US009270528B2

(12) United States Patent
Raffo et al.

(10) Patent No.: US 9,270,528 B2
(45) Date of Patent: Feb. 23, 2016

(54) **SYSTEMS AND METHODS OF PROVISIONING DATA STORAGE AND RUNTIME CONFIGURATION IN TELECOMMUNICATIONS SYSTEMS AND DEVICES**

(75) Inventors: **Romolo Raffo**, Mountain View, CA (US); **Kamlakar N. Patil**, San Jose, CA (US); **Thien Nguyen**, San Jose, CA (US)

(73) Assignee: **Dialogic Inc.**, Milpitas, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 48 days.

(21) Appl. No.: **13/364,732**

(22) Filed: **Feb. 2, 2012**

(65) **Prior Publication Data**

US 2013/0204904 A1 Aug. 8, 2013

(51) **Int. Cl.**
G06F 17/30 (2006.01)
H04L 12/24 (2006.01)

(52) **U.S. Cl.**
CPC ***H04L 41/0859*** (2013.01); *G06F 17/30002* (2013.01)

(58) **Field of Classification Search**
CPC G06F 17/30
USPC 707/705
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

7,383,271 B2 * 6/2008 Yip et al.

OTHER PUBLICATIONS

Wikipedia, "Git (software)", Nov. 20, 2013, <http://en.wikipedia.org/wiki/Git_(software).*

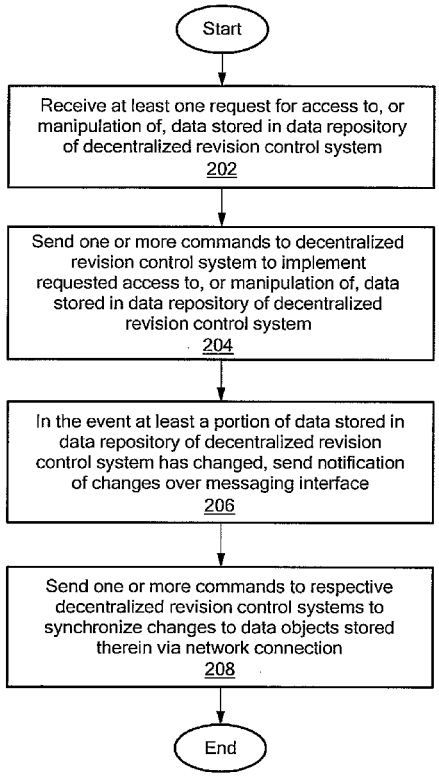
* cited by examiner

Primary Examiner — Hung Q Pham
(74) *Attorney, Agent, or Firm* — Chapin IP Law, LLC

(57) **ABSTRACT**

Systems and methods of provisioning data storage and runtime configuration in telecommunications systems and devices. The systems and methods employ at least one decentralized revision control system as a data repository for storing data, such as configuration data, and at least one data provisioning component as an interface for accessing the configuration data stored in the data repository. By employing the decentralized revision control system in conjunction with the data provisioning component, the systems and methods can provide a data storage and runtime configuration provisioning framework that is data agnostic, application agnostic, and user agnostic, while further providing at least the capability of tracking and maintaining the version history of the configuration data.

