ZyXEL

VoIP

《Gain a Competitive Advantage with ZyXEL's VoIP》

Auto Provisioning Service for Mass-Market VoIP Deployment

What Customers Need

1. Users Need Easy-to-Use Service & Plug-and-Play Installation

Driven by the need to minimize landline phone costs, end users scramble to subscribe to low-cost VoIP services. A simple way to install and use VoIP services is required to make this technology accepted by the masses. "Easy to use, Plug-and-Play" is the key for VoIP to go into the home market.

2. Service Providers Need to Save Their Service Deployment Cost

Besides increasing revenue, service providers are looking for ways of reducing capital and operation expenditure. How to reduce the deployment cost,minimizing the after-service cost is the key to a successful and profitable operator business.

Why ZyXEL

Competitive Advantage from ZyXEL's Auto Provisioning

1. Complete End-to-End Provisioning System

ZyXEL's Auto Provisioning Solution is specifically designed for ZyXEL's VoIP CPE devices. For different service providers with different deployment scale, ZyXEL offers complete End-to-End Auto Provisioning Solutions for ISPs to establish their provisioning system easily and with low entry cost.

2. Lower the cost of service deployment

ZyXEL's Auto Provisioning Solution provides service providers greater control over their subscribers as well as frees end users from the hassle of complicated CPE device configuration. Upon installation, ZyXEL's intelligent VoIP devices are able to configure themselves automatically and get ready to work without intervention. This reduces service providers' cost of service deployment.

3. Ease of Maintenance for Future Expansion

Service providers will be able to get more control, and can also easily update each of the CPE devices' settings as they expand their network infrastructure.

Background

Residential VoIP service is taking off

The rivalry between broadband service providers has changed from purely pursuing the growth of subscriber number to the delivery of value-added services. Service providers are finding ways to increase the revenue they receive from broadband services, as well as to create differentiated services to elevate the customer's satisfaction. On the other hand, due to a huge end-user demand for free Internet and low-cost landline phone calls, residential VoIP now is becoming a mainstream Telecom service. With the demands of VoIP-equipped CPE on the increase, it has become a standard requirement.

We are at a critical moment for the upcoming VoIP explosion

- VoIP Services to Residential Users

- Mass-market VoIP Deployment

- The Deployment of VoIP as a Mainstream Telecom Service

Facing Today's Challenge

Most subscribers of residential VoIP service today are early adaptors, who are familiar with computers and networks. With the introduction of the new technology, SIP (Session Initialization Protocol), VoIP configuration can be a daunting task even to technically savvy users. On top of that, as more features are integrated into CPE devices, it is very difficult for a beginner user to install the device and configure all the necessary VoIP and networking settings correctly in a short time.
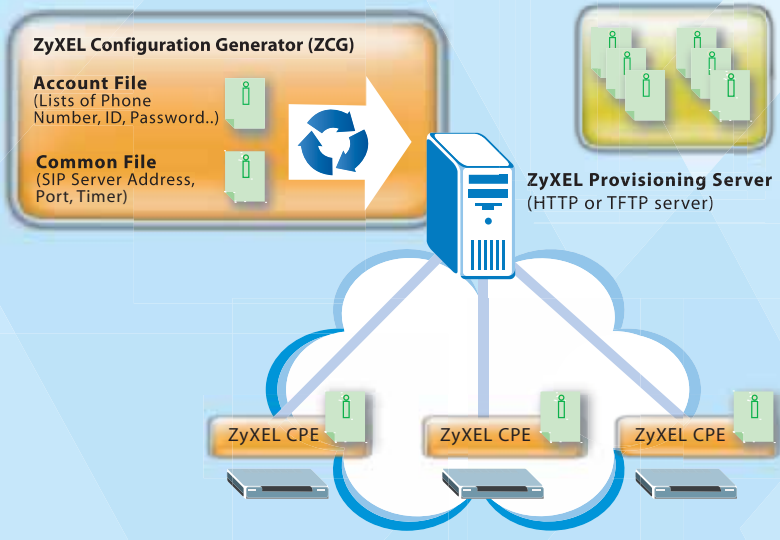
Service providers are faced with higher expenses for service deployment if there is no adequate deployment design and reasonable planning. In addition, huge after-service cost and maintenance will incur for service setup due to the complexity in VoIP technology.

- Complex VoIP Device Configuration

- High Deployment Cost

- High After-Service Cost

Scenario **1**: ISPs with Small-scale Deployment

For ISPs with small-scale deployment, they need a quick and easy way to simplify the work of configuring all the VoIP CPE devices. ZyXEL provides a provisioning utility, **ZyXEL Configuration Generator (ZCG)**, for these service providers to generate and encrypt a batch of the configuration files.

Structure

ZyXEL Configuration Generator (ZCG)

Account File
(Lists of Phone Number, ID, Password..)

