US 20180253319A1

(19) **United States**

(12) **Patent Application Publication**

EVANS et al.

(10) **Pub. No.: US 2018/0253319 A1**

(43) **Pub. Date: Sep. 6, 2018**

(54) **ADAPTIVELY LINKING DATA BETWEEN INDEPENDENT SYSTEMS BASED ON A UNIFORM RESOURCE LOCATOR**

(71) Applicant: **salesforce.com, inc.**, San Francisco, CA (US)

(72) Inventors: **ADAM EVANS**, REDWOOD CITY, CA (US); **ANKUSH GOYAL**, SAN MATEO, CA (US)

(21) Appl. No.: **15/448,449**

(22) Filed: **Mar. 2, 2017**

Publication Classification

(51) **Int. Cl.**

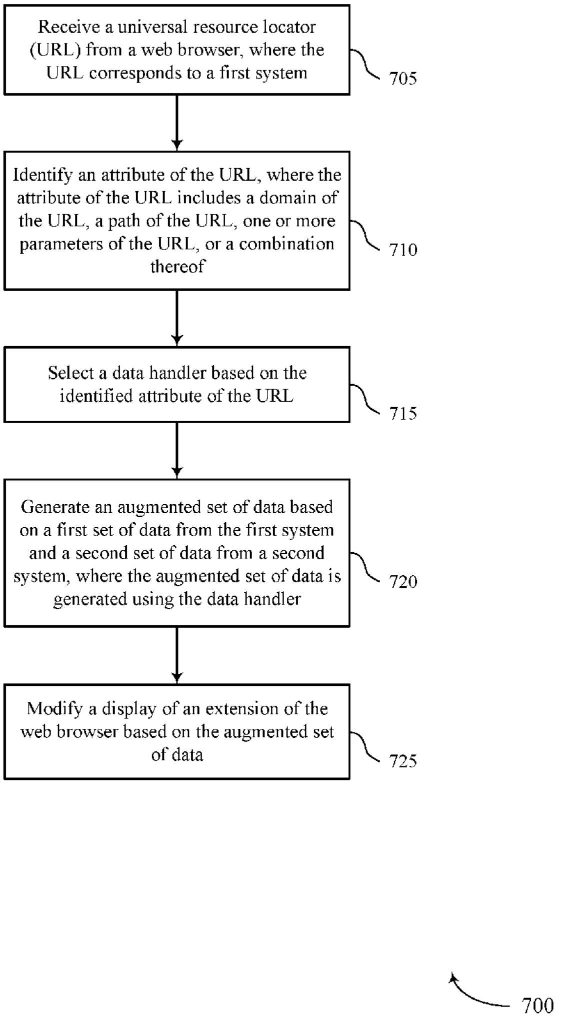
G06F 9/44	(2006.01)
H04L 29/08	(2006.01)
G06F 17/30	(2006.01)
G06F 21/60	(2006.01)

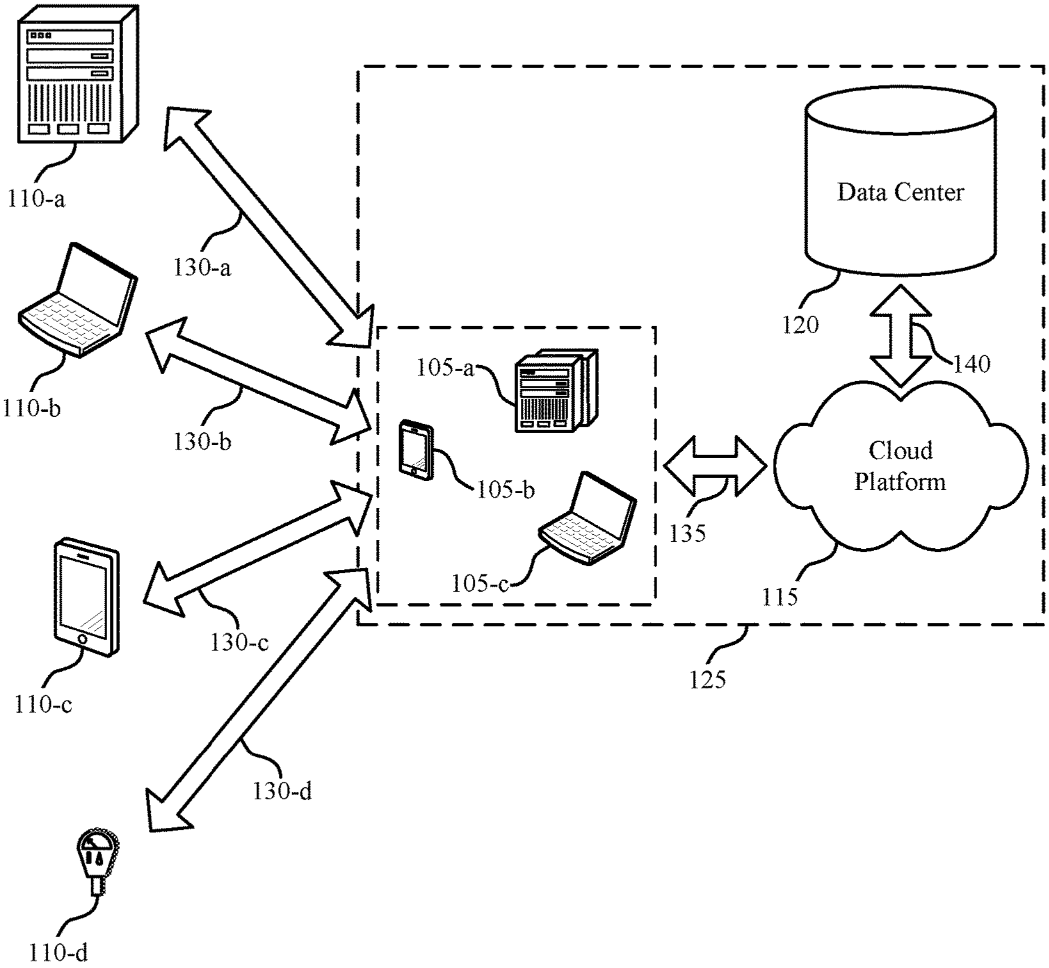
(52) **U.S. Cl.**

CPC ***G06F 9/4443*** (2013.01); ***H04L 67/02*** (2013.01); ***G06F 21/604*** (2013.01); ***G06F 17/30893*** (2013.01); ***G06F 17/30887*** (2013.01)

(57) **ABSTRACT**

A method for data processing may include receiving a universal resource locator (URL) from a web browser, where the URL corresponds to a first system, and identifying an attribute of the URL, where the attribute of the URL comprises a domain of the URL, a path of the URL, one or more parameters of the URL, or a combination thereof. The method may further include selecting a data handler based at least in part on the identified attribute of the URL and generating an augmented set of data based on a first set of data from the first system and a second set of data from a second system, where the augmented set of data is generated using the data handler. The method may further include modifying a display of an extension of the web browser based on the augmented set of data.


Receive a universal resource locator (URL) from a web browser, where the URL corresponds to a first system
705
Identify an attribute of the URL, where the attribute of the URL includes a domain of the URL, a path of the URL, one or more parameters of the URL, or a combination thereof
710
Select a data handler based on the identified attribute of the URL
715
Generate an augmented set of data based on a first set of data from the first system and a second set of data from a second system, where the augmented set of data is generated using the data handler
720
Modify a display of an extension of the web browser based on the augmented set of data
725
700


110-a
130-a
110-b
130-b
110-c
130-c
130-d
110-d
105-a
105-b
105-c
135
Data Center
120
140
Cloud
Platform
115
125