7 Claims, 2 Drawing Sheets



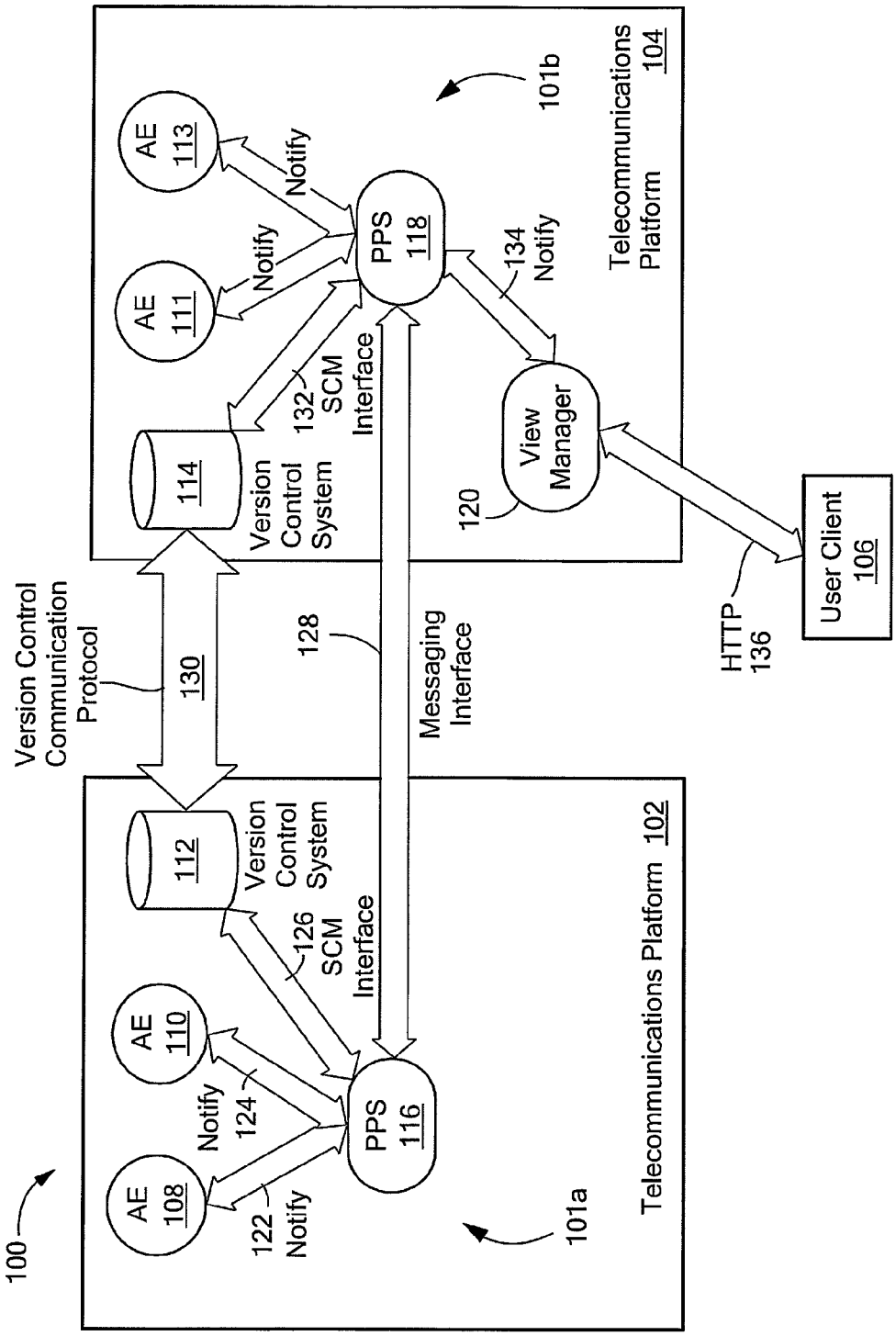

100
Telecommunications Platform 102
101a
AE 108
AE 110
Notify 122
Notify 124
PPS 116
112
Version Control System
126 SCM Interface
Version Control Communication Protocol
130
128
Messaging Interface
Telecommunications Platform 104
101b
AE 113
AE 111
Notify
Notify
PPS 118
114
Version Control System
132 SCM Interface
134 Notify
View Manager
120
HTTP 136
User Client 106

