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Preface

This document provides information about interoperability between PortaSwitch® and the third-party equipment. It aims to help PortaSwitch® owners enhance their networks and facilitate service provisioning.

Where to get the latest version of this guide

The hard copy of this guide is updated upon major releases only, and does not always contain the latest material on enhancements that occur inbetween minor releases. The online copy of this guide is always up to date, and integrates the latest changes to the product. You can access the latest copy of this guide at **www.portaone.com/support/documentation/**.

Conventions

This publication uses the following conventions:

Commands and keywords are given in **boldface**.

Terminal sessions, console screens, or system file names are displayed in fixed width font.



Exclamation mark draws your attention to important actions that must be taken for proper configuration.

NOTE: Notes contain additional information to supplement or accentuate important points in the text.



Timesaver means that you can save time by taking the action described here.



Tips provide information that might help you solve a problem.



Archivist explains how the feature worked in previous releases.



Gear points out that this feature must be enabled on the Configuration server.

Trademarks and Copyrights

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Integration with Bridgewater Service Controller

PortaBilling® is integrated with Bridgewater, a service controller for WiMAX networks.

WiMAX services with Bridgewater

PortaBilling supports the following billing models for WiMAX via Bridgewater:

- Preset bandwidth with unlimited data transfer amount, fixed recurrent fee.
- Preset data transfer quota, fixed recurrent fee.

In both cases, the user connects to the ASN gateway, which sends requests to and receives authorization from Bridgewater Service Controller. Bridgewater uses account information from its DB, which in turn, is pre-populated and kept current by PortaBilling.

Account Provisioning

PortaBilling can automatically provision WiMAX accounts into Bridgewater. It means that:

- An account created in PortaBilling will be automatically created in Bridgewater with a Profile¹ assigned that corresponds to the PortaBilling Product.
- When an account is suspended due to non-payment or reaches a credit limit in PortaBilling, the account is automatically blocked in Bridgewater.
- When an account is unsuspended or balance returns below a credit limit, the account is automatically unblocked.
- When an account is terminated in PortaBilling, it gets removed from Bridgewater.

Integration with AudioCodes Mobile Application

PortaBilling® can provision the AudioCodes mobile application for service providers and their resellers. Auto-provisioning makes the configuration of services quick and convenient for end users while saving time and expense for service providers.

¹ Profiles are to be predefined on Bridgewater side as part of the setup process.

This multifeatured AudioCodes mobile application provides a wide range of services: voice and video calls, SMS, IM and more. To provision the application, PortaBilling® is in constant interaction with the AudioCodes CMMS (Clients' Management Server) which is responsible for customized profiles, user level control, time-based licensing and other functions. CMMS, in turn, is in constant interaction with users' mobile phones and tablets, so when a user's information is changed on the PortaBilling® side (e.g. user's credentials), it is quickly updated on the user's side, too.



MVNOs

The AudioCodes mobile application registration and configuration process for the MVNO business model is detailed in the following example:

John Doe wants to subscribe to EasyCall's services. (1) He visits the service provider's website and makes a request for a new mobile phone and a list of services to be provided with that phone (e.g. call forwarding, voicemail, etc.). (2) A new account is created for John Doe in PortaBilling® that contains information such as account ID, password, IMEI (device ID), etc. (3) At the next stage, PortaBilling creates the account in the AudioCodes CMMS with all of the required parameters – the account's credentials, IMEI, etc. The phone with the installed AudioCodes mobile application is then sent to the user. John Doe receives his new phone and switches on the AudioCodes application. (4) It automatically connects to the CMMS, provides the IMEI (device ID) and requests the user's credentials. (5) The AudioCodes CMMS parses this information and provides those credentials. Thus, the mobile application is configured, John Doe has avoided having to manually set it up and the requested services can be used immediately.

NOTE: AudioCodes CMMS is compatible with Android and iOS only.

OTT service providers

The business model for downloading the AudioCodes mobile application from the App Store or from Google play is applicable to a wide circle of service providers. For this model, creation of a new account in PortaBilling® is initiated by registration of a new user in AudioCodes mobile application. The whole process is described in this following example:

The TelePlus service provider will provide voice calls, messaging and other custom services via their own SIP mobile application. TelePlus obtains the mobile application from AudioCodes and brands it as TelePlus.