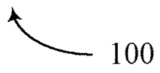

100

FIG. 1

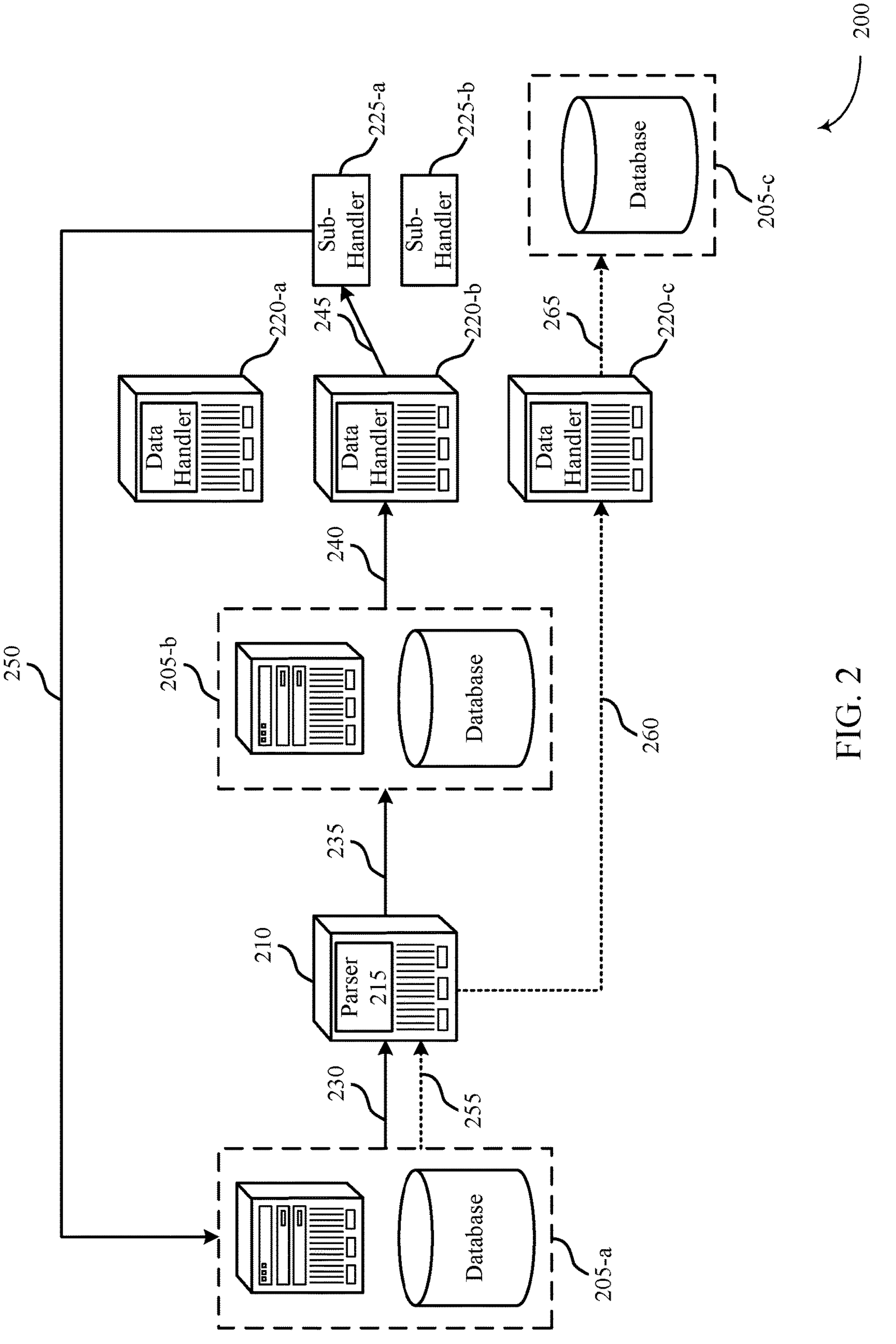

200
205-a
Database
230
255
210
Parser 215
235
205-b
Database
240
260
250
220-a
Data Handler
220-b
Data Handler
220-c
Data Handler
245
265
225-a
Sub-Handler
225-b
Sub-Handler
205-c
Database

FIG. 2

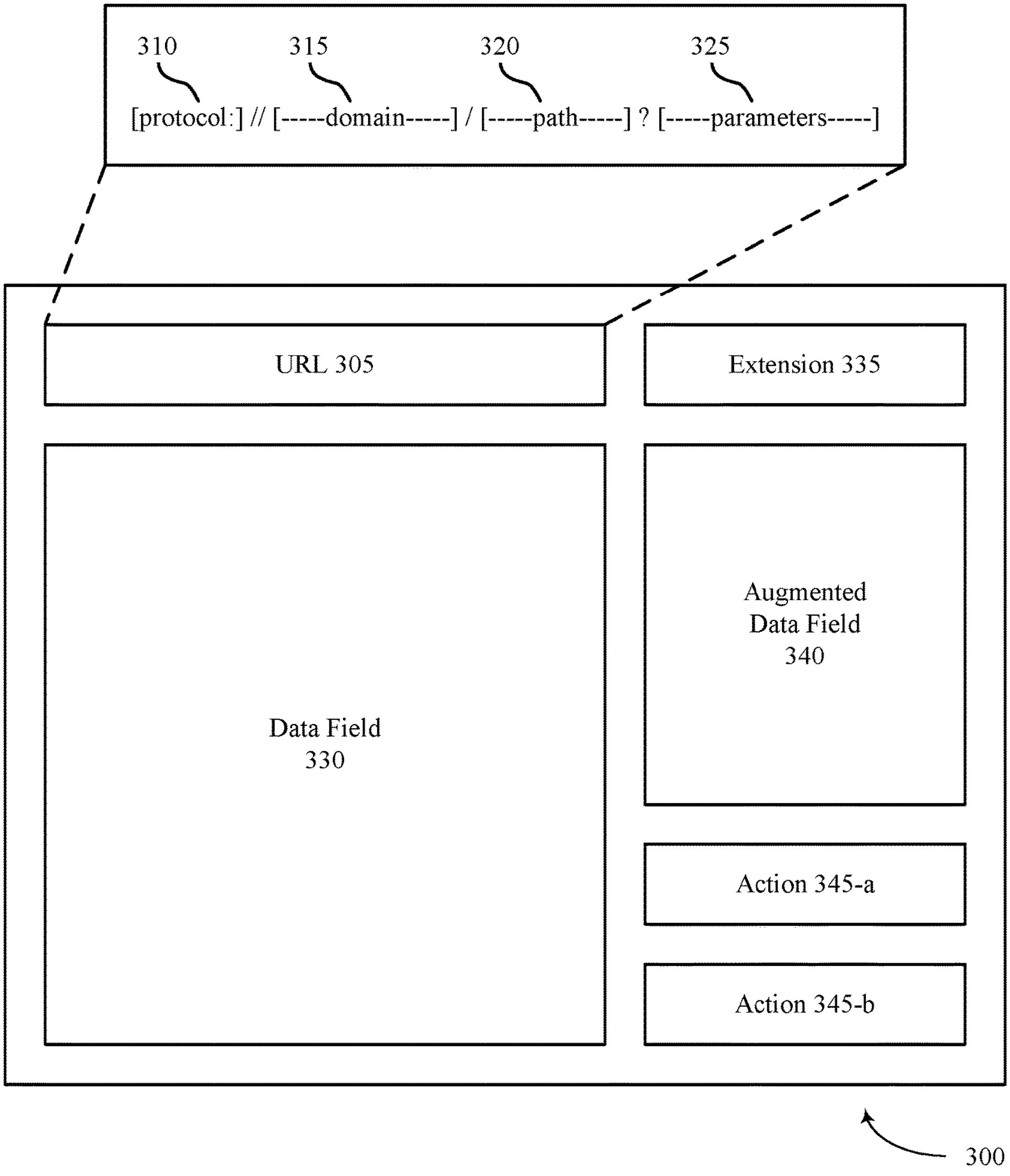
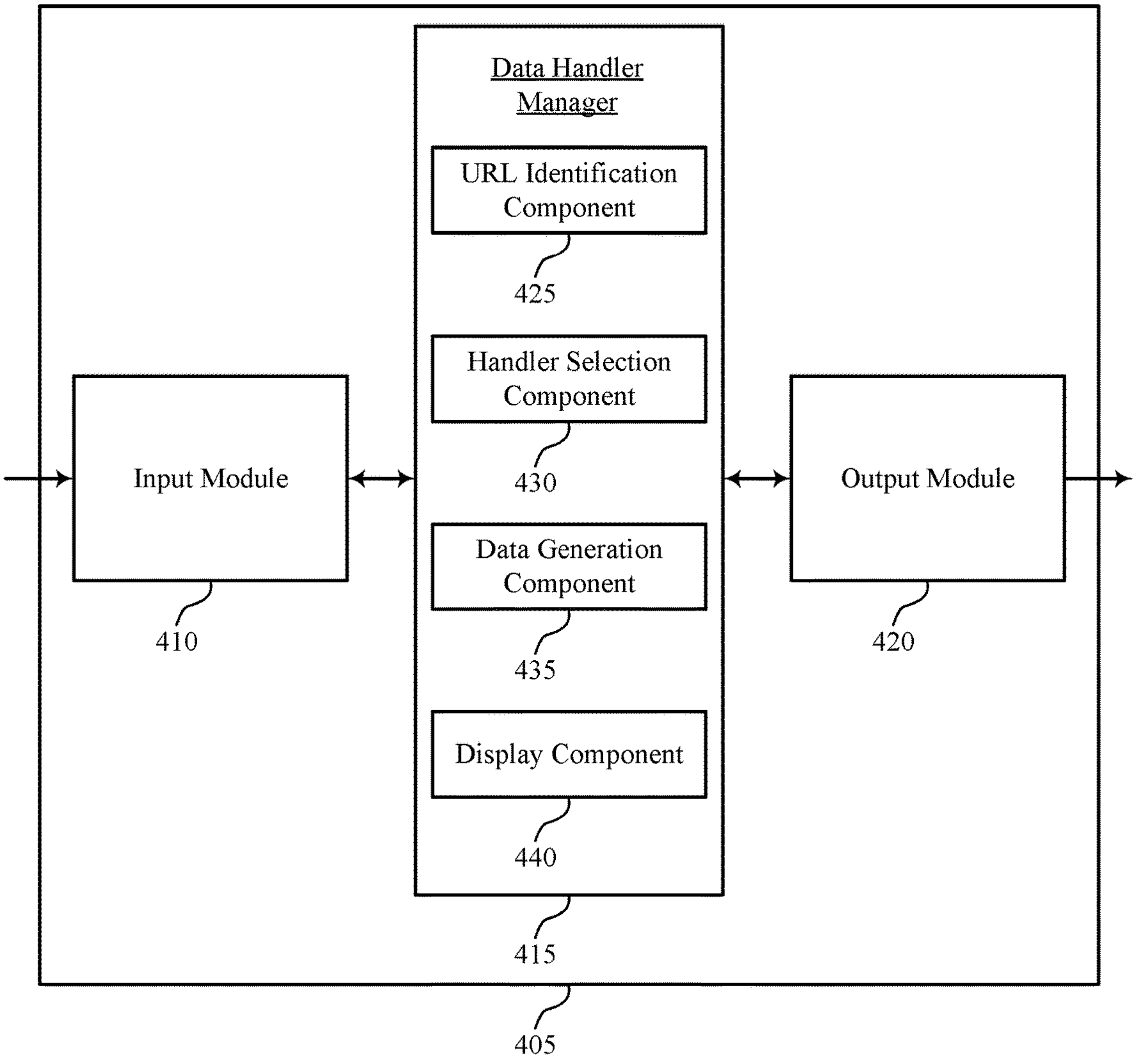

310
315
320
325
[protocol:] // [-----domain-----] / [-----path-----] ? [-----parameters-----]
URL 305
Extension 335
Data Field
330
Augmented
Data Field
340
Action 345-a
Action 345-b
300

FIG. 3


Data Handler Manager
URL Identification Component
425
Handler Selection Component
430
Input Module
Output Module
Data Generation Component
435
410
420
Display Component
440
415
405