FIG. 1

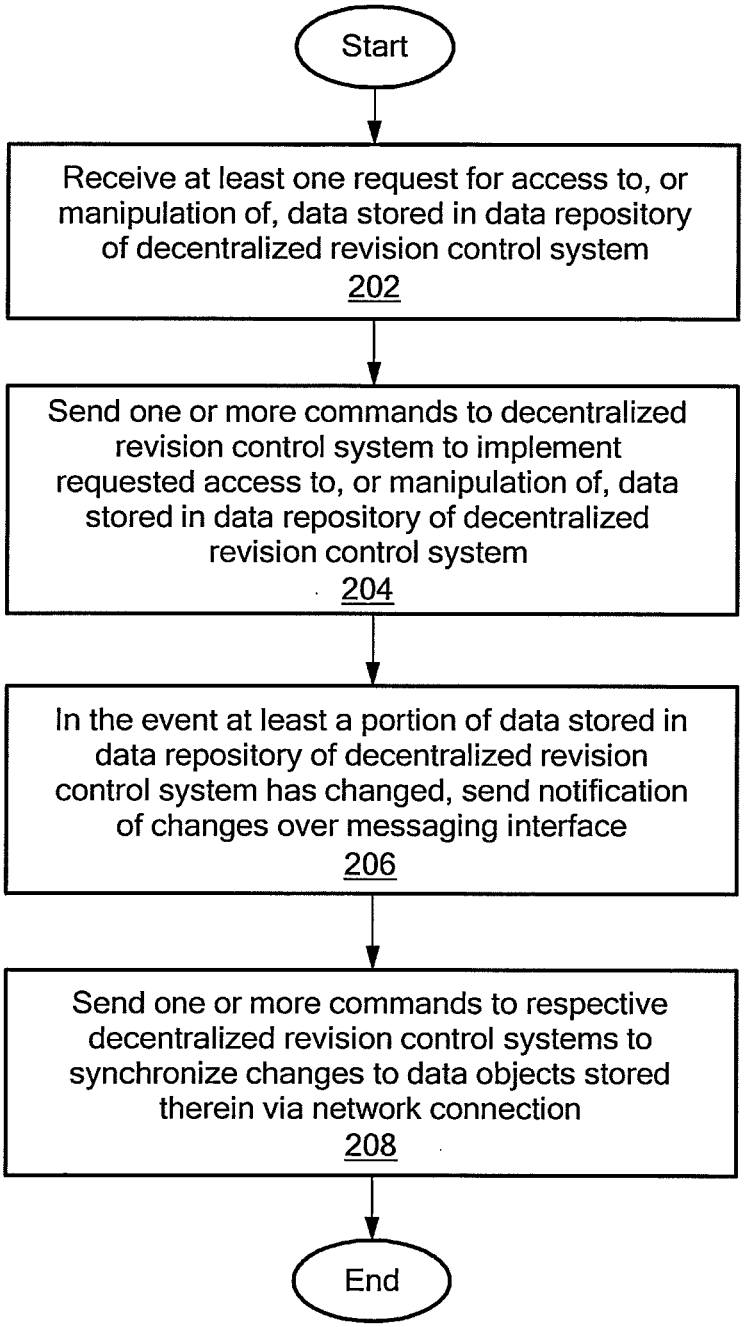

Start
Receive at least one request for access to, or manipulation of, data stored in data repository of decentralized revision control system
202
Send one or more commands to decentralized revision control system to implement requested access to, or manipulation of, data stored in data repository of decentralized revision control system
204
In the event at least a portion of data stored in data repository of decentralized revision control system has changed, send notification of changes over messaging interface
206
Send one or more commands to respective decentralized revision control systems to synchronize changes to data objects stored therein via network connection
208
End

FIG. 2

SYSTEMS AND METHODS OF PROVISIONING DATA STORAGE AND RUNTIME CONFIGURATION IN TELECOMMUNICATIONS SYSTEMS AND DEVICES

CROSS REFERENCE TO RELATED APPLICATIONS

Not applicable

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

Not applicable

FIELD OF THE INVENTION

The present application relates generally to telecommunications systems and devices, and more specifically to systems and methods of provisioning data storage and runtime configuration in telecommunications systems and devices.

BACKGROUND OF THE INVENTION

Telecommunications systems and devices, such as access systems, network management systems, media switching centers, cross-connects, session border controllers, etc., can be adapted via configuration data to provide specific functionality for a target application. Based on such configuration data, control software within the telecommunications systems and devices can control the respective systems and devices to satisfy the requirements of the target application. For example, such configuration data can be specified for a session border controller to satisfy the requirements of access and interconnect applications within mobile and/or fixed voice-over-Internet protocol (such voice-over-Internet protocol is also referred to herein as "VoIP") networks. By adapting the session border controller using such configuration data, the session border controller can be effectively controlled to provide security for the interconnect and access network infrastructure, thereby assuring that VoIP services are made continuously available while maintaining a high level of system performance.

In typical telecommunications systems and devices, large amounts of complex configuration data must generally be stored and managed. Further, within a typical target application, such configuration data generally has to be accessed in a controlled manner, and the history of any changes made to the configuration data has to be tracked and maintained. Moreover, users of such telecommunications systems and devices generally require the capabilities of rolling back such changes to the configuration data, as required and/or as desired, and successfully synchronizing the configuration data across other telecommunications systems and/or devices over a network. However, prior attempts to provide such functionality in telecommunications systems and devices have generally not been suited for use in real-time applications that require fast, dynamic access to configuration data.

