liked", comments made by the target employee on other employees' posts, uploads, comments, and/or the like, websites that the target employee has accessed while logged into the social network, links that the target employee has clicked, and/or the like. In some embodiments, accessing and receiving the data may include accessing aggregated data from a social networking source and searching the aggregated data to obtain data that is specific to the target employee. In other embodiments, accessing and receiving the data may include receiving one or more data files that is specific to the target employee.

[0098] In some embodiments, in addition to receiving social networking data, the system may access legal information networks at step **1008** and receive legal data at step **1009**. A legal information network is not limited by this disclosure and may be any source that provides access to legal (e.g., law enforcement and judicial) information or legal-related information, including the various sources previously described herein. For example, a legal information network may include an Appriss® source, international justice and public safety network (NLETS) source, a justice source, a public safety network source, an intergovernmental organization source (e.g., INTERPOL), a governmental source, and/or the like. In some embodiments, a legal information network may include one or more legal databases that include data regarding legal activity relating to the target employee. Illustrative legal databases include a law enforcement agency database, a judicial database, a regulated public records database, and a regulated public information database. Illustrative law enforcement agency databases include databases owned and/or maintained by a local law enforcement agency (e.g., local police, county sheriff, transit police, and/or the like), a state/provincial law enforcement agency (e.g., state police), a national law enforcement agency (e.g., FBI, ATF, DEA, homeland security), an international cooperative of law enforcement (e.g., INTERPOL), a private security force, and/or the like. Illustrative judicial databases include databases that are owned and/or maintained by courts (e.g., local courts, state courts, district courts, circuit courts, and supreme courts), regulatory agency judicial authorities, and/or the like. Illustrative regulated public records and regulated public information databases include databases that are provided by public and private entities (e.g., law enforcement cooperatives, state government cooperatives, and/or the like), such as NLETS, sex offender databases, securities databases, and/or the like. In some embodiments, data from these legal databases may be received as a live feed, a periodic data transmission, data that is made available for access and/or download, and/or the like.

[0099] In some embodiments, portions of the legal data may be subject to privacy laws, regulations, and/or the like. For example, certain legal data that has been ordered sealed by a court of law (such as a juvenile criminal record or an expunged criminal record) may not be circulated and/or disclosed without legal ramifications. As such, these portions of legal data may be designated legally Protected Information that may be used for the purposes of determining anomalies (as described in greater detail herein), but cannot be disclosed to any individual or entity.

[0100] In embodiments where the employee has not consented as described hereinabove, certain portions of the legal data may not be received at step **1009**, such as legal data that is private, legal data that is subject to privacy laws, regulations, or the like, or any other non-public legal data. In some embodiments, only portions of the legal data that are published by particular sources may be obtained for a non-consenting employee (e.g., legal data that is published in newspapers). In other embodiments, none of the legal data may be received at step **1009** if the employee has not consented as described hereinabove.

[0101] In addition to social networking data and legal data, financial data regarding the target employee may also be obtained. As such, credit reporting databases may be accessed at step **1010**, bankruptcy databases may be accessed at step **1011**, real property databases may be accessed at step **1012**, consumer reporting agency databases may be accessed at step **1013**, and/or financial institution databases may be accessed at step **1014**. Illustrative credit reporting databases may include, but are not limited to, databases on the various credit reporting agency servers **170***b* (FIG. **4**) described herein. Illustrative bankruptcy databases may include, but are not limited to bankruptcy court databases (e.g., district bankruptcy court databases), private bankruptcy data provider databases (e.g., a database provided by an Appriss® server), and/or the like. Illustrative real property databases include public databases containing evidence of real property transactions, real estate tax assessor databases, real estate broker transaction databases, commercial real estate databases, databases that are owned and maintained by consumer oriented companies such as Zillow® and Trulia®, community classified databases that relate to real estate transactions, newspaper real estate transaction databases, and/or the like. Illustrative consumer reporting agency databases may include, but are not limited to, databases owned and/or maintained by specialty con-