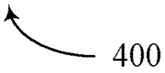
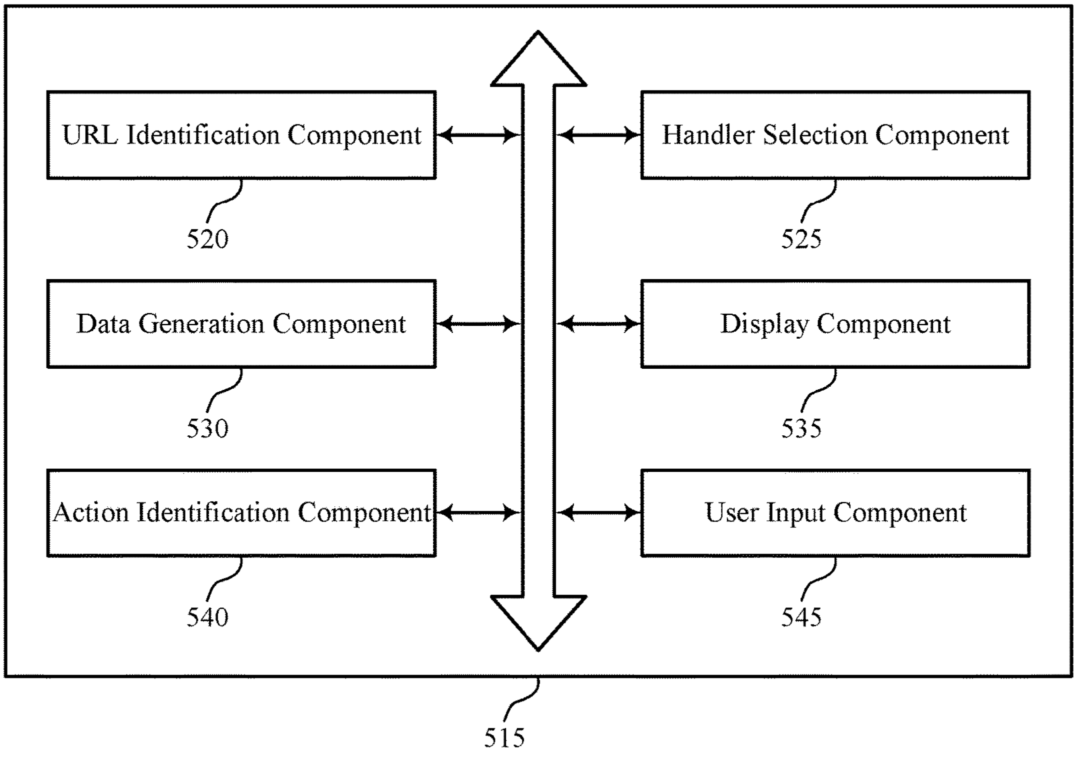

400

FIG. 4


URL Identification Component
520
Handler Selection Component
525
Data Generation Component
530
Display Component
535
Action Identification Component
540
User Input Component
545
515

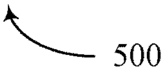

500

FIG. 5

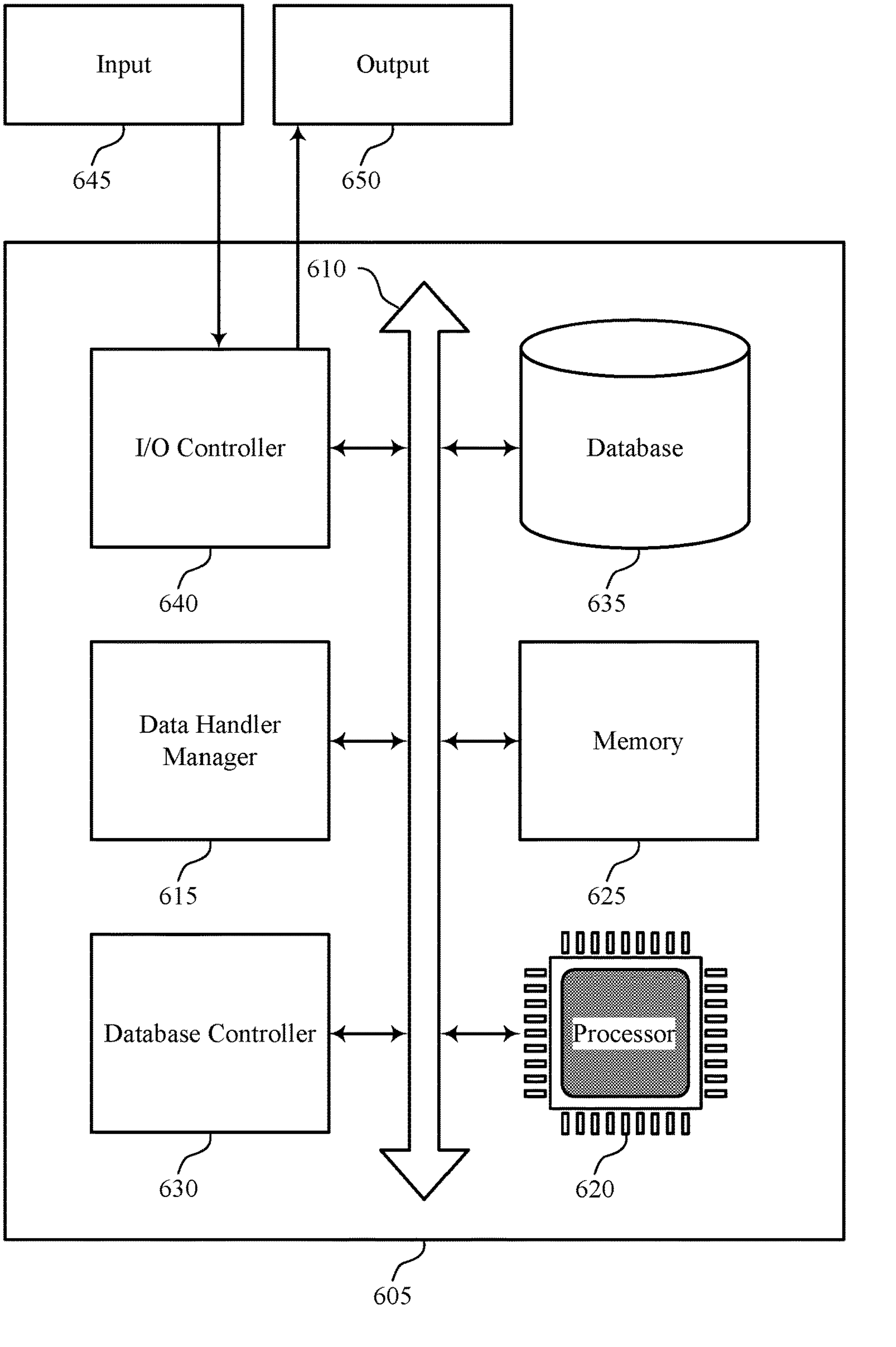

Input
645
Output
650
610
I/O Controller
640
Database
635
Data Handler Manager
615
Memory
625
Database Controller
630
Processor
620
605
600

FIG. 6

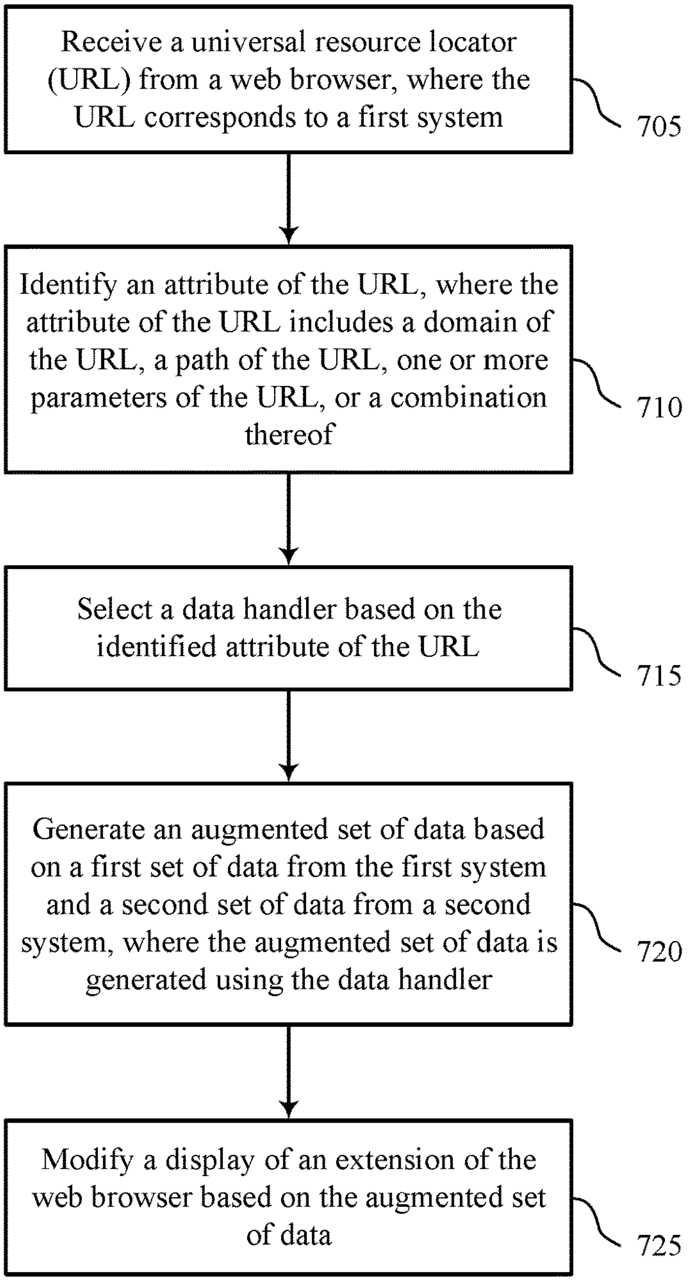

Receive a universal resource locator (URL) from a web browser, where the URL corresponds to a first system
705
Identify an attribute of the URL, where the attribute of the URL includes a domain of the URL, a path of the URL, one or more parameters of the URL, or a combination thereof
710
Select a data handler based on the identified attribute of the URL
715
Generate an augmented set of data based on a first set of data from the first system and a second set of data from a second system, where the augmented set of data is generated using the data handler
720
Modify a display of an extension of the web browser based on the augmented set of data
725
700