It would therefore be desirable to have improved systems and methods of provisioning data storage and runtime configuration in telecommunications systems and devices that better address the issues relating to the storage and management of data, such as configuration data, in real-time applications.

BRIEF SUMMARY OF THE INVENTION

In accordance with the present application, improved systems and methods of provisioning data storage and runtime configuration in telecommunications systems and devices are disclosed. The presently disclosed systems and methods employ at least one decentralized revision control system as a data repository for storing data, such as configuration data, and at least one data provisioning component as an interface for accessing the configuration data stored in the data repository. By employing the decentralized revision control system in conjunction with the data provisioning component, the presently disclosed systems and methods can beneficially provide a data storage and runtime configuration provisioning framework that is data agnostic, application agnostic, and user agnostic, while further providing at least the capability of tracking and maintaining the version history of the configuration data.

In accordance with a first aspect, an exemplary system for provisioning data storage and runtime configuration in telecommunications systems and devices (such an exemplary system is also referred to herein as a/the "data provisioning and runtime configuration system") includes the decentralized revision control system, and one or more functional components including at least the data provisioning component. For example, the decentralized revision control system can be implemented using the Git revision control system, or any other suitable decentralized revision control system. The functional components can further include a view manager component, as well as one or more predetermined application program components in support of the functionality provided by the data provisioning and runtime configuration system. In accordance with a first exemplary aspect, a user can access the data provisioning and runtime configuration system over a network via any suitable client, including, but not limited to, a web client, which is communicably coupleable to the view manager component via a network connection. The view manager component can be implemented as any suitable server interface, including, but not limited to, a web server interface, for providing an overall view of the current state of the system configuration. Using the web client, the user can access the view manager component over the network via a web browser, which is communicably coupleable to the web server interface of the view manager component via the network connection. The view manager component is communicably coupled to the data provisioning component, which, in turn, is communicably coupled to the decentralized revision control system. In further accordance with the first exemplary aspect, data, such as configuration data, including but not limited to real-time data, can be stored in the data repository of the decentralized revision control system as objects (such objects are also referred to herein as "data objects"). Using the web browser, the user can communicate with the view manager component over the network connection to request access to, additions to, updates to, and/or deletions of specific data objects stored in the data repository. The view manager component is operative to communicate with the data provisioning component to implement such access to, additions to, updates to, and/or deletions of such data objects, as requested by the user. In accordance with a second exemplary aspect, the data provisioning component is operative to send commands, e.g., system calls, to the data repository over a source code management (SCM) interface of the decentralized revision control system, thereby implementing the requested access to, additions to, updates to, and/or deletions of such data objects stored in the data repository. In further accordance with the second exemplary aspect, the user can communicate with the data provisioning component to subscribe, via at least one subscription message, to specific data objects stored in the data repository, e.g., for the purpose of being notified whenever certain characteristics of such data

objects change, as determined by the data provisioning component. In the event the data provisioning component determines that such certain characteristics of the data objects have, in fact, changed, the data provisioning component can notify the subscribing user of the change(s). In accordance with a third exemplary aspect, one or more of the predetermined application program components can register, with the data provisioning component, one or more application entities that may require access to the data objects stored in the data repository. The registered application entities are each operative to communicate with the data provisioning component to request access to specific data objects stored in the data repository. Further, the data provisioning component is operative to implement such access to such data objects, as requested by the respective application entities. The registered application entities are each further operative to communicate with the data provisioning component to subscribe to specific data objects, e.g., for the purpose of being notified whenever certain characteristics of such data objects change, as determined by the data provisioning component. In the event the data provisioning component determines that such certain characteristics of the data objects have, in fact, changed, the data provisioning component notifies the respective application entities, as appropriate.

In accordance with a second aspect, two or more data provisioning and runtime configuration systems can be implemented as peer systems. Each of the peer systems can include a respective decentralized revision control system, and a respective data provisioning component. Each of the peer systems can further include a view manager component, as well as one or more predetermined application program components. The decentralized revision control systems, the data provisioning components, the view manager component (s), and the predetermined application program component(s) included in the respective peer systems are each configured to operate as described above with reference to the first aspect of the data provisioning and runtime configuration system. The data provisioning components included in the respective peer systems are further operative to communicate with one another over at least one messaging interface via a first network connection. Moreover, the decentralized revision control systems included in the respective peer systems are further operative to communicate with one another via a second network connection, in accordance with a predetermined version control communication protocol. In the event one of the data provisioning components included in the respective peer systems determines that certain characteristics of specific data objects stored in the data repository of the decentralized revision control system coupled thereto have changed, the data provisioning component can send, over the messaging interface via the first network connection, a notification of the changes to the data provisioning component included in the other peer system. Further, the data provisioning components included in the peer systems can send commands, e.g., system calls, to the respective decentralized revision control systems coupled thereto, thereby causing the respective decentralized revision control systems to synchronize the changes to the data objects stored therein via the second network connection, in accordance with the predetermined version control communication protocol.