sumer reporting agencies, such as medical reporting agencies, employment history reporting agencies, check screening/check history reporting agencies, payday lending reporting agencies, supplementary/alternative credit reporting agencies, utility reporting agencies, rental reporting agencies, and/or the like. Illustrative financial institution databases may include, but are not limited to, databases that are owned and/or maintained by banks, credit unions, financial organizations, security trading organizations, brokers, and/or the like. As a result of accessing any one of the databases described herein, financial data (including financial activity data) may be received at step **1015**. In some embodiments, data from these financial databases may be received as a live feed, a periodic data transmission, data that is made available for access and/or download, and/or the like.

[0102] The financial data is not limited by this disclosure, and generally includes any data that has financial ties, including, but not limited to, financial assets (including liquid assets, real property assets, personal property assets, intellectual property assets, securities assets, and/or the like), debts, credit card transaction records, bank account transaction records, credit scores, bankruptcy proceedings, legal proceedings that may include an exchange of financial assets, tax records, and/or the like.

[0103] In some embodiments, portions of the financial data may be subject to privacy laws, regulations, and/or the like. For example, certain financial data such as credit reports, account balances, tax records, private transactions, or the like may not be circulated and/or disclosed without legal ramifications. As such, these portions of financial data may be designated legally Protected Information that may be used for the purposes of determining anomalies (as described in greater detail herein), but cannot be disclosed to any individual or entity.

[0104] In embodiments where the employee has not consented as described hereinabove, certain portions of the financial data may not be received at step **1015**, such as financial data that is private, financial data that is subject to the FCRA and various other privacy laws, regulations, or the like, or any other non-public financial data. In some embodiments, only portions of the financial data that are published by particular sources may be obtained for a non-consenting employee (e.g., financial data that is published in newspapers). In other embodiments, none of the financial data may be received at step **1015** if the employee has not consented as described hereinabove.

[0105] At step **1016**, electronic activity data may be received. The electronic activity data may generally be data that relates to the target employee's activities while using a computing device and/or other network resource on the organization's network, including any access to external sources (e.g., the Internet) via the organization's computing device and/or network. As previously described herein, such activity may include, but is not limited to, keystrokes, clicks, electronic mail transmissions, websites visited, files that are downloaded locally onto a device, and/or the like.

[0106] At step **1017**, all of the data received via one or more of the steps described herein may be aggregated for the target employee such that the data can be accessed in a single location for the purposes of determining anomalies, analyzing risk, generating risk assessments, generating reports, weighting data, generating instructions for responding to an alert, generating a behavior model, and/or the like. The data may be aggregated into, for example, an employee profile for the target employee. As such, the employee profile includes all obtained information regarding the employee as described herein.

[0107] The aggregated data may be analyzed, particularly for behavior related information, at step **1018** and a behavior model may be generated at step **1019**. The behavior model may generally include information from at least one of the social networking data, the legal activity data, the financial activity data, and the electronic activity data described hereinabove, including information that may appear to be germane to such a behavioral assessment. In some embodiments, the behavior model is generated by a behavior profile segment.

[0108] The behavior model may be determined by processing information such as a property owned by the employee, information regarding utilities used by the employee, information regarding travel completed by the employee, information regarding a club membership held by the employee, information regarding a group membership held by the employee, information regarding a subscription held by the employee, information regarding a previous employment of the employee, information regarding a publication made by the employee, information regarding a license held by the employee, and/or information regarding a registration held by the employee, each of which may be obtained from one or more of the data sources described herein. Accordingly, the behavior model of the target employee is determined by both internal information inputted by a user as well as information supplied by the feeds.

