

What is claimed is: CLAIMS

1. A computing device ~~(110)~~, comprising:
a processing unit ~~(205)~~;
a system memory ~~(210)~~ connected to the processing unit ~~(205)~~, the system memory ~~(210)~~ comprising instructions that, when executed by the processing unit ~~(205)~~, cause the processing unit ~~(205)~~ to:

create a business data catalog module ~~(305)~~ that accesses and manipulates data residing on an internal data store ~~(120)~~ and an external data store ~~(130)~~, wherein the business data catalog module ~~(305)~~ receives a request for data, determines whether the data resides in the internal data store ~~(120)~~ or the external data store ~~(130)~~, and accesses the data residing on the external data store using one or more (application programming interface (API) calls specific to the external data store, wherein information about APIs associated with the external data store is contained in the internal data store, and wherein the information includes permissible operations and one or more predefined constraints for rendering and operating on the external data, and creates definitions of business objects that encapsulate a set of defined attributes related to the business objects, the set of defined attributes including: an identifier attribute that represents a persistent identity of a specific entity ~~(130)~~; a filter attribute that includes criteria for filtering data members returned from the external data store; an actions attribute that includes references of a uniform resource locator related to a specific entity; a relationships attribute that includes a reference to at least one entity having an association defined thereon; and an access attribute that includes methods for setting access rights; and

create an external data provisioning module ~~(310)~~ that provisions data accessed from the external data store ~~(130)~~, ~~wherein the external data provisioning module (310) maps external data from the external data store (130) for presentation on a client computing device (105);~~ and generates forms and views for presentation and access to a user on the client computing device via a graphical user interface, wherein the forms and views contain content associated with the permissible operations embodied in application programming interfaces of an external business system associated with the external data store, the permissible operations including: a creator method that generates a first selectable menu item that enables the user to create a new entity instance including data for storage in

the external data store; a specific finder method that generates a second selectable menu item that enables the user to view data associated with an entity instance; an updater method that generates a third selectable menu item that enables the user to modify at least one property of an entity instance; and a deleter method that generates a fourth selectable menu item that enables the user to delete an entity instance;

wherein a user can access and manipulate the data from the external data store (130) in a same manner as accessing and manipulating data from the internal data store (120).

2. The computing device of claim 1, further comprising the external data store (130) that includes the external data, the external data including entities of an ~~external~~ business system (125), methods associated with the entities of the ~~external~~ business system (125), and parameters used by the methods.

3. The computing device of claim 1, wherein the business data catalog module (305) further comprises a parameters module (405) that includes connection parameters and definitions for a plurality of different external data stores (130).

4. The computing device of claim 3, wherein the connection parameters includes definitions for both internal data stores (120) and the external data stores (130).

~~5. The computing device of claim 1, wherein the business data catalog module (305) further comprises an entity module (410) that creates definitions of business objects that encapsulate a set of defined attributes related to the business objects.~~

~~56.~~ The computing device of claim ~~15~~, wherein the entity module (410) contains data members that represent scalar types.

~~67.~~ The computing device of claim 1, wherein the external data provisioning module (310) further comprises a schema generation module (505) that accesses definitions of entities and performs an inventory of the attributes defined therein.

~~8. The computing device of claim 1, wherein the external data provisioning module (310) further comprises a forms and views generation module (510) that generates forms and views for presentation to the user of the client computing device (110) via a graphical user interface.~~

~~9. The computing device of claim 8, wherein the views and forms contain content that is consistent with permissible operations embodied in APIs of an external business system (125) associated with the external data store (130).~~

~~10. The computing device of claim 9, wherein the permissible operations include: a Creator method; a Specific Finder method; an Updater method; and a Deleter method.~~

~~11. The computing device of claim 1, wherein the business data catalog module (305) fetches data from the external data store (130) using one or more API calls specific to the external data store (130).~~

7. The computing device of claim 1, wherein the external data provisioning module maps external data from the external data store for presentation on a client computing device by mapping data types of data members of the external data source to data type fields that are native to the computing device.

8. The computing device of claim 1, comprising a schema generation module that presents the external data from the external data store to the user in a same manner as internal data from the internal data store.