By employing the decentralized revision control system in conjunction with the data provisioning component, the data provisioning and runtime configuration system can beneficially provide a data storage and runtime configuration provisioning framework that is data agnostic, application agnostic, and user agnostic, while further providing at least the capability of tracking and maintaining the version history of data, such as configuration data, including but not limited to real-time data. Further, by implementing two or more such data provisioning and runtime configuration systems as peer systems, any changes to the data objects stored in the data repositories of the respective peer systems can be beneficially synchronized using a predetermined version control communication protocol, thereby assuring that none of the data are lost in the event of a failover.

Other features, functions, and aspects of the invention will be evident from the Drawings and/or the Detailed Description of the Invention that follow.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

The invention will be more fully understood with reference to the following Detailed

Description of the Invention in conjunction with the drawings of which:

FIG. **1** is a block diagram of an exemplary architecture for provisioning data storage and runtime configuration in telecommunications systems and devices, in accordance with an exemplary embodiment of the present application; and

FIG. **2** is a flow diagram of an exemplary method of operating an exemplary data provisioning and runtime configuration system within the exemplary architecture of FIG. **1**.

DETAILED DESCRIPTION OF THE INVENTION

Systems and methods of provisioning data storage and runtime configuration in telecommunications systems and devices are disclosed. The presently disclosed systems and methods employ at least one decentralized revision control system as a data repository for storing data, such as configuration data, and at least one data provisioning component as an interface for accessing the configuration data stored in the data repository. By employing the decentralized revision control system in conjunction with the data provisioning component, the presently disclosed systems and methods can beneficially provide a data storage and runtime configuration provisioning framework that is data agnostic, application agnostic, and user agnostic, while further providing at least the capability of tracking and maintaining the version history of the configuration data.

FIG. **1** depicts an illustrative embodiment of an exemplary architecture **100** for provisioning data storage and runtime configuration in telecommunications systems and devices, in accordance with an exemplary embodiment of the present application. The exemplary architecture **100** includes a plurality of telecommunications systems or devices **102**, **104** (such telecommunications systems or devices are also referred to herein as "telecommunications platforms"). Telecommunications platforms **102**, **104** can be implemented as access systems, network management systems, media switching centers, cross-connects, session border controllers, as examples, and/or as any other suitable telecommunications systems or devices.

In accordance with the illustrative embodiment of FIG. **1**, telecommunications platform **102** includes a data provisioning and runtime configuration system **101***a*, and telecommunications platform **104** includes a data provisioning and runtime configuration system **101***b*. Each of the data provisioning and runtime configuration systems **101***a*, **101***b* includes a decentralized revision control system, and one or more functional components including at least a data provisioning component. Specifically, the data provisioning and runtime configuration system **101***a* includes a decentralized revision

control system **112** and a data provisioning component **116**. Similarly, the data provisioning and runtime configuration system **101***b* includes a decentralized revision control system **114** and a data provisioning component **118**. With reference to telecommunications platform **104**, the functional components within the data provisioning and runtime configuration system **101***b* further include a view manager component **120**. Moreover, with reference to telecommunications platform **102**, the functional components within the data provisioning and runtime configuration system **101***a* further include one or more predetermined application program components **108**, **110** in support of the functionality provided by telecommunications platform **102**. It is noted that the functional components within the data provisioning and runtime configuration system **101***b* can further include one or more predetermined application program components **111**, **113** in support of the functionality provided by telecommunications platform **104**.