[0109] In some embodiments, the behavior model may be used for the purposes of having a record of what is considered "typical" behavior for the target employee (e.g., a baseline representation of the target employee's behavior for the purposes of determining an anomaly), and is not necessarily an indication that the employee's behavior is indicative of risk or other adverse activity towards the organization. Rather, the behavior model can be used for the purposes of comparison as new data is received from any one of the data sources to determine a nexus the new data and the data contained in the behavior model for the purposes of determining whether any anomalies exist, as described in greater detail herein.

[0110] At step **1020**, the legally Protected Information is determined from the behavior model, employee profile, and/or the aggregated data received from the one or more sources described herein. As previously described herein, the legally Protected Information is generally information from the obtained data that is protected from disclosure by one or more laws, rules, regulations, and/or the like. In addition, the legally Protected Information may be information that cannot directly be used as a basis for any action taken against the target employee (e.g., disciplinary measures or the like). However, the legally Protected Information may be used by the systems and methods described herein for the purposes of determining anomalies and generating a report. To the extent that legally Protected Information exists, it may be indicated in a manner so that it is not disclosed in any of the outputs described herein. In a nonlimiting example, the legally Protected Information may be flagged and/or quarantined such that it is recognizable as legally Protected Information and separable from other information contained within the aggregated data, employee profile, and/or the behavior model.

[0111] At step **1021**, a determination may be made as to whether additional information has been received regarding the target employee since creation of the behavior model. The additional information may be received, for example, by accessing and/or receiving any of the data as described herein with respect to steps **1006-1016**. If no additional information has been received, the system may continue monitoring the target employee until additional information is received at step **1022**.

[0112] If additional information has been received, at step **1023**, a determination may be made as to whether any anomalies associated with the target employee are detected. Such a determination is based primarily on the employee profile and/or the behavior model, including the legally Protected Information contained therein. The determination generally includes processing all information received so as to classify and weight the information, and compare the processed and weighted information with information generated in the behavior model. Thus, an anomaly may be detected if newly received information, once classified and/or weighted, does not correspond to an expected value based on the information from the behavior model and/or the employee profile (including the legally Protected Information therein).

[0113] Determining the anomaly by weighting the information contained within the data received may include weighting according to one or more factors associated with the target employee, wherein the one or more factors are selected from a job category of the target employee, a responsibilities category of the target employee, a prior history of the target employee, a performance review of the target employee, a ranking of the target employee, a written complaint regarding the target employee, and an award received by the target employee. For example, if a target employee is an employee with access to the organization's funds (e.g., one of the factors is the employee's job category) and the information contained within the data is an arrest for theft, such an arrest would be weighted higher than it would be for another employee with a job category factor that does not include access to the organization's funds (e.g., a mail room clerk or the like).

[0114] While certain organizations may have common risk concerns such as theft, assault and the like, the systems and methods described herein are configurable so as to include the unique risk concerns of a particular organization utilizing the systems and methods described herein. For instance, a financial company may have a need to closely monitor the financial situation of each of its employees, contractors, service providers and/or the like, whereas a trucking company may have a need to closely monitor the driving record of its employees, contractors, and/or the like. Accordingly, the systems and methods described herein may be configured to provide a more detailed analysis of financial feeds for the financial company than for the trucking company, whereas the systems and methods described herein may be configured to provide a more detailed analysis of the driving records for the trucking company than the financial company. The systems and methods described herein can also be configured to apply different "weightings" to each set of information, based on the needs of a particular organization.

[0115] If no anomalies are determined at step **1023**, a report may optionally be generated indicating no anomalies at step **1024**. The process may return to step **1022** to continue monitoring the target employee until additional data is received or additional anomalies are observed.

[0116] If one or more anomalies are determined at step **1023**, an alert may be generated at step **1025** and transmitted at step **1026**. The alert may generally be related to the one or more anomalies that have been detected, but may not contain any references to the legally Protected Information. That is, the alert may be contained within a report that is provided to an alerted employee (such as one of the employees described herein) indicating that an anomaly was detected for the target employee, as well as information regarding the anomaly that was determined to the extent that the information does not contain any legally Protected Information.