FIG. 7

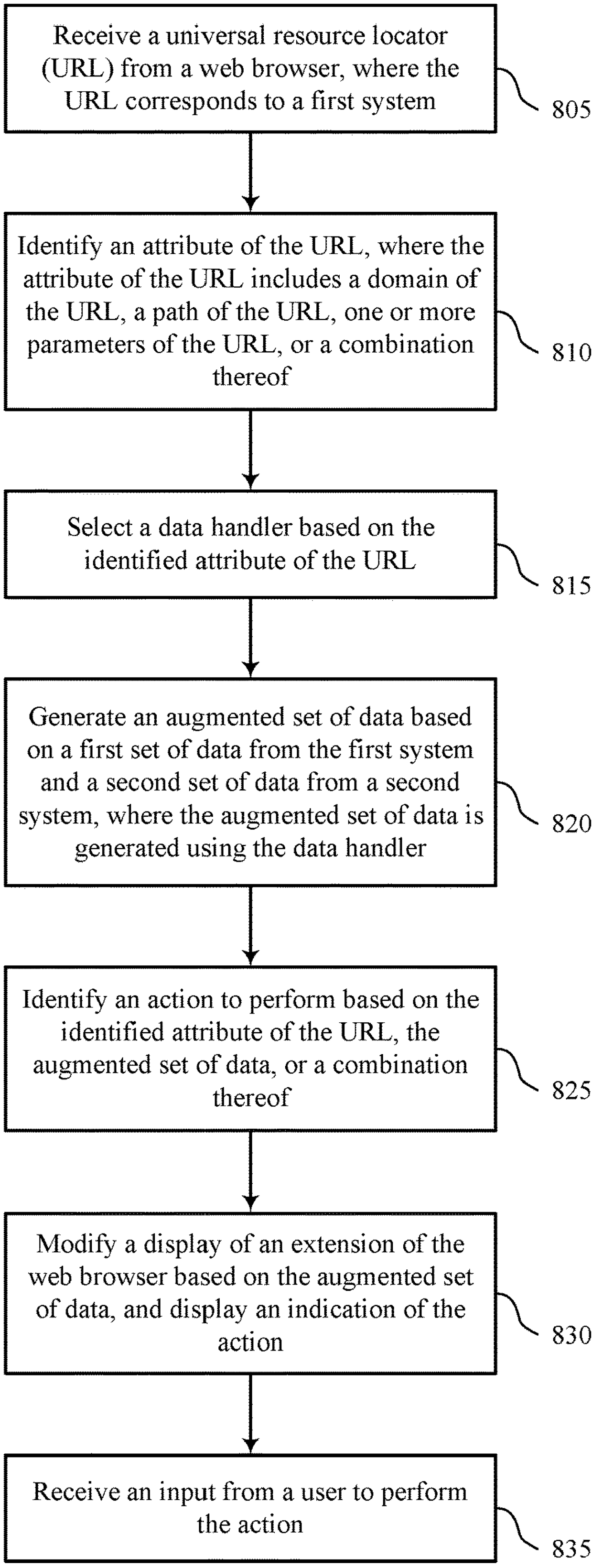

Receive a universal resource locator (URL) from a web browser, where the URL corresponds to a first system
805
Identify an attribute of the URL, where the attribute of the URL includes a domain of the URL, a path of the URL, one or more parameters of the URL, or a combination thereof
810
Select a data handler based on the identified attribute of the URL
815
Generate an augmented set of data based on a first set of data from the first system and a second set of data from a second system, where the augmented set of data is generated using the data handler
820
Identify an action to perform based on the identified attribute of the URL, the augmented set of data, or a combination thereof
825
Modify a display of an extension of the web browser based on the augmented set of data, and display an indication of the action
830
Receive an input from a user to perform the action
835
800

FIG. 8

ADAPTIVELY LINKING DATA BETWEEN INDEPENDENT SYSTEMS BASED ON A UNIFORM RESOURCE LOCATOR

FIELD OF TECHNOLOGY

[0001] The present disclosure relates generally to database systems and data processing, and more specifically to adaptively linking data between independent systems based on a uniform resource locator (URL).

BACKGROUND

[0002] A cloud platform (i.e., a computing platform for cloud computing) may be employed by many users to store, manage, and process data using a shared network of remote servers. Users may develop applications on the cloud platform to handle the storage, management, and processing of data. In some cases, the cloud platform may utilize a multi-tenant database system. Users may access the cloud platform using various user devices (e.g., desktop computers, laptops, smartphones, tablets, or other computing systems, etc.).

[0003] In one example, the cloud platform may support customer relationship management (CRM) solutions. This may include support for sales, service, marketing, community, analytics, applications, and the Internet of Things. A user may utilize the cloud platform to help manage contacts of the user. For example, managing contacts of the user may include analyzing data, storing and preparing communications, and tracking opportunities and sales.

[0004] The cloud platform may include one or more systems that store data regarding a customer. Additional data associated with the customer may be stored in one or more secondary systems, which may be a part of the cloud platform, or outside of the cloud platform. In some cases, a user attempting to access customer data stored in multiple different systems may experience difficulty due to differing network credentials, permissions, or data formats between the systems. In such cases, the user may be unable to access some of the customer data, or may have to manually log into and out of multiple different systems to access all the relevant customer data.

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] FIGS. **1** through **2** illustrate examples of environments for communication data processing that support adaptively linking data between independent systems based on a uniform resource locator (URL) in accordance with aspects of the present disclosure.

[0006] FIG. **3** illustrates an example of a user interface (UI) that supports adaptively linking data between independent systems based on a URL in accordance with aspects of the present disclosure.

[0007] FIG. **4** shows a block diagram of a system that supports adaptively linking data between independent systems based on a URL in accordance with aspects of the present disclosure.

[0008] FIG. **5** shows a block diagram of a data handler manager that supports adaptively linking data between independent systems based on a URL in accordance with aspects of the present disclosure.

[0009] FIG. **6** illustrates a block diagram of an environment including a data handler manager that supports adaptively linking data between independent systems based on a URL in accordance with aspects of the present disclosure.

[0010] FIGS. **7** through **8** illustrate methods for adaptively linking data between independent systems based on a URL in accordance with aspects of the present disclosure.

DETAILED DESCRIPTION

[0011] Data associated with a customer may be stored on multiple different systems. For example, one system may store data associated with a customer's account and billing information while another system may store data associated with a customer's technical support inquiries and history. The different systems may be operated by the same entity (e.g., different departments within the same company) or may be operated by different entities. In some cases, the different systems may have different network credentials, permissions, data formats, or a combination of these factors. As a result, to access, view, or manipulate the data from the different systems, a user may have to separately log into and out of the different systems and manually copy data over from one system into another system.

[0012] In accordance with aspects of the present disclosure, a system may be configured to bridge together multiple different systems so that the data from one system can be accessed and imported into another system. For example, a user may access a page or file of a first system via a web browser and a uniform resource locator (URL). The web browser may support an extension configured to allow the user operating within the first system to access data from a second system (e.g., a page or file on a different network). The extension may also facilitate actions for the user to take, such as importing data, exporting data, or augmenting data from one system for display in another system.

[0013] The web browser extension may operate based on one or more attributes of a URL. For example, the extension may select a data handler, facilitate certain actions, and/or adapt its user interface based on an attribute of the URL. That is, the functionality and appearance of the extension may adaptively change based on the URL of a page from which the extension is launched. The attributes of the URL may include a domain of the URL, a path of the URL, a parameter of the URL, or a combination of these. The extension may generate an augmented set of data by reading data from a second system and converting the data so that it may be combined with data from a first system. The extension may display the augmented set of data and one or more actions that the user may perform. In some cases, a user may modify the extension by adding new data handlers or new actions.

[0014] Aspects of the disclosure are initially described in the context of environments supporting adaptively linking data between independent systems based on a URL. Aspects of the disclosure are then described in the context of a user interface (UI). Aspects of the disclosure are further illustrated by and described with reference to apparatus diagrams, system diagrams, and flowcharts that relate to adaptively linking data between independent systems based on a URL.

[0015] FIG. **1** illustrates an example of an environment **100** for cloud computing that supports adaptively linking data between independent systems based on a URL in accordance with various aspects of the present disclosure. The environment **100** includes cloud clients **105**, contacts **110**, cloud platform **115**, and data center **120**. Cloud platform **115** may be an example of a public or private cloud network. A cloud client **105** may access cloud platform **115**

over network connection **135**. The network may implement transfer control protocol and internet protocol (TCP/IP), such as the Internet, or may implement other network protocols. A cloud client **105** may be an example of a user device, such as a server (e.g., cloud client **105**-*a*), a smartphone (e.g., cloud client **105**-*b*), or a laptop (e.g., cloud client **105**-*c*). In other examples, a cloud client **105** may be a desktop computer, a tablet, a sensor, or another computing device or system capable of generating, analyzing, transmitting, or receiving communications. In some examples, a cloud client **105** may be operated by a user that is part of a business, an enterprise, a non-profit, a startup, or any other organization type.

[0016] A cloud client **105** may interact with multiple contacts **110**. The interactions **130** may include communications, opportunities, purchases, sales, or any other interaction between a cloud client **105** and a contact **110**. Data may be associated with the interactions **130**. A cloud client **105** may access cloud platform **115** to store, manage, and process the data associated with the interactions **130**. In some cases, the cloud client **105** may have an associated security or permission level. A cloud client **105** may have access to certain applications, data, and database information within cloud platform **115** based on the associated security or permission level, and may not have access to others.

[0017] Contacts **110** may interact with the cloud client **105** in person or via phone, email, web, text messages, mail, or any other appropriate form of interaction (e.g., interactions **130**-*a*, **130**-*b*, **130**-*c*, and **130**-*d*). The interaction **130** may be a business-to-business (B2B) interaction or a business-to-consumer (B2C) interaction. A contact **110** may also be referred to as a customer, a potential customer, a lead, a client, or some other suitable terminology. In some cases, the contact **110** may be an example of a user device, such as a server (e.g., contact **110**-*a*), a laptop (e.g., contact **110**-*b*), a smartphone (e.g., contact **110**-*c*), or a sensor (e.g., contact **110**-*d*). In other cases, the contact **110** may be another computing system. In some cases, the contact **110** may be operated by a user or group of users. The user or group of users may be associated with a business, a manufacturer, or any other appropriate organization.