As shown in FIG. **1**, one or more user clients, such as a user client **106**, can access the data provisioning and runtime configuration system **101***b* within telecommunications platform **104** over a network. The user client **106** can be implemented as a web client, as an example, or as any other suitable client communicably coupleable to the view manager component **120** via a network connection **136**. Moreover, the view manager component **120** can be implemented as any suitable server interface, including, but not limited to, a web server interface, for providing an overall view of the current state of the system configuration. For example, the user client **106** implemented as a web client can access the data provisioning and runtime configuration system **101***b* over the network via a web browser communicably coupled to the web server interface of the view manager component **120**. The view manager component **120** is communicably connected to the data provisioning component **118**, which, in turn, is communicably connected to the decentralized revision control system **114**. In further accordance with the illustrative embodiment of FIG. **1**, data, such as configuration data, including but not limited to real-time data, can be stored in a data repository of the decentralized revision control system **114** as objects (such objects are also referred to herein as "data objects"). For example, the decentralized revision control systems **112**, **114** can each be implemented using any suitable decentralized revision control system, such as the Git revision control system that provides at least one data repository with at least history and revision capabilities and is not dependent on network access and/or on a central server.

In accordance with an exemplary mode of operation of the data provisioning and runtime configuration system **101***b* within telecommunications platform **104**, the user client **106** communicates, using the web browser, with the view manager component **120** over the network connection **136** to request access to, and/or one or more manipulations of, specific data objects stored in the data repository of the decentralized revision control system **114**. For example, such manipulations of data objects can include one or more additions to, updates to, and/or deletions of the respective data objects. Further, the user client **106** can communicate with the view manager component **120** over the network connection **136** using the hypertext transfer protocol (HTTP), or any other suitable communications protocol. The view manager component **120** is operative to communicate with the data provisioning component **118** over a connection **134** to implement such access to, additions to, updates to, and/or deletions of the specific data objects contained in the decentralized revision control system **114**, as requested by the user client **106**. Moreover, the data provisioning component **118** is operative to send commands, e.g., system calls, to the decentralized revision control system **114** over an interface **132** of the decentralized revision control system **114**, thereby implementing the requested access to, additions to, updates to, and/or deletions of the specific data objects stored in the data repository of the decentralized revision control system **114**. For example, the interface **132** can be implemented as a source code management (SCM) interface of the decentralized revision control system **114**, or any other suitable interface. In further accordance with this exemplary mode of operation of the data provisioning and runtime configuration system **101***b*, the user client **106** can communicate with the data provisioning component **118** to subscribe, via at least one subscription message, to the specific data objects stored in the data repository of the decentralized revision control system **114**. For example, the user client **106** can subscribe to the specific data objects for the purpose of being notified whenever certain characteristics of such data objects change, as determined by the data provisioning component **118**. In the event the data provisioning component **118** determines that such certain characteristics of the data objects have, in fact, changed, the data provisioning component **118** generates and sends at least one notification of the changes to the view manager component **120** over the connection **134**, and the view manager component **120**, in turn, notifies the user client **106** of the changes over the network connection **136**, for example, via the web browser.

In accordance with an exemplary mode of operation of the data provisioning and runtime configuration system **101***a* within telecommunications platform **102**, each of the predetermined application program components **108**, **110** can register, with the data provisioning component **116**, one or more application entities that may require access to the data objects stored in the data repository of the decentralized revision control system **112**. For example, the predetermined application program components **108**, **110** can each register one or more application entities. The application entities registered by the application program components **108**, **110** are operative to communicate with the data provisioning component **116** over connections **122**, **124**, respectively, to request access to, additions to, updates to, and/or deletions of specific data objects stored in the data repository of the decentralized revision control system **112**. Further, the data provisioning component **116** is operative to implement such access to, additions to, updates to, and/or deletions of such data objects, as requested, on behalf of the respective application entities. The registered application entities are each further operative to communicate with the data provisioning component **116** to subscribe to specific data objects stored in the data repository of the decentralized revision control system **112**. For example, each registered application entity can subscribe to the specific data objects for the purpose of being notified whenever certain characteristics of such data objects change, as determined by the data provisioning component **116**. In the event the data provisioning component **116** determines that such certain characteristics of the data objects have, in fact, changed, the data provisioning component **116** can notify the respective application entities over the connections **122**, **124**, as appropriate.

In further accordance with the illustrative embodiment of FIG. **1**, the data provisioning and runtime configuration system **101***a* within telecommunications platform **102**, and the data provisioning and runtime configuration system **101***b* within telecommunications platform **104**, can be implemented as peer systems. In such an implementation of the data provisioning and runtime configuration systems **101***a*, **101***b*, the data provisioning components **116**, **118** included in the respective systems **101***a*, **101***b* are operative to commu-

nicate with one another over a messaging interface **128**. Moreover, the decentralized revision control systems **112**, **114** included in the respective systems **102**, **104** are operative to communicate with one another via a network connection **130**, in accordance with a predetermined version control communication protocol, such as HTTP, UUCP, FTP, SMTP, NNTP, or any other suitable communications protocol.