[0117] At step **1027**, a determination may be made as to whether the target employee poses a risk to the organization based on the one or more anomalies. For example, the determination may be made that the target employee poses a financial risk to the organization as a result of one or more of an increase in the target employee's spending, a decrease in the target employee's credit score (i.e., a credit score that is not a FICO credit score), an increase in the frequency which the target employee attends a bar (e.g., which may be determined based on an increase in balances past due or charged off, and/or a pending legal action. Further, of the above listed factors, the fact that the target employee increased his/her spending may be assigned a weighted value in light of the other factors such as, for example, the job functions of the target employee, as described hereinabove.

[0118] If the target employee does pose a risk to the organization, a risk assessment may be generated at step **1028** and may be transmitted at step **1029**. The risk assessment may generally be a report that indicates the determined risk, and may further include information about the risk, how it was determined, how it might potentially affect the organization, and/or how it may be mitigated. As such, generating the risk assessment at step **1028** may further include generating one or more instructions for responding to the alert based on the risk assessment (i.e., one or more steps that may be taken to minimize or eliminate the risk) and/or transmitting the one or more instructions as a part of step **1029** to one or more designated computers and/or employees designated for receiving the report.

[0119] Once the risk assessment has been generated and transmitted or if the employee is determined not to be a risk, a determination may be made at step **1030** as to whether additional target employees should be monitored. Such a determination may occur in instances where a single target employee is monitored and analyzed at a time, rather than a plurality of target employees at substantially the same time. If additional employee(s) are to be monitored and/or investigated, the process may return to step **1001**. If no other employees are to be monitored, the process may end.

[0120] FIGS. **11** and **12** depict an illustrative user interface that may be tailored to a particular user for reviewing any alerts that may be generated by the systems and methods described herein. More specifically, FIG. **11** depicts a user interface for an investigator user. The investigator user interface includes information regarding the target employee, including the target employee's name, title of the alert, and the type of alert. An investigator can review the alert to investigate the employee and determine whether to conduct additional investigation on the target employee,

pass the alert off to another user, or the like. For example, the investigator may pass the alert off to a decision maker, who may view the passed alert in the decision maker user interface depicted in FIG. **12** and render a decision as to action that may or may not be taken with respect to the target employee.

[0121] Additional user interface activities will be described below with respect to the example. It should be understood that the example provided below is merely illustrative, and alternative user interface activities may be implemented without departing from the scope of the present disclosure.

Example

User Interface

[0122] The systems and methods described herein may generate a plurality of web pages as a part of providing a user interface. For example, as shown in FIGS. **13**A and **13**B, each page includes a side menu having tabs which take the user to different functions. The functions are displayed along a space adjacent the side menu. Each page includes a plurality of icons on the top bar of the page. The top bar further includes the identification of the user. For illustrative purposes, the user is David Barn. The dashboard is specific to Mr. Barn and includes displays for alerts, incidents, and cases. Beneath the display of cases are displays for notifications and tasks. The display of alerts provides a notification of an anomaly/risk based upon online sources or information from one or more live feeds relating to a plurality of personnel/employees. The alerts are generated by the systems and methods described herein, which monitors each target employee. Incidents are generally provided to describe offline information gathered from peer-to-peer reporting, which includes a list of cases which Mr. Barn is administering and below the dashboard are notifications and tasks that are assigned to Mr. Barn. The bottom of the page is a snapshot of cases assigned to Mr. Barn. Specifically, Mr. Barn has 3 alerts and is administering 17 open cases, 10 of which are criminal, 3 relate to financial matters, 2 are technical, and 8 are being monitored.

[0123] With reference now to FIG. **14**, a group dashboard is provided. The group dashboard shows the status of all of the computers (not shown) monitored by the system. For illustrative purposes, 15 new alerts have been generated by the online risk assessment segment are currently open, and the types of cases are also provided. The type of cases may be identified based upon the live feed for which information generating an alert is taken. For instance, Bill Smith has a "criminal" case.