[0018] Cloud platform **115** may offer an on-demand database service to the cloud client **105**. In some cases, cloud platform **115** may be an example of a multi-tenant database system. In this case, cloud platform **115** may serve multiple cloud clients **105** with a single instance of software. However, other types of systems may be implemented, including—but not limited to—client-server systems, mobile device systems, and mobile network systems. In some cases, cloud platform **115** may support CRM solutions. This may include support for sales, service, marketing, community, analytics, applications, and the Internet of Things. Cloud platform **115** may receive data associated with contact interactions **130** from the cloud client **105** over network connection **135**, and may store and analyze the data. In some cases, cloud platform **115** may receive data directly from an interaction **130** between a contact **110** and the cloud client **105**. In some cases, the cloud client **105** may develop applications to run on cloud platform **115**. Cloud platform **115** may be implemented using remote servers. In some cases, the remote servers may be located at one or more data centers **120**.

[0019] Data center **120** may include multiple servers. The multiple servers may be used for data storage, management, and processing. Data center **120** may receive data from cloud platform **115** via connection **140**, or directly from the cloud client **105** or an interaction **130** between a contact **110** and the cloud client **105**. Data center **120** may utilize multiple redundancies for security purposes. In some cases, the data stored at data center **120** may be backed up by copies of the data at a different data center (not pictured).

[0020] System **125** may include cloud clients **105**, cloud platform **115**, and data center **120**. In some cases, data processing may occur at any of the components of system **125**, or at a combination of these components. In some cases, servers may perform the data processing. The servers may be a cloud client **105** or located at data center **120**.

[0021] In some cases, environment **100** may include multiple systems **125**. The multiple systems **125** may be examples of independent systems. For example, the multiple systems **125** may be operated by different entities or may be operated by the same entity but may require separate login credentials to access each system **125**. Each of the multiple systems **125** may store data from a same contact **110** in a particular data format associated with that independent system **125**. A cloud client **105** may be operating in a first system **125** and receive data associated with a contact **110**. The cloud client **105** may select to link data from a second system **125** with relevant data associated with the same contact **110** to the first system **125**. As described in more detail below, a web browser may support an extension configured to perform the linking operation (e.g., importing, exporting, or augmenting data between two systems **125**). The web browser extension may link data and convert data formats from the second system **125** to the first system **125** based on a URL of a web browser operating in one of the systems **125**. Therefore, the web browser extension may reduce or eliminate the need to separately log into and copy data from various different systems to retrieve relevant data for a particular contact **110**.

[0022] FIG. **2** illustrates an example of an environment **200** that supports adaptively linking data between multiple systems based on a URL in accordance with various aspects of the present disclosure. Environment **200** may include multiple systems **205** (e.g., systems **205**-*a*, **205**-*b*, and **205**-*c*), which may each be an example of a system **125** as described with respect to FIG. **1**. Each system **205** may include one or more components (e.g., servers and databases) that store data and may be accessible over a network (e.g., the Internet). Environment **200** may also include multiple data handlers **220** (e.g., data handlers **220**-*a*, **220**-*b*, and **220**-*c*) and a bridge server **210**, which may include a parser **215**. In some cases, environment **200** may include fewer or more data handlers **220** than those shown in FIG. **2**. Each data handler **220** may be associated with one or more sub-handlers **225**. For example, data handler **220**-*b* may be associated with sub-handlers **225**-*a* and **225**-*b*. In some cases, a data handler **220** may not be associated with any sub-handlers **225**. The environment **200** may be configured to select a data handler **220** and/or a sub-handler **225** based on one or more attributes of a URL to link data between multiple systems **205**.

[0023] A web browser (e.g., Chrome™ browser) may be used to view and/or edit data within a file, webpage, or resource of a first system **205**-*a*. The web browser may locate the file within the first system **205**-*a* using a URL. The

URL may include one or more attributes or components, including a protocol, a domain, a path, and one or more parameters. The protocol of the URL may indicate which protocol to use to access the file and may be followed by a colon (e.g., “http:”). The domain of the URL may specific the web address where the file is located and may be preceded by two forward slashes (e.g., “//www. example. com”). The path of the URL may specify a subdirectory on a server where the file is located and may be preceded by a single forward slash. A parameter of the URL may contain a query string preceded in the URL by a question mark. In some examples, the URL may include only a subset of these attributes.

[0024] The web browser may support use of a browser extension. An extension may be a program (e.g., a plug-in) that augments the functionality of the web browser. In some examples, the extension may be downloaded locally to a machine running the browser. The extension may be enabled and accessed by user account information such as a username and a password. The extension may be configured to access one or more systems **205**. For example, a user may enter login credentials into the extension for both a first system **205**-*a* and a second system **205**-*b*.

[0025] A user may launch the extension (e.g., by clicking a button in the web browser) while accessing data (e.g., a particular file) within the first system **205**-*a*. As described in more detail below, the extension may be configured to link data between the first system **205**-*a* and the second system **205**-*b* based on the URL of the file being viewed when the extension was launched or when an action to link two systems is taken by the user. In some examples, the extension may link data between two systems **205** in response to actions taken by the user (e.g., selecting buttons in the extension). In other examples, the extension may automatically link data between the first system **205**-*a* and the second system **205**-*b*. To link data between the first system **205**-*a* and the second system **205**-*b*, the extension may be configured to send an indication of the URL of the file being viewed when the extension was launched to a bridge server **210** over communication link **230**. In some cases, the extension may be configured to additionally send some or all of the data associated with the URL in the first system **205**-*a* to the bridge server **210** over communication link **230**.

[0026] The bridge server **210** may receive the indication of the URL associated with the first system **205**-*a*. The bridge server **210** may include a parser **215**. The parser **215** may parse the URL into separate attributes or components (e.g., the domain, the path, and one or more parameters). The bridge server **210** may determine a data handler **220** (e.g., from multiple data handlers **220**) for linking data between the first system **205**-*a* and the second system **205**-*b* based on one or more components of the URL. A data handler **220** may be a program or process configured to convert data from one system **205** (e.g., system **205**-*a*) to a second system **205** (e.g., system **205**-*b*). In some cases, a data handler **220** may additionally combine the converted data from the one system **205** with data from the second system **205** to generate an augmented set of data.

[0027] The bridge server **210** may select a data handler **220** based on the domain of the URL, the path of the URL, the parameters of the URL, or a combination of these components. For example, the bridge server **210** may select data handler **220**-*b* from data handlers **220**-*a*, **220**-*b*, and **220**-*c* based on the domain of the URL. The bridge server **210** may further select sub-handler **225**-*a* from sub-handlers **225**-*a* and **225**-*b* based on, for example, the path of the URL.

[0028] In some cases, bridge server **210** may send an indication of the selected data handler **220**-*b* and the selected sub-handler **225**-*a* to the second system **205**-*b* over communication link **235**. Additionally or alternatively, bridge server **210** may send an indication of the URL and the data corresponding to the first system **205**-*a* to the second system **205**-*b* over communication link **235**. The second system **205**-*b* may identify relevant data corresponding to the first system **205**-*a*. For example, the second system **205**-*b* may identify data that corresponds to a customer for which the first system **205**-*a* also has data. In some cases, the identification may be based on the URL or the data corresponding to first system **205**-*a* (e.g., the URL may identify the particular customer for which relevant data on the second system **205**-*b* is being sought). The second system **205**-*b* may send the relevant data on the second system **205**-*b* to the selected data handler **220**-*b* over communication link **240**. Additionally, in some cases, the second system **205**-*b* may send the data corresponding to first system **205**-*a* to data handler **220**-*b* over communication link **240**.

[0029] The selected data handler **220**-*b* may convert the relevant data corresponding to the second system **205**-*b*. For example, the first system **205**-*a* may store data according to a first data format, and the relevant data corresponding to the second system **205**-*b* may be stored according to a second data format that corresponds to the second system **205**-*b*. The selected data handler **220**-*b* may convert the relevant data corresponding to the second system **205**-*b* from the second data format to the first data format. In some cases, the selected data handler **220**-*b* may generate an augmented set of data, including the converted relevant data corresponding to the second system **205**-*b* and the data corresponding to the first system **205**-*a*.

[0030] The selected data handler **220**-*b* may send the converted relevant data corresponding to the second system **205**-*b* and/or the augmented set of data to the selected sub-handler **225**-*a* over communication link **245**. The selected sub-handler **225**-*a* may perform processing of the received data similar to the selected data handler **220**-*b*. In some cases, the selected sub-handler **225**-*a* may perform additional processing of the converted relevant data corresponding to the second system **205**-*b* or the augmented set of data. The selected sub-handler **225**-*a* may send the augmented set of data back to the first system **205**-*a* over communication link **250**.

[0031] The web browser may display the augmented set of data to a user in a user interface of the web browser extension. Additionally, the web browser extension may display one or more actions based on the URL, the first system **205**-*a*, the second system **205**-*b*, the augmented set of data, or a combination of these. In accordance with the above examples, the web browser extension may facilitate importing and augmenting data from one system to another by selecting the appropriate data handlers **220** and sub-handlers **225** based on attributes of a URL. The extension may therefore allow a user to see and manipulate data from a second system while still operating within a first system, which may eliminate the need to separately log into the second system to retrieve the relevant data.

[0032] In some cases, a user may select an action to perform associated with the web browser extension. For example, the user may click on an action button within the extension. In one example, the selected action may instruct the first system **205**-*a* to write the augmented set of data to a third system **205**-*c*. In this example, the augmented set of data may be sent to the bridge server **210** over communication link **255**. Additionally, an indication of the URL or the selected action may be sent over communication link **255** to the bridge server **210**.