In accordance with an exemplary mode of operation of the data provisioning and runtime configuration systems **101***a*, **101***b* implemented as peer systems, in the event the data provisioning component **118** included in the data provisioning and runtime configuration system **101***b* determines that certain characteristics of data objects stored in the data repository of the decentralized revision control system **114** coupled thereto have changed, the data provisioning component **118** sends, over the messaging interface **128**, a notification of the changes to the data provisioning component **116**. Further, the data provisioning components **116**, **118** send commands, e.g., system calls, to the decentralized revision control systems **112**, **114**, respectively, thereby causing the decentralized revision control systems **112**, **114** to synchronize the changes to the data objects stored therein via the network connection **130**, in accordance with the predetermined version control communication protocol. For example, each of the data repositories of the respective decentralized revision control systems **112**, **114** may contain configuration data. Further, the data repository of one of the decentralized revision control systems **112**, **114** may contain at least a portion of the configuration data stored in the other one of the decentralized revision control systems **112**, **114**. Moreover, each of the decentralized revision control systems **112**, **114** can synchronize the changes to the configuration data in the data objects stored therein by fetching such changes to the data objects over the network connection **130**, using HTTP or any other suitable communications protocol. In addition, the data provisioning component **116** can notify the registered application entities of the changes to the data objects over the connections **122**, **124**, as appropriate. By implementing the data provisioning and runtime configuration systems **101***a*, **101***b* as peer systems, a high availability deployment can be achieved that assures that none of the data stored in the data repositories of the decentralized revision control systems **112**, **114** are lost in the event of a failover.

An exemplary method of operating a data provisioning and runtime configuration system within the architecture **100** is described below with reference to FIG. **2**, as well as FIG. **1**. As depicted in step **202** (see FIG. **2**), at least one request for access to, or manipulation of, data stored in the data repository of the decentralized revision control system **114** (see FIG. **1**) is received at the data provisioning component **118** (see FIG. **1**) within telecommunications platform **104** (see FIG. **1**). As depicted in step **204** (see FIG. **2**), one or more commands are sent, by the data provisioning component **118** (see FIG. **1**), to the decentralized revision control system **114** (see FIG. **1**) to implement the requested access to, or manipulation of, the data stored in the data repository of the decentralized revision control system **114** (see FIG. **1**). As depicted in step **206** (see FIG. **2**), in the event at least a portion of the data stored in the data repository of the decentralized revision control system **114** (see FIG. **1**) has changed due to the requested access to, or manipulation of, the data, a notification of the changes is sent, by the data provisioning component **118** (see FIG. **1**) over the messaging interface **128** (see FIG. **1**), to the data provisioning component **116** (see FIG. **1**) within telecommunications platform **102** (see FIG. **1**). As depicted in step **208** (see FIG. **2**), one or more commands are sent, by the data provisioning components **116**, **118** (see FIG. **1**), to the respective decentralized revision control systems **112**, **114** (see FIG. **1**) connected thereto, causing the decentralized revision control systems **112**, **114** (see FIG. **1**) to synchronize the changes to the data objects stored therein via the network connection **130** (see FIG. **1**).

It is noted that the operations depicted and/or described herein are purely exemplary, and imply no particular order. Further, the operations can be used in any sequence, when appropriate, and/or can be partially used. With the above illustrative embodiments in mind, it should be understood that such illustrative embodiments can employ various computer-implemented operations involving data transferred or stored in computer systems. Such operations are those requiring physical manipulation of physical quantities. Typically, though not necessarily, such quantities take the form of electrical, magnetic, and/or optical signals capable of being stored, transferred, combined, compared, and/or otherwise manipulated.

Further, any of the operations depicted and/or described herein that form part of the illustrative embodiments are useful machine operations. The illustrative embodiments also relate to a device or an apparatus for performing such operations. The apparatus can be specially constructed for the required purpose, or can be a general-purpose computer selectively activated or configured by a computer program stored in the computer. In particular, various general-purpose machines employing one or more processors coupled to one or more computer readable media can be used with computer programs written in accordance with the teachings disclosed herein, or it may be more convenient to construct a more specialized apparatus to perform the required operations.