[0124] It should be appreciated that the systems and methods described herein may also generate an alert by processing information from the live feeds, an online risk assessment segment, and the behavior model, as described in greater detail herein. Thus, the systems and methods described herein compare activities of the target employee with behavior of the target employee to determine if the activity poses a risk to the company. For instance, an employee who has a job function requiring the use of a company car may be given an alert for an arrest for reckless driving or driving under the influence of drugs or alcohol, whereas an employee with a job function which does not require the use of a company car may not be given a task or action for the same infraction. It should be further appreciated that the alert may be generated based upon a single piece of information from the feeds, a single feed, or may be may be based upon multiple bits of information taken from different feeds. In such a case, the information may be either given a weighted value sufficient to generate a task, or may be one of a plurality of offenses, or actions in a list.

[0125] The alert may also be generated upon an aggregation of information taken over a predetermined period of time and may be based upon information from different sources. For instance, an alert may be generated based upon information from financial feeds as well as social media sites indicating which taken as a whole would indicate that the Employee is going through a difficult time both financially and emotionally. Such information may be useful in identifying proper counseling and assistance to the employee. It should also be appreciated that the systems and methods described herein may be configured to continuously update the behavior model and may generate an alert as information is received from the feeds and determined to contain an anomaly.

[0126] Alternatively, the systems and methods described herein may provide a drop down menu of types of cases which a user may choose from in the event the classification is incorrect. The systems and methods described herein may identify the alert as criminal based upon information taken from the legal (e.g., law enforcement and judicial) feed. The middle portion of the display has a scroll-down menu which allows the user to scroll down through each of the cases and provides a link to the specific case. Accordingly, it should be appreciated that the systems and methods described herein may be administered by a plurality of personnel having a predetermined level of access. The personnel may be assigned to one of a plurality of a number of cases opened up by the system.

[0127] With reference now to FIG. **15**, the employee tab of the side menu is actuated. The systems and methods described herein provide a display of all of the employees of the company. As shown, the status of each employee with respect to the system is provided. Specifically, FIG. **15** shows that Mr. Klump, Ms. Sharp, Ms. Lupe, Ms. Blank, Ms. Smith, Mr. Lucas, and Ms. Chi are being investigated, whereas Ms. Kirk and Mr. O'Toole are not being investigated. As used herein, "investigated" means that an alert has been generated as described herein and a deeper query is executed for an employee of interest wherein the systems and methods described herein execute a query to intensify the scrutiny of the employee of interest. Accordingly, a deeper search of anyone or all of the plurality of feeds or a heightened search of the employee's computer may be executed by a second monitoring program.

[0128] For instance, the systems and methods described herein may be configured to monitor activity in which the company's financial information is transmitted over the Internet. When the systems and methods described herein determine that a number of transmissions have occurred to third parties who are not recognized, the systems and methods described herein may intensify scrutiny placed upon a particular computer and/or employee that uses the particular computer. In another example of the heightened search, an employee may have been reported on by another employee as having been drunk at work, which generates an alert. The systems and methods described herein may be actuated to search the employee's social profiling network

and status for keywords relating to alcohol consumption or use to determine if the employee has a drinking problem.

[0129] With reference now to FIG. **16**, alerts are generated and may be accessed by clicking on the alerts tab. As shown, Mr. Lucas has a drug-related alert, Ms. Smith a public disturbance alert, and Mr. Kirk a property-related alert. As shown, the systems and methods described herein may provide a confidence level for the type of alert being generated. For example, the public disturbance alert is provided with a high confidence level, as is the drug related alert. However, the property related alert is provided with a medium confidence level. The confidence level can be assigned based upon the likelihood that a disclosure of said alert outside of authorized personnel would damage the company by subjecting the company to a law suit.

