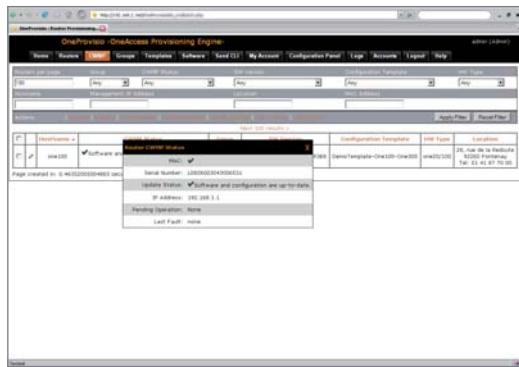


OneProvisio

Provisioning Server for Zero-Touch Deployment



ONEProvisio is a server automating Customer-Premises Equipment (CPE) configuration, software image distribution and update of system files (such as web pages). Zero-touch CPE installation is enabled by an autoconfiguration protocol such as HTTP or TR-069 (CWMP). ONEProvisio manages the server-side parameter creation for the autoconfiguration protocol. The system enables rapid CPE configuration creation from CLI templates. CPE are managed in groups where the network administrator can apply bulk changes for a whole group.

The zero-touch service activation reduces installation cost for telecom operators and organizations deploying large-scale networks. ONEProvisio also simplifies network maintenance by automating change tasks in hundreds of CPE in one operation. Updating CPEs with a new software image or populating a template change into many device configurations does not require significant effort and time any more. While operation costs are streamlined, ONEProvisio main benefit is also to reduce risks of errors associated with the use of self-designed tools or manual operations.

FLEXIBLE CPE CONFIGURATION

The CPE configuration is managed as a text file that is built on-demand. The text file is created from an XML-encoded template. The creation of template is made easy with a template design wizard.

Some PHP scripting may be included within the template. Such scripting enables unlimited flexibility to generate any kind of configurations. Template parameter controls can be also built-in to make sure that the generated configuration file is always valid.

TASK AUTOMATION

CPE are all member of a group. Groups can be organized in sub-groups. Then some actions can be done on a group such as planning a software upgrade or querying connection status.

When changes on templates, software, web files are applied, they are de-facto activated on CPE using these modified objects. The CPE will be updated at their next connection to OneProvisio. However, several CPE may be selected on OneProvisio web interface to trigger an immediate update.

SYSTEM ARCHITECTURE

OneProvisio is based on a modular architecture, where software components can be located on the same or different servers, communicating with each other via IP. The system runs on a proven 'LAMP' server (Linux, Apache, MySQL, PHP). The main components are:

- Web-Based Graphical User Interface (GUI): multi-user and multi-level administration interface, where the users can add/remove/change CPE provisioning data.
- CWMP engine (TR-069): interacts with the CPE to trigger file upload/download, to plan scheduled CPE update or access TR-69/98/104/106 objects.
- XML Application Program Interface (API): interface for another application managing CPE provisioning automatically. It enables OneProvisio to be controlled by another system. For example, an umbrella provisioning server can request OneProvisio to provision a new CPE and request another system to provision the backbone.
- Job scheduler: this module allows to fetch CLI actions directly on the CPE via telnet.
- File server: prepares for download configuration files/web files/software for requesting CPE.

SCALABILITY

In order to achieve high scalability, all actions are asynchronous: the network administrator(s) modify CPE information that is saved in the database. The architecture is open to split OneProvisio processing in server cluster.

The web user interface loads very fast because the user can easily filter the CPE to be viewed. Also the pages contain only quick information to load, while complex information are displayed on – demand via AJAX requests, thus avoiding to call unnecessarily bulky processing to display every page.