9~~12~~. A method for obtaining business data, the method comprising:
creating definitions of business objects that encapsulate a set of defined attributes related to the business objects, the set of defined attributes including: an identifier attribute that represents a persistent identity of a specific entity; a filter attribute that includes criteria for filtering data members returned from the external data store; an actions attribute that includes references of a uniform resource locator related to a specific entity; a relationships attribute that includes a reference to at least one entity having an association defined thereon; and an access attribute that includes methods for setting access rights;
accessing definitions of entities and performing an inventory of attributes defined therein;

receiving a request for data from a data store ~~(120, 130)~~;
determining ~~whether~~if the data resides on an internal data store ~~(120)~~ or an external data store ~~(130)~~;

when the data resides on the external data store ~~(130)~~, accessing external data on the external data store ~~(130)~~ using one or more API calls specific to the external data store, wherein information about APIs associated with the external data store is contained in the internal data store, the information including permissible operations and one or more pre-defined constraints for rendering and operating on the external data;

mapping the external data from the external data store ~~(130)~~; and
generating forms and views for presentation to a user that include content associated with the permissible operations embodied in application programming

interfaces of an external business system associated with the external data store, the permissible operations including: a creator method that generates a first selectable menu item that enables the user to create a new entity instance including data for storage in the external data store; a specific finder method that generates a second selectable menu item that enables the user to view data associated with an entity instance; an updater method that generates a third selectable menu item that enables the user to modify at least one property of an entity instance; and a deleter method that generates a fourth selectable menu item that enables the user to delete an entity instance;

presenting the external data from the external data store ~~(130)~~ to ~~the~~^a user in a same manner as internal data from the internal data store ~~(120)~~; and

allowing the user to manipulate the external data store in a same manner as manipulating the internal data from the internal data store.

~~13. — The method of claim 12, further comprising generating the views and forms so that the views and forms contain content that is consistent with permissible operations embodied in APIs of an external business system (125) associated with the external data store (130).~~

~~14. — The method of claim 12, further comprising accessing data from the external data store (130) using one or more API calls specific to the external data store (130).~~

10. The method of claim 9, further comprising defining data members that represent scalar types.

11. The method of claim 9, wherein mapping the external data from the external data store comprises mapping data types of data members of the external data source to data type fields that are native to the computing device.

12. The method of claim 9, wherein accessing definitions of entities and performing an inventory of attributes defined therein further including accessing connection parameters for a plurality of different external data stores.

13. The method of claim 12, wherein the connection parameters includes definitions for both internal data stores and the external data stores.

14. The method of claim 9, wherein presenting the external data from the external data store to the user in one of the views or forms are presented via a graphical user interface instantiated by a web browser application.

15. A computer readable storage medium having computer-executable instructions that, when executed by a computing device ~~(110)~~, cause the computing device ~~(110)~~ to perform steps comprising:

creating definitions of business objects that encapsulate a set of defined attributes related to the business objects, the set of defined attributes including: an identifier attribute that represents a persistent identity of a specific entity; a filter attribute that includes criteria for filtering data members returned from the external data store; an actions attribute that includes references of a uniform resource locator related to a specific entity; a relationships attribute that includes a reference to at least one entity having an association defined thereon; and an access attribute that includes methods for setting access rights;

accessing definitions of entities and performing an inventory of the attributes defined therein;

receiving a request for data from a data store ~~(120, 130)~~;

determining whether ~~if~~ the data resides on an internal data store ~~(120)~~ or an external data store ~~(130)~~;

when the data resides on the external data store ~~(130)~~, accessing external data on the external data store ~~(130)~~ using one or more API calls specific to the external data store ~~(130)~~;

mapping the external data from the external data store ~~(130)~~;

generating forms and views for presentation to ~~a~~ the user of the client computing device ~~(105)~~, wherein the views and forms contain content that is consistent with permissible operations embodied in APIs of an external business system ~~(125)~~ associated with the external data store ~~(130)~~, wherein information about the APIs associated with the external data store is contained in the internal data store, the information including permissible operations and one or more pre-defined constraints for rendering and operating on the external data, including parameters, security authorization information, and filtering information, the permissible operations including: a creator method that generates a first selectable menu item that enables the user to create a new entity instance including data for storage in the external data store; a specific finder method that generates a second selectable menu item that enables the user to view data associated with an entity instance; an updater method that generates a third selectable menu item that enables the user to modify at least one property of an entity instance; and a deleter method that generates a fourth selectable menu item that enables the user to delete an entity instance;

presenting the external data from the external data store ~~(130)~~ to ~~the~~ a user in one of the views or forms in a same manner as internal data from the internal data store ~~(120)~~;

and

allowing the user to manipulate the external data store ~~(130)~~ in a same manner as manipulating the internal data from the internal data store ~~(120)~~.

16. The computer readable storage medium of claim 15, further comprising defining data members that represent scalar types.

17. The computer readable storage medium of claim 15, mapping the external data from the external data store comprises mapping data types of data members of the external data source to data type fields that are native to the computing device.

18. The computer readable storage medium of claim 15, wherein accessing definitions of entities and performing an inventory of attributes defined therein further including accessing connection parameters for a plurality of different external data stores.

19. The computer readable storage medium of claim 18, wherein the connection parameters includes definitions for both internal data stores and the external data stores.

20. The computer readable storage medium of claim 15, wherein presenting the external data from the external data store to the user in one of the views or forms are presented via a graphical user interface instantiated by a web browser application.