[0130] With reference now to FIG. **17**, the alert for Mr. Lucas has been actuated and thus the details relating to Mr. Lucas's alert are provided (e.g., as a report). The alert relates to an arrest and the information shown includes the charge, the location, when Mr. Lucas was booked and released, and whether or not he is on parole.

[0131] With reference now to FIG. **18**, an example of the incidents page is provided. The incidents are generated by peer-to-peer reporting and are classified among a plurality of classifications to include financial, criminal, civil, company systems/information technology use, and social media use. The incident is given a severity rating wherein the severity rating relates to the potential at which such information may affect the security of the company.

[0132] With reference now to FIG. **19**, the page for Mr. Lucas's incident is provided. As disclosed, it is a peer-reported incident and the date of the incident is provided as well as a description of the case.

[0133] With reference now to FIG. **20**, the incident page is provided. The incident tab provides a report for Bob O'Toole. As disclosed, this is a self-reported incident which again provides the date and a description. FIG. **20** further illustrates that an incident may be generated not only by peer-to-peer reporting, but also self-reporting.

[0134] With reference now to FIG. **21**, the cases tab page is provided. The cases tab page provides a list of all the cases pending. As shown, the cases are assigned an ID number and the risk is associated with each case as well as the type of case generating the risk or alert. For example, Susan Sharp has a criminal-type case whereas Bob O'Toole is has technical case. The page may be prioritized by case number, risk, last edited by, or type.

[0135] With reference now to FIGS. **22**A and **22**B, the case of Mr. Lucas has been actuated. As shown, the case provides a history of what has taken place by the company. In this instance a mini-investigation has been conducted wherein specific tasks to be completed are set out for an individual administering Mr. Lucas's case. The first step is determining the employee status. The second step is an initial review which includes reviewing information about the incident and the employee. Step three is reviewing an arrest record where applicable. With respect to arrests, FIGS. **23** and **24** show the middle and bottom of the case page for Mr. Lucas. FIG. **23** shows that steps **4**, **5**, **6**, and **7** relate to contacting the arrest officer, the attorneys involved, any witnesses, and conducting an Internet search. With reference now to FIG. **24**, steps **8**, **9**, and **10** are provided wherein in step **8** the Employee is interviewed and in step **9** findings are prepared, and in step **10** a determination is made.

[0136] With reference now to FIG. **25**, an illustrative view of a task list tab is shown. The task list tab shows the various tasks remaining for the user. As shown, the tasks may be divided into specific groups such as administrative, complete adjudication, or other. The task list also includes the subject matter, the due date, and the priority. It should be appreciated that each of the classifications, that is the type, subject, due date, and priority, may be filtered as indicated by the up-down arrow or a keyword search may be done.

[0137] It should now be understood that the systems and methods described herein monitor online and offline activity of one or more target employees, and based on the information that is received (as well as subsequently received information), determine whether anomalies exist that might indicate that a target employee poses a risk to the organization, and generate an alert. The anomalies are determined using legally Protected Information, but when the alert is generated, it does not contain any of the legally Protected Information, nor is the legally Protected Information used for the purposes of responding to the alert. The alert is presented via one or more user interfaces to one or more specific users for the purposes of reviewing the alert, reviewing an incident that precipitated the anomaly and the alert and taking action.

[0138] It is noted that the terms "substantially" and "about" may be utilized herein to represent the inherent degree of uncertainty that may be attributed to any quantitative comparison, value, measurement, or other representation. These terms are also utilized herein to represent the degree by which a quantitative representation may vary from a stated reference without resulting in a change in the basic function of the subject matter at issue. While particular embodiments have been illustrated and described herein, it should be understood that various other changes and modifications may be made without departing from the spirit and scope of the claimed subject matter. Moreover, although various aspects of the claimed subject matter have been described herein, such aspects need not be utilized in combination. It is therefore intended that the appended claims cover all such changes and modifications that are within the scope of the claimed subject matter.