[0033] The bridge server **210** may determine a data handler **220** to perform the action based on the URL (e.g., with further processing by the parser **215**) or the selected action. For example, the bridge server **210** may select data handler **220**-*c*. The bridge server may send the augmented set of data to the selected data handler **220**-*c* over communication link **260**. The selected data handler **220**-*c* may convert the augmented set of data from the first data format to a third data format corresponding to the third system **205**-*c*. The selected data handler **220**-*c* may then send the converted augmented set of data to the third system **205**-*c* over communication link **265**. In some cases, the third system **205**-*c* may store the converted augmented set of data in a database.

[0034] In one example, the first system **205**-*a* may be a Salesforce® computing system. A user may be viewing a particular file within the first system **205**-*a* using a web browser. The particular file may be identified and accessed within the first system **205**-*a* using a URL. The file may contain account information for a particular customer. The user may wish to view, import, and/or manipulate data from other systems related to the particular customer without having to log out of the first system **205**-*a* and log into the other systems (e.g., by logging into a different virtual private network (VPN)). The user may launch the web browser extension as described above while viewing the file. In accordance with aspects of the present disclosure, the web browser extension may be configured to select the appropriate data handlers **220** to retrieve, convert, or otherwise manipulate the relevant data from the other systems so that the user may view the relevant data and take further action from within the first system **205**-*a*.

[0035] For example, the user may wish to view relevant data associated with the customer that is stored in a second system **205**-*b* (e.g., a ZoomInfo® computing system). The user may enter the appropriate login credentials for the second system **205**-*b* into the web browser extension. In some examples, the web browser extension may save the login credentials for future access requests. The user may then take some action (e.g., click a button within the extension) to cause the web browser extension to generate an augmented set of data between the first system **205**-*a* and the second system **205**-*b*.

[0036] As described above, the bridge server **210** may select the appropriate data handler **220** and/or sub-handler **225** to retrieve data from the second system **205**-*b* based on the URL of the file within the first system **205**-*a*. For example, the bridge server **210** may select data handler **220**-*b* to convert data from a ZoomInfo data format to a Salesforce data format based on the domain of the URL, which indicates that the file is from a Salesforce computing system.

[0037] Additionally, the bridge server **210** may select sub-handler **225**-*a* based on one or more parameters of the URL, which may indicate the particular customer associated with the file being viewed in the first system **205**-*a*. The selected sub handler **225**-*a* may be configured to retrieve only data from the second system **205**-*b* associated with the particular customer identified by the URL. The selected data handler **220**-*b* and the selected sub-handler **225**-*a* may send an augmented set of data from the two systems for the particular customer to the first system **205**-*a*. For example, the augmented set of data may include some or all the data from the first system **205**-*a* for the particular customer along with some or all of the data from the second system **205**-*b* for the particular customer.

[0038] The web browser extension may display the augmented set of data in addition to the original data associated with the file being viewed in the first system **205**-*a*. The web browser extension may also display actions the user may take based on the extension, the URL, the first system **205**-*a*, the second system **205**-*b*, the augmented set of data, or a combination of these.

[0039] For example, an action may instruct the web browser extension to write the augmented set of data to a third party project management tool (e.g., Jira®). The user may select the action, and in response, the web browser extensions may send the augmented set of data and an indication of the selected action to the bridge server **210**. The bridge server may select data handler **220**-*c* based on the augmented set of data, the indication of the selected action, or a combination of the two. The bridge server **210** may send the augmented set of data to the selected data handler **220**-*c*. The selected data handler **220**-*c* may convert the augmented set of data to a Jira data format. The selected data handler **220**-*c* may send the converted augmented set of data to the third system **205**-*c*, which may then file the converted augmented set of data in a database.

[0040] FIG. **3** illustrates an example of a user interface (UI) **300** that supports adaptively linking data between independent systems based on a URL in accordance with various aspects of the present disclosure. The UI **300** may include a URL field **305**, a data field **330**, and an extension button **335**. The URL field **305** may display a URL associated with a particular file or resource within a system. A URL may include one or more components or attributes, including a protocol **310**, a domain **315**, a path **320**, and one or more parameters **325**.

[0041] The UI **300** may additionally include an augmented data field **340** and action buttons **345**. The UI **300** may display the augmented data field **340** and the action buttons **345** based on a user input and/or one or more attributes of the URL field **305**. For example, the user may click on extension button **335** in order to generate and display the augmented data field **340** and the action buttons **345**. In some cases, UI **300** may display fewer or more action buttons **345** than action button **345**-*a* and action button **345**-*b*, as shown in FIG. **3**. The UI **300** may allow a user to select an extension button **335** corresponding to an independent system, and may display actions and linked data between independent systems based on the URL field **305**.

[0042] A web browser may display the URL field **305** and a data field **330** in the UI **300** for a particular file, resource, or webpage. The URL field **305** may display the URL for that file, and the data field **330** may display the data associated with that file (e.g., account information for a particular customer). As described above, a user viewing a file within a first system may wish to view, import, or otherwise manipulate data from a second, independent system. In accordance with aspects of the present disclosure, the user may launch the web browser extension (e.g., by clicking the extension button **335**). The web browser extension may already be configured to retrieve data from certain other systems (e.g., the extension may have login credentials for those other systems already saved), or the user may input login or other access credentials for the other systems into the web browser extension.

[0043] The web browser extension may then facilitate the process of selecting the appropriate data handlers and sub-handlers based on one or more attributes of the URL, as described above with reference to FIG. **2**. For example, a bridge server (e.g., bridge server **210** as described with reference to FIG. **2**) may select a data handler based on an attribute of the URL field **305**. In some cases, the attribute of the URL field **305** may be a domain **315** of the URL, a path **320** of the URL, or a parameter **325** of the URL. In some cases, the bridge server may select the data handler based on a combination of attributes of the URL field **305**. Additionally, in some cases, the bridge server may select sub-handlers based on an attribute of the URL field **305**.

[0044] The data handler may read data from the first system (e.g., the data displayed in the data field **330**). Additionally, the data handler may read data from a second system, where the first system and the second system are independent of each other. In some cases, the data handler may determine whether to read the data from the first system or the second system based on a user input (e.g., a user selecting an action button **345**). In some cases, the data handler may determine whether to read the data from the first system or the second system based on an access level of a user. The access level of the user may be determined based on a user access token. In some cases, the user may have access to some systems, and may not have access to others. For example, the user data handler may read data from the second system based on the access level of the user, but may not read data from a third system based on the same access level. The data handler may generate an augmented set of data based on the data read from the first system and the data read from the second system. The data handler may display the augmented set of data to the user in an augmented data field **340**. In some cases, the augmented set of data may be represented as a list of key-value pairs. In some cases, a user may add new data handlers and sub-handlers for the system to select from.

[0045] In some cases, the user may also select one or more action buttons **345**, which may trigger the web browser extension to perform an additional action. For example, after the augmented data has been displayed in the augmented data field **340**, the user may select action button **345**-*a*, which may instruct the web browser extension to write the augmented set of data to another system. The web browser extension may be configurable such that additional action buttons **345** may be added.

[0046] FIG. **4** shows a block diagram **400** of a system **405** that supports adaptively linking data between independent systems based on a URL in accordance with various aspects of the present disclosure. System **405** may include input module **410**, data handler manager **415**, and output module **420**. System **405** may also include a processor. Each of these components may be in communication with one another (e.g., via one or more buses). In some cases, System **405** may be an example of a user terminal, a database server, or a system containing multiple computing devices. Data handler manager **415** may be an example of aspects of the data handler manager **615** described with reference to FIG. **6**. Data handler manager **415** may also include URL identification component **425**, handler selection component **430**, data generation component **435**, and display component **440**.

[0047] Data handler manager **415** and/or at least some of its various sub-components may be implemented in hardware, software executed by a processor, firmware, or any combination thereof. If implemented in software executed by a processor, the functions of the data handler manager **415** and/or at least some of its various sub-components may be executed by a general-purpose processor, a digital signal processor (DSP), an application-specific integrated circuit (ASIC), an field-programmable gate array (FPGA) or other programmable logic device, discrete gate or transistor logic, discrete hardware components, or any combination thereof designed to perform the functions described in the present disclosure. The data handler manager **415** and/or at least some of its various sub-components may be physically located at various positions, including being distributed such that portions of functions are implemented at different physical locations by one or more physical devices. In some examples, data handler manager **415** and/or at least some of its various sub-components may be a separate and distinct component in accordance with various aspects of the present disclosure. In other examples, data handler manager **415** and/or at least some of its various sub-components may be combined with one or more other hardware components, including but not limited to an I/O component, a transceiver, a network server, another computing device, one or more other components described in the present disclosure, or a combination thereof in accordance with various aspects of the present disclosure.

[0048] URL identification component **425** may receive a URL from a web browser, where the URL corresponds to a first system and identify an attribute of the URL, where the attribute of the URL includes a domain of the URL, a path of the URL, one or more parameters of the URL, or a combination thereof. Handler selection component **430** may select a data handler based on the identified attribute of the URL.

[0049] Data generation component **435** may generate an augmented set of data based on a first set of data from the first system and a second set of data from a second system, where the augmented set of data is generated using the data handler. In some cases, the augmented set of data is generated based on an access token of a user.

[0050] Display component **440** may modify a display of an extension of the web browser based on the augmented set of data. In some cases, the modifying the display includes displaying an indication of the action. In some cases, the modifying the display includes displaying the augmented data.

[0051] FIG. **5** shows a block diagram **500** of a data handler manager **515** that supports adaptively linking data between independent systems based on a URL in accordance with various aspects of the present disclosure. The data handler manager **515** may be an example of aspects of a data handler manager **615** described with reference to FIGS. **3**, **4**, and **6**. The data handler manager **515** may include URL identification component **520**, handler selection component **525**, data generation component **530**, display component **535**, action identification component **540**, and user input component **545**. Each of these modules may communicate, directly or indirectly, with one another (e.g., via one or more buses).

[0052] URL identification component **520** may receive a URL from a web browser, where the URL corresponds to a first system and identify an attribute of the URL, where the attribute of the URL includes a domain of the URL, a path of the URL, one or more parameters of the URL, or a combination thereof. Handler selection component **525** may select a data handler based on the identified attribute of the URL.