(1) John Doe downloads the TelePlus application. The first time he runs it, the application requests his mobile number. (2) He inputs his number and the application sends it to the CMMS server. (3) The server generates a special security code and texts it to John Doe via SMS to confirm that the owner of that number indeed made the request. (4) John Doe enters this security code which is then passed to CMMS. (5) The server accepts the code and sends the request to PortaBilling® with the user's credentials. Then a new account is created in PortaBilling® with John Doe's mobile number used as the account ID. Starting from this moment, PortaBilling® charges John Doe for service usage.



The account information configuration and the updates for the AudioCodes mobile application occur immediately and automatically. Auto-provisioning decreases the workload on the service provider and ensures continuous and smooth service provision, leading to user satisfaction with service quality.

Integration with Cisco PDSN

PortaBilling[®] can be used by CDMA operators to provision, bill and monitor mobile broadband services controlled by Cisco PDSN (Packet Data Serving Node for CDMA networks). To do this, Cisco PDSN connects to PortaBilling[®] via RADIUS.

Integration and operation flow

The integration of PortaBilling® with Cisco PDSN is similar to its integration with NAS – the principles of integration are almost the same. Though PDSN is used only for CDMA networks, the main difference between services provided via PDSN and a "traditional" NAS is the user's mobility. Users may not be stationary and thus switching from one base station to another while the original Internet session is connected. PortaBilling® ensures that even if there are various individual subsessions, a single xDR is produced at the end.

Provisioning

To set Cisco PDSN for PortaBilling® you need to carry out settings on the configuration server and on the administrative web interface (tariffs, nodes, etc.)

Integration with CISCO SCE Service Control Engine

PortaBilling® is integrated with Cisco SCE, a network element specifically designed for carrier-grade deployments that require high-capacity stateful application and session-based classification and control of application-level IP traffic, per subscriber.

This solution facilitates content-based charging and allows the ISP to granularly track Internet usage, permitting varied pricing schemes for truly differentiated IP service offerings, while at the same time keeping costs low.

Consider a few examples of services that you could offer using this solution:

- Offer *high speed Internet* service to your business customers but disallow bandwidth-consuming peer-to-peer (P2P) applications.
- Provide residential customers with standard Internet speed, but offer enhanced latency-sensitive services such as online gaming, by assigning a high priority for identified users of this service.

PortaBilling® currently works with the Cisco SCE integrated with PDSN nodes that already allow CDMA operators to raise their mobile broadband services to new heights. In the future, this solution can be

enhanced to support various equipment bundled with Cisco SCEs, thereby benefitting ISPs that provide other Internet services.

Integration with Alcatel-Lucent Service Router

PortaBilling[®] is integrated with the Alcatel-Lucent Service Router (SR), used by service providers worldwide for providing broadband Internet services.

In this configuration, the Alcatel-Lucent SR is deployed as a DSL access point within a service provider's network. It communicates with PortaBilling® via the RADIUS protocol to authorize end users when they connect to the Internet. When an Internet session is established, the Alcatel-Lucent SR periodically sends interim (also called keep-alive) accounting requests with information about the current transferred data volume. When an end user's balance is not sufficient for using the service or their Internet quota is reached, PortaBilling® sends the Alcatel-Lucent SR a CoA (change of authorization) request. The Alcatel-Lucent SR then switches the session to a hotlined state – i.e. redirects the end user to a defined website.

PortaBilling® acts as an OCS (Online Charging System). It communicates with the Alcatel-Lucent SR via the RADIUS protocol for real-time session authorization and rating. PortaBilling® also provisions Alcatel-Lucent SR information about the bandwidth speed (for example, 1 Mbps or 10 Mbps) and Internet quota allocated to a particular customer. The bandwidth options and quota amounts are defined by the product configuration in PortaBilling®.

This integration extends the variety of equipment that PortaOne's clients can use for broadband Internet service provisioning. Service providers who have already chosen the Alcatel-Lucent SR and are looking for a flexible and reliable billing system, can explore the advantages of choosing PortaBilling[®].