What is claimed is:

1. A method of electronically evaluating a behavior of an employee to identify risk, the method comprising:

receiving, by the processing device, first data from one or more legal databases, wherein the first data comprises information regarding legal activity relating to the employee;

receiving, by the processing device, second data from one or more financial databases, wherein the second data comprises financial activity relating to the employee;

receiving, by the processing device, third data relating to one or more activities electronically conducted by the employee on a network communicatively coupled to the processing device;

receiving, by a processing device, fourth data from one or more social networking databases, wherein the fourth data comprises social networking activity conducted by the employee;

aggregating, by the processing device, the first data, the second data, the third data, and the fourth data into an employee profile relating to the employee;

determining, by the processing device, legally Protected Information regarding the employee from the employee profile;

determining, by the processing device, one or more anomalies associated with the employee based on the employee profile and the legally Protected Information; and

generating, by the processing device, an alert relating to the one or more anomalies, wherein the alert does not contain references to the legally Protected Information.

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

generating, by the processing device, a report comprising the alert, wherein the report does not contain references to the legally Protected Information such that an action taken in response to the report does not use the legally Protected Information.

3. The method of claim **1**, wherein determining the one or more anomalies comprises:

weighting, by the processing device, the first data, the second data, the third data, and the fourth data according to one or more factors associated with the employee, wherein the one or more factors are selected from a job category of the employee, a responsibilities category of the employee, a prior history of the employee, a performance review of the employee, a ranking of the employee, a written complaint regarding the employee, and an award received by the employee to obtain weighted data; and

determining, by the processing device, the one or more anomalies based on the weighted data.

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

determining, by the processing device, that the employee poses a risk to an organization that the employee is associated with based on the one or more anomalies; and

generating, by the processing device, a risk assessment relating to the risk.

5. The method of claim **4**, further comprising:

generating, by the processing device, one or more instructions for responding to the alert based on the risk assessment; and

transmitting, by the processing device, the alert and the one or more instructions to one or more designated computers.

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

generating, by the processing device, a behavior model for the employee, wherein the behavior model comprises information from at least one of the first data, the second data, the third data, and the fourth data.

7. The method of claim **6**, wherein generating the behavior model comprises analyzing information relating to at least one of a property owned by the employee, information regarding utilities used by the employee, information regarding travel completed by the employee, information regarding a club membership held by the employee, information regarding a group membership held by the employee, information regarding a subscription held by the employee, information regarding a previous employment of the employee, information regarding a publication made by the employee, information regarding a license held by the employee, and information regarding a registration held by the employee.

8. The method of claim **1**, wherein receiving the first data comprises receiving the first data via a live feed from at least one of a law enforcement agency database, a judicial database, a regulated public records database, and a regulated public information database.

9. The method of claim **1**, wherein receiving the second data comprises receiving the second data from at least one of a credit reporting database, a bankruptcy database, a real property record database, a consumer reporting agency database, and a financial institution database.

10. The method of claim **1**, further comprising, prior to receiving the first data:

determining, by the processing device, that the employee has provided consent to receiving the first data, the second data, the third data, and the fourth data.

11. A system of electronically evaluating a behavior of an employee to identify risk, the system comprising:

a processing device; and

a non-transitory, processor-readable storage medium, the non-transitory, processor-readable storage medium comprising one or more programming instructions that, when executed, cause the processing device to:

receive first data from one or more legal databases, wherein the first data comprises information regarding legal activity relating to the employee,

receive second data from one or more financial databases, wherein the second data comprises financial activity relating to the employee,

receive third data relating to one or more activities electronically conducted by the employee on a network communicatively coupled to the processing device,

receive fourth data from one or more social networking databases, wherein the fourth data comprises social networking activity conducted by the employee,

aggregate the first data, the second data, the third data, and the fourth data into an employee profile relating to the employee,

determine legally Protected Information regarding the employee from the employee profile,

determine one or more anomalies associated with the employee based on the employee profile and the legally Protected Information, and

generate an alert relating to the one or more anomalies, wherein the alert does not contain references to the legally Protected Information.