[0053] Data generation component **530** may generate an augmented set of data based on a first set of data from the first system and a second set of data from a second system, where the augmented set of data is generated using the data handler. In some cases, the augmented set of data is generated based on an access token of a user.

[0054] Display component **535** may modify a display of an extension of the web browser based on the augmented set of data. In some cases, the modifying the display includes displaying an indication of the action. In some cases, the modifying the display includes displaying the augmented data.

[0055] Action identification component **540** may identify an action to perform based on the identified attribute of the URL, the augmented set of data, or a combination thereof and identify the action based on an access token of a user.

[0056] User input component **545** may receive an input from a user to perform the action, receive an input from a user to create a custom action, and receive an input from a user to create a custom data handler.

[0057] FIG. **6** shows a diagram of an environment **600** including a system **605** that supports adaptively linking data between independent systems based on a URL in accordance with various aspects of the present disclosure. System **605** may be an example of or include the components of system **125** as described above, e.g., with reference to FIG. **1**. System **605** may include components for bi-directional data communications including components for transmitting and receiving communications, including data handler manager **615**, processor **620**, memory **625**, database controller **630**, database **635**, and I/O controller **640**. These components may be in electronic communication via one or more busses (e.g., bus **610**).

[0058] Processor **620** may include an intelligent hardware device, (e.g., a general-purpose processor, a DSP, a central processing unit (CPU), a microcontroller, an ASIC, an FPGA, a programmable logic device, a discrete gate or transistor logic component, a discrete hardware component, or any combination thereof). In some cases, processor **620** may be configured to operate a memory array using a memory controller. In other cases, a memory controller may be integrated into processor **620**. Processor **620** may be configured to execute computer- readable instructions stored in a memory to perform various functions (e.g., functions or tasks supporting adaptively linking data between independent systems based on a URL).

[0059] Memory **625** may include random access memory (RAM) and read only memory (ROM). The memory **625** may store computer-readable, computer-executable software **630** including instructions that, when executed, cause the processor to perform various functions described herein. In some cases, the memory **625** may contain, among other things, a basic input/output system (BIOS) which may control basic hardware and/or software operation such as the interaction with peripheral components or devices.

[0060] Database controller **630** may manage data storage and processing in database **635**. In some cases, a user may interact with database controller **630**. In other cases, database controller **630** may operate automatically without user interaction. Database **635** may be an example of a single database, a distributed database, multiple distributed databases, or an emergency backup database.

[0061] I/O controller **640** may manage input and output signals for device **605**. I/O controller **640** may also manage peripherals not integrated into device **605**. In some cases, I/O controller **640** may represent a physical connection or port to an external peripheral. In some cases, I/O controller **640** may utilize an operating system such as iOS®, ANDROID®, MS-DOS®, MS-WINDOWS®, OS/2®, UNIX®, LINUX®, or another known operating system. In other cases, I/O controller **640** may represent or interact with a modem, a keyboard, a mouse, a touchscreen, or a similar device. In some cases, I/O controller **640** may be implemented as part of a processor. In some cases, a user may interact with device **605** via I/O controller **640** or via hardware components controlled by I/O controller **640**.

[0062] FIG. **7** shows a flowchart illustrating a method **700** for adaptively linking data between independent systems based on a URL in accordance with various aspects of the present disclosure. The operations of method **700** may be implemented by a data handler manager or its components as described herein. For example, the operations of method **700** may be performed by a data handler manager **415**, **515**, or **615** as described with reference to FIGS. **4** through **6**. In some examples, a data handler manager may execute a set of codes to control the functional elements of the device to perform the functions described below. Additionally or alternatively, the data handler manager may perform aspects of the functions described below using special-purpose hardware.

[0063] At block **705** the data handler manager (e.g., a data handler manager **415**, **515**, or **615**) may receive a URL from a web browser, wherein the URL corresponds to a first system. The operations of block **705** may be performed according to the methods described with reference to FIGS. **1** through **3**. In certain examples, aspects of the operations of block **705** may be performed by a URL identification component as described with reference to FIGS. **4** through **6**.

[0064] At block **710** the data handler manager (e.g., a data handler manager **415**, **515**, or **615**) may identify an attribute of the URL, wherein the attribute of the URL comprises a domain of the URL, a path of the URL, one or more parameters of the URL, or a combination thereof. The operations of block **710** may be performed according to the methods described with reference to FIGS. **1** through **3**. In certain examples, aspects of the operations of block **710** may be performed by a URL identification component as described with reference to FIGS. **4** through **6**.

[0065] At block **715** the data handler manager (e.g., a data handler manager **415**, **515**, or **615**) may select a data handler based at least in part on the identified attribute of the URL. The operations of block **715** may be performed according to the methods described with reference to FIGS. **1** through **3**. In certain examples, aspects of the operations of block **715** may be performed by a handler selection component as described with reference to FIGS. **4** through **6**.

[0066] At block **720** the data handler manager (e.g., a data handler manager **415**, **515**, or **615**) may generate an augmented set of data based at least in part on a first set of data from the first system and a second set of data from a second system, wherein the augmented set of data is generated using the data handler. The operations of block **720** may be performed according to the methods described with reference to FIGS. **1** through **3**. In certain examples, aspects of the operations of block **720** may be performed by a data generation component as described with reference to FIGS. **4** through **6**.

[0067] At block **725** the data handler manager (e.g., a data handler manager **415**, **515**, or **615**) may modify a display of an extension of the web browser based at least in part on the augmented set of data. The operations of block **725** may be performed according to the methods described with reference to FIGS. **1** through **3**. In certain examples, aspects of the operations of block **725** may be performed by a display component as described with reference to FIGS. **4** through **6**.

[0068] FIG. **8** shows a flowchart illustrating a method **800** for adaptively linking data between independent systems based on a URL in accordance with various aspects of the present disclosure. The operations of method **800** may be implemented by a data handler manager or its components as described herein. For example, the operations of method **800** may be performed by a data handler manager **415**, **515**, or **615** as described with reference to FIGS. **4** through **6**. In some examples, a data handler manager may execute a set of codes to control the functional elements of the device to perform the functions described below. Additionally or alternatively, the data handler manager may perform aspects of the functions described below using special-purpose hardware.

[0069] At block **805** the data handler manager (e.g., a data handler manager **415**, **515**, or **615**) may receive a URL from a web browser, wherein the URL corresponds to a first system. The operations of block **805** may be performed according to the methods described with reference to FIGS. **1** through **3**. In certain examples, aspects of the operations of block **805** may be performed by a URL identification component as described with reference to FIGS. **4** through **6**.

[0070] At block **810** the data handler manager (e.g., a data handler manager **415**, **515**, or **615**) may identify an attribute of the URL, wherein the attribute of the URL comprises a domain of the URL, a path of the URL, one or more parameters of the URL, or a combination thereof. The operations of block **810** may be performed according to the methods described with reference to FIGS. **1** through **3**. In certain examples, aspects of the operations of block **810** may be performed by a URL identification component as described with reference to FIGS. **4** through **6**.

[0071] At block **815** the data handler manager (e.g., a data handler manager **415**, **515**, or **615**) may select a data handler based at least in part on the identified attribute of the URL. The operations of block **815** may be performed according to the methods described with reference to FIGS. **1** through **3**. In certain examples, aspects of the operations of block **815** may be performed by a handler selection component as described with reference to FIGS. **4** through **6**.

[0072] At block **820** the data handler manager (e.g., a data handler manager **415**, **515**, or **615**) may generate an augmented set of data based at least in part on a first set of data from the first system and a second set of data from a second system, wherein the augmented set of data is generated using the data handler. The operations of block **820** may be performed according to the methods described with reference to FIGS. **1** through **3**. In certain examples, aspects of the operations of block **820** may be performed by a data generation component as described with reference to FIGS. **4** through **6**.

[0073] At block **825** the data handler manager (e.g., a data handler manager **415**, **515**, or **615**) may identify an action to perform based at least in part on the identified attribute of the URL, the augmented set of data, or a combination thereof. The operations of block **825** may be performed according to the methods described with reference to FIGS. **1** through **3**. In certain examples, aspects of the operations of block **825** may be performed by an action identification component as described with reference to FIGS. **4** through **6**.

[0074] At block **830** the data handler manager (e.g., a data handler manager **415**, **515**, or **615**) may modify a display of an extension of the web browser based at least in part on the augmented set of data. In some cases, modifying the display comprises displaying an indication of the action. The operations of block **830** may be performed according to the methods described with reference to FIGS. **1** through **3**. In certain examples, aspects of the operations of block **830** may be performed by a display component as described with reference to FIGS. **4** through **6**.

[0075] At block **835** the data handler manager (e.g., a data handler manager **415**, **515**, or **615**) may receive an input from a user to perform the action. The operations of block **835** may be performed according to the methods described with reference to FIGS. **1** through **3**. In certain examples, aspects of the operations of block **835** may be performed by a user input component as described with reference to FIGS. **4** through **6**.

[0076] A method of communication data processing is described. The method may include receiving a URL from a web browser, wherein the URL corresponds to a first system, identifying an attribute of the URL, wherein the attribute of the URL comprises a domain of the URL, a path of the URL, one or more parameters of the URL, or a combination thereof, selecting a data handler based at least in part on the identified attribute of the URL, generating an augmented set of data based at least in part on a first set of data from the first system and a second set of data from a second system, wherein the augmented set of data is generated using the data handler, and modifying a display of an extension of the web browser based at least in part on the augmented set of data.

[0077] Another apparatus for communication data processing is described. The apparatus may include a processor, memory in electronic communication with the processor, and instructions stored in the memory. The instructions may be operable to cause the processor to receive a URL from a web browser, wherein the URL corresponds to a first system, identify an attribute of the URL, wherein the attribute of the URL comprises a domain of the URL, a path of the URL, one or more parameters of the URL, or a combination thereof, select a data handler based at least in part on the identified attribute of the URL, generate an augmented set of data based at least in part on a first set of data from the first system and a second set of data from a second system, wherein the augmented set of data is generated using the data handler, and modify a display of an extension of the web browser based at least in part on the augmented set of data.