The presently disclosed systems and methods can also be embodied as computer readable code on a computer readable medium. The computer readable medium is any data storage device that can store data, which can thereafter be read by a computer system. Examples of such computer readable media include hard drives, read-only memory (ROM), random-access memory (RAM), CD-ROMs, CD-Rs, CD-RWs, magnetic tapes, and/or any other suitable optical or non-optical data storage devices. The computer readable media can also be distributed over a network-coupled computer system, so that the computer readable code can be stored and/or executed in a distributed fashion.

The foregoing description has been directed to particular illustrative embodiments of this disclosure. It will be apparent, however, that other variations and modifications may be made to the described embodiments, with the attainment of some or all of their associated advantages. Moreover, the procedures, processes, and/or modules described herein may be implemented in hardware, software, embodied as a computer-readable medium having program instructions, firmware, or a combination thereof. For example, the functions described herein may be performed by a processor executing program instructions out of a memory or other storage device.

It will be appreciated by those skilled in the art that modifications to and variations of the above-described systems and methods may be made without departing from the inventive concepts disclosed herein. Accordingly, the disclosure should not be viewed as limited except as by the scope and spirit of the appended claims.

What is claimed is:

1. A system for provisioning data storage and runtime configuration in a telecommunications system or device, comprising:

a telecommunications platform including a decentralized revision control system, a data provisioning component communicably connected to the decentralized revision

control system, and a client-server interface communicably connected to the data provisioning component, the client-server interface being communicably connectable to a user device,

wherein the decentralized revision control system includes a data repository operative to store, as one or more data objects, at least configuration data including real-time configuration data for the telecommunications system or device,

wherein the data provisioning component is operative to receive, from the user device via the client-server interface, at least one subscription message for subscribing to at least one of the data objects in the data repository of the decentralized revision control system, and

wherein the data provisioning component is further operative without being dependent upon network access:

to determine whether at least one characteristic of the at least one subscribed data object in the data repository of the decentralized revision control system has changed;

having determined that at least one characteristic of the at least one subscribed data object has changed, to generate at least one notification of the at least one changed characteristic of the at least one subscribed data object; and

to send the at least one notification of the at least one changed characteristic of the at least one subscribed data object to the client-user interface for notifying a user at the user device.

2. The system of claim **1** wherein the decentralized revision control system has a source code management (SCM) interface, and the data provisioning component is further operative to send at least one command to the decentralized revision control system over the SCM interface.

3. The system of claim **1** further comprising:

one or more application program components, at least one of the application program components being operative to register, with the data provisioning component, at least one application entity that requires access to the data objects stored in the data repository of the decentralized revision control system.

4. The system of claim **1** wherein the telecommunications platform is implementable as one of an access system, a network management system, a media switching center, a cross-connect, and a session border controller.

5. A method of provisioning data storage and runtime configuration in a telecommunications system or device, comprising:

providing a telecommunications platform including a decentralized revision control system, a data provisioning component communicably connected to the decentralized revision control system, and a client-server interface communicably connected to the data provisioning component, the decentralized revision control system including a data repository, the client-server interface being communicably connectable to a user device;

storing at least configuration data including real-time configuration data for the telecommunications system or device as one or more data objects in the data repository of the decentralized revision control system;

receiving, at the data provisioning component from the user device via the client-server interface, at least one subscription message for subscribing to at least one of the data objects in the data repository of the decentralized revision control system;

in a determining step, determining, by the data provisioning component, whether at least one characteristic of the at least one subscribed data object in the data repository of the decentralized revision control system has changed;

having determined that at least one characteristic of the at least one subscribed data object has changed, generating, by the data provisioning component, at least one notification of the at least one changed characteristic of the at least one subscribed data object; and

sending, by the data provisioning component, the at least one notification of the at least one changed characteristic of the at least one subscribed data object to the client-user interface for notifying a user at the user device,

wherein the determining step, the generating of the at least one notification, and the sending of the at least one notification are performed without being dependent upon network access.

6. The method of claim **5** further comprising:

registering, by one or more application program components with the data provisioning component, at least one application entity that requires access to the data objects stored in the data repository of the decentralized revision control system.

7. The method of claim **5** wherein the providing of the telecommunications platform includes implementing the telecommunications platform as one of an access system, a network management system, a media switching center, a cross-connect, and a session border controller.

* * * * *