12. The system of claim **11**, wherein the non-transitory, processor-readable storage medium further comprises one or more programming instructions that, when executed, cause the processing device to:

generate a report comprising the alert, wherein the report does not contain references to the legally Protected Information such that an action taken in response to the report does not use the legally Protected Information.

13. The system of claim **11**, wherein the one or more programming instructions that, when executed, cause the processing device to determine the one or more anomalies further cause the processing device to:

weight the first data, the second data, the third data, and the fourth data according to one or more factors associated with the employee, wherein the one or more factors are selected from a job category of the employee, a responsibilities category of the employee, a prior history of the employee, a performance review of the employee, a ranking of the employee, a written

complaint regarding the employee, and an award received by the employee to obtain weighted data; and

determine the one or more anomalies based on the weighted data.

14. The system of claim **11**, wherein the non-transitory, processor-readable storage medium further comprises one or more programming instructions that, when executed, cause the processing device to:

determine that the employee poses a risk to an organization that the employee is associated with based on the one or more anomalies;

generate a risk assessment relating to the risk;

generate one or more instructions for responding to the alert based on the risk assessment; and

transmit the alert and the one or more instructions to one or more designated computers.

15. The system of claim **11**, wherein the non-transitory, processor-readable storage medium further comprises one or more programming instructions that, when executed, cause the processing device to:

analyze information from at least one of the first data, the second data, the third data, and the fourth data relating to at least one of a property owned by the employee, information regarding utilities used by the employee, information regarding travel completed by the employee, information regarding a club membership held by the employee, information regarding a group membership held by the employee, information regarding a subscription held by the employee, information regarding a previous employment of the employee, information regarding a publication made by the employee, information regarding a license held by the employee, and information regarding a registration held by the employee to obtain an analysis; and

generate a behavior model based on the analysis.

16. The system of claim **11**, wherein the one or more programming instructions that, when executed, cause the processing device to receive the first data further cause the processing device to receive the first data via a live feed from at least one of a law enforcement agency database, a judicial database, a regulated public records database, and a regulated public information database.

17. The system of claim **11**, wherein the one or more programming instructions that, when executed, cause the processing device to receive the second data further cause the processing device to receive the second data from at least one of a credit reporting database, a bankruptcy database, a real property database, a consumer reporting agency database, and a financial institution database.

18. The system of claim **11**, wherein the non-transitory, processor-readable storage medium further comprises one or more programming instructions that, when executed, cause the processing device to:

prior to receiving the first data, determine that the employee has provided consent to receiving the first data, the second data, the third data, and the fourth data.

19. A computer machine for electronically evaluating a behavior of an employee to identify risk, the computer machine system comprising:

a first hardware component that receives first data from one or more legal databases, second data from one or more financial databases, third data from a network communicatively coupled to the first hardware component, and fourth data from one or more social networking databases, wherein:

the first data comprises information regarding legal activity relating to the employee,

the second data comprises financial activity relating to the employee,

the third data relates to one or more activities electronically conducted by the employee on the network; and

the fourth data comprises social networking activity conducted by the employee,

a second hardware component that aggregates the first data, the second data, the third data, and the fourth data into an employee profile relating to the employee;

a third hardware component that determines legally Protected Information regarding the employee from the employee profile and determines one or more anomalies associated with the employee based on the employee profile and the legally Protected Information; and

a fourth hardware component that generates an alert relating to the one or more anomalies, wherein the alert does not contain references to the legally Protected Information.

20. The computer machine of claim **19**, wherein the fourth hardware component further generates a report comprising the alert, wherein the report does not contain references to the legally Protected Information such that an action taken in response to the report does not use the legally Protected Information.

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