[0078] A non-transitory computer readable medium for communication data processing is described. The non-transitory computer-readable medium may include instructions operable to cause a processor to receive a URL from a web browser, wherein the URL corresponds to a first system, identify an attribute of the URL, wherein the attribute of the URL comprises a domain of the URL, a path of the URL, one or more parameters of the URL, or a combination thereof, select a data handler based at least in part on the identified attribute of the URL, generate an augmented set of data based at least in part on a first set of data from the first system and a second set of data from a second system, wherein the augmented set of data is generated using the data handler, and modify a display of an extension of the web browser based at least in part on the augmented set of data.

[0079] Some examples of the method, apparatus, and non-transitory computer-readable medium described above may further include processes, features, means, or instructions for identifying an action to perform based at least in part on the identified attribute of the URL, the augmented set of data, or a combination thereof.

[0080] In some examples of the method, apparatus, and non-transitory computer-readable medium described above, the modifying the display comprises displaying an indication of the action.

[0081] Some examples of the method, apparatus, and non-transitory computer-readable medium described above may further include processes, features, means, or instructions for receiving an input from a user to perform the action.

[0082] Some examples of the method, apparatus, and non-transitory computer-readable medium described above may further include processes, features, means, or instructions for identifying the action based at least in part on an access token of a user.

[0083] In some examples of the method, apparatus, and non-transitory computer-readable medium described above, the modifying the display comprises displaying the augmented data.

[0084] In some examples of the method, apparatus, and non-transitory computer-readable medium described above, the augmented set of data may be generated based at least in part on an access token of a user.

[0085] Some examples of the method, apparatus, and non-transitory computer-readable medium described above may further include processes, features, means, or instructions for receiving an input from a user to create a custom action.

[0086] Some examples of the method, apparatus, and non-transitory computer-readable medium described above may further include processes, features, means, or instructions for receiving an input from a user to create a custom data handler.

[0087] It should be noted that the methods described above describe possible implementations, and that the operations and the steps may be rearranged or otherwise modified and that other implementations are possible. Furthermore, aspects from two or more of the methods may be combined.

[0088] The description set forth herein, in connection with the appended drawings, describes example configurations and does not represent all the examples that may be implemented or that are within the scope of the claims. The term "exemplary" used herein means "serving as an example, instance, or illustration," and not "preferred" or "advantageous over other examples." The detailed description includes specific details for the purpose of providing an understanding of the described techniques. These techniques, however, may be practiced without these specific details. In some instances, well-known structures and devices are shown in block diagram form in order to avoid obscuring the concepts of the described examples.

[0089] In the appended figures, similar components or features may have the same reference label. Further, various components of the same type may be distinguished by following the reference label by a dash and a second label that distinguishes among the similar components. If just the first reference label is used in the specification, the description is applicable to any one of the similar components having the same first reference label irrespective of the second reference label.

[0090] Information and signals described herein may be represented using any of a variety of different technologies and techniques. For example, data, instructions, commands, information, signals, bits, symbols, and chips that may be referenced throughout the above description may be represented by voltages, currents, electromagnetic waves, magnetic fields or particles, optical fields or particles, or any combination thereof.

[0091] The various illustrative blocks and modules described in connection with the disclosure herein may be implemented or performed with a general-purpose processor, a DSP, an ASIC, an FPGA or other programmable logic device, discrete gate or transistor logic, discrete hardware components, or any combination thereof designed to perform the functions described herein. A general-purpose processor may be a microprocessor, but in the alternative, the processor may be any conventional processor, controller, microcontroller, or state machine. A processor may also be implemented as a combination of computing devices (e.g., a combination of a digital signal processor (DSP) and a microprocessor, multiple microprocessors, one or more microprocessors in conjunction with a DSP core, or any other such configuration).

[0092] The functions described herein may be implemented in hardware, software executed by a processor, firmware, or any combination thereof. If implemented in software executed by a processor, the functions may be stored on or transmitted over as one or more instructions or code on a computer-readable medium. Other examples and implementations are within the scope of the disclosure and appended claims. For example, due to the nature of software, functions described above can be implemented using software executed by a processor, hardware, firmware, hardwiring, or combinations of any of these. Features implementing functions may also be physically located at various positions, including being distributed such that portions of functions are implemented at different physical locations. Also, as used herein, including in the claims, "or" as used in a list of items (for example, a list of items prefaced by a phrase such as "at least one of" or "one or more of") indicates an inclusive list such that, for example, a list of at least one of A, B, or C means A or B or C or AB or AC or BC or ABC (i.e., A and B and C). Also, as used herein, the phrase "based on" shall not be construed as a reference to a closed set of conditions. For example, an exemplary step that is described as "based on condition A" may be based on both a condition A and a condition B without departing from the scope of the present disclosure. In other words, as used herein, the phrase "based on" shall be construed in the same manner as the phrase "based at least in part on."

[0093] Computer-readable media includes both non-transitory computer storage media and communication media including any medium that facilitates transfer of a computer program from one place to another. A non-transitory storage medium may be any available medium that can be accessed by a general purpose or special purpose computer. By way of example, and not limitation, non-transitory computer-readable media can comprise RAM, ROM, electrically erasable programmable read only memory (EEPROM), compact disk (CD) ROM or other optical disk storage, magnetic disk storage or other magnetic storage devices, or any other non-transitory medium that can be used to carry or store desired program code means in the form of instructions or data structures and that can be accessed by a general-purpose or special-purpose computer, or a general-purpose or special-purpose processor. Also, any connection is properly termed a computer-readable medium. For example, if the software is transmitted from a website, server, or other remote source using a coaxial cable, fiber optic cable, twisted pair, digital subscriber line (DSL), or wireless technologies such as infrared, radio, and microwave, then the coaxial cable, fiber optic cable, twisted pair, digital subscriber line (DSL), or wireless technologies such as infrared, radio, and microwave are included in the definition of medium. Disk and disc, as used herein, include CD, laser disc, optical disc, digital versatile disc (DVD), floppy disk and Blu-ray disc where disks usually reproduce data magnetically, while discs reproduce data optically with lasers. Combinations of the above are also included within the scope of computer-readable media.

[0094] The description herein is provided to enable a person skilled in the art to make or use the disclosure. Various modifications to the disclosure will be readily apparent to those skilled in the art, and the generic principles defined herein may be applied to other variations without departing from the scope of the disclosure. Thus, the disclosure is not limited to the examples and designs described herein, but is to be accorded the broadest scope consistent with the principles and novel features disclosed herein.

What is claimed is:

1. A method for communication data processing, comprising:

receiving a universal resource locator (URL) from a web browser, wherein the URL corresponds to a first system;

identifying an attribute of the URL, wherein the attribute of the URL comprises a domain of the URL, a path of the URL, one or more parameters of the URL, or a combination thereof;

selecting a data handler based at least in part on the identified attribute of the URL;

generating an augmented set of data based at least in part on a first set of data from the first system and a second set of data from a second system, wherein the augmented set of data is generated using the data handler; and

modifying a display of an extension of the web browser based at least in part on the augmented set of data.

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

identifying an action to perform based at least in part on the identified attribute of the URL, the augmented set of data, or a combination thereof.

3. The method of claim **2**, wherein modifying the display comprises displaying an indication of the action.

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

receiving an input from a user to perform the action.

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

identifying the action based at least in part on an access token of a user.

6. The method of claim **1**, wherein modifying the display comprises displaying the augmented data.

7. The method of claim **1**, wherein the augmented set of data is generated based at least in part on an access token of a user.

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

receiving an input from a user to create a custom action.

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

receiving an input from a user to create a custom data handler.

10. An apparatus for communication data processing, in a system comprising:

a processor;

memory in electronic communication with the processor; and

instructions stored in the memory and operable, when executed by the processor, to cause the apparatus to:

receive a universal resource locator (URL) from a web browser, wherein the URL corresponds to a first system;

identify an attribute of the URL, wherein the attribute of the URL comprises a domain of the URL, a path of the URL, one or more parameters of the URL, or a combination thereof;

select a data handler based at least in part on the identified attribute of the URL;

generate an augmented set of data based at least in part on a first set of data from the first system and a second set of data from a second system, wherein the augmented set of data is generated using the data handler; and

modify a display of an extension of the web browser based at least in part on the augmented set of data.

11. The apparatus of claim **10**, wherein the instructions are further executable by the processor to:

identify an action to perform based at least in part on the identified attribute of the URL, the augmented set of data, or a combination thereof.

12. The apparatus of claim **11**, wherein the instructions are further executable by the processor to:

receive an input from a user to perform the action.

13. The apparatus of claim **10**, wherein modifying the display comprises displaying the augmented data.

14. The apparatus of claim **10**, wherein the instructions are further executable by the processor to:

receive an input from a user to create a custom action.

15. The apparatus of claim **10**, wherein the instructions are further executable by the processor to:

receive an input from a user to create a custom data handler.

16. A non-transitory computer readable medium storing code for communication data processing, the code comprising instructions executable by a processor to:

receive a universal resource locator (URL) from a web browser, wherein the URL corresponds to a first system;

identify an attribute of the URL, wherein the attribute of the URL comprises a domain of the URL, a path of the URL, one or more parameters of the URL, or a combination thereof;

select a data handler based at least in part on the identified attribute of the URL;

generate an augmented set of data based at least in part on a first set of data from the first system and a second set of data from a second system, wherein the augmented set of data is generated using the data handler; and

modify a display of an extension of the web browser based at least in part on the augmented set of data.

17. The non-transitory computer-readable medium of claim **16**, wherein the instructions are further executable by the processor to:

identify an action to perform based at least in part on the identified attribute of the URL, the augmented set of data, or a combination thereof.

18. The non-transitory computer-readable medium of claim **17**, wherein the instructions are further executable by the processor to:

receive an input from a user to perform the action.

19. The non-transitory computer-readable medium of claim **16**, wherein the instructions are further executable by the processor to:

receive an input from a user to create a custom action.

20. The non-transitory computer-readable medium of claim **16**, wherein the instructions are further executable by the processor to:

receive an input from a user to create a custom data handler.

* * * * *