Common File
(SIP Server Address, Port, Timer)

ZyXEL Provisioning Server
(HTTP or TFTP server)

ZyXEL CPE　　ZyXEL CPE　　ZyXEL CPE

What You Get From ZyXEL

1. **ZyXEL Configuration Generator (ZCG)**, an encryption tool which helps service providers to generate and encrypt a batch of unique configuration files for each CPE devices,
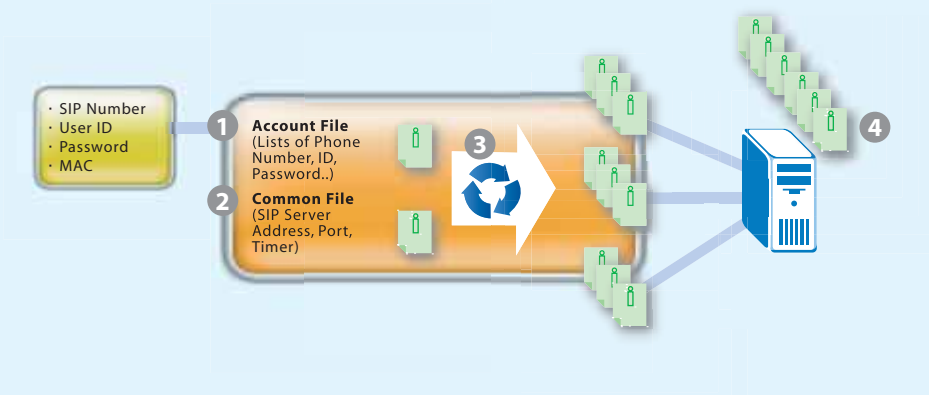2. **ZyXEL CPE's provisioning format**

What Requirements ISP Need

1. Storing the generated configuration files

A HTTP or TFTP server is required to store the configuration files.

2. To generate configuration files:

‹ Use the ZyXEL Configuration Generator (ZCG) software tool.

‹ Support 3DES encryption.

How to Set Up the System

1 ISPs can export user data from the CRM (Customer Relationship Management) database to get information (such as the SIP number, User, Password and MAC address). This information is contained in the Account File.)

2 The general setting for the same type of devices is contained in the "Common Files". (such as the codec=G.729, SIP server address, port,etc.)

3 Run ZyXEL Configuration Generator (ZCG) software tool to encrypt and generate the batch of configuration files.

4 After the configuration files are generated, store them on a HTTP or TFTP server. A CPE device would then download a configuration file from the server using an appropriate method.
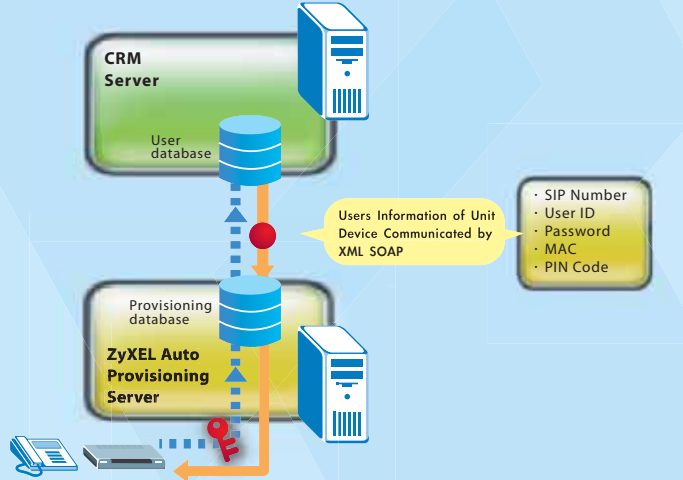
Scenario 2: ISPs with Larger-scale Deployment

For ISPs with large-scale deployment, ZyXEL provides the **Auto Provisioning Server** as a complete end-to-end solution that lowers the entry cost for service providers to set up their provisioning systems.

Benefits of ZyXEL Auto Provisioning Server

1. Efficient Management: The database-centric approach gives service providers a more systematic way of generating and managing different CPE profiles.
2. Flexible updated settings for individual end users: CPE devices can always download the most updated files from the provisioning server when there is parameter change at the central office (CO) side.
3. PIN-code authentication support: PIN-code based authentication provides better security control for auto provisioning services.
4. Web-based Management: Easy-to-use GUI for the service administrators
5. Full integration with ISP's existing CRM database: ZyXEL's provisioning server support standard XML format for ease of integration.

Structure

CRM Server

User database

Users Information of Unit Device Communicated by XML SOAP

· SIP Number
· User ID
· Password
· MAC
· PIN Code

Provisioning database

ZyXEL Auto Provisioning Server

What You Get from ZyXEL

1. Auto Provisioning Server software · ZyXEL CPE's provisioning format
2. PIN code activation mechanism
3. Standard XML SOAP sample code for Provisioning Server's database to interact with the CRM database.

What Requirement ISP Need

1. CRM system/ database

- ‹ To store the record of CPE device MAC addresses
- ‹ To generate unique PIN code (which is mapped to a CPE device MAC address)
- ‹ To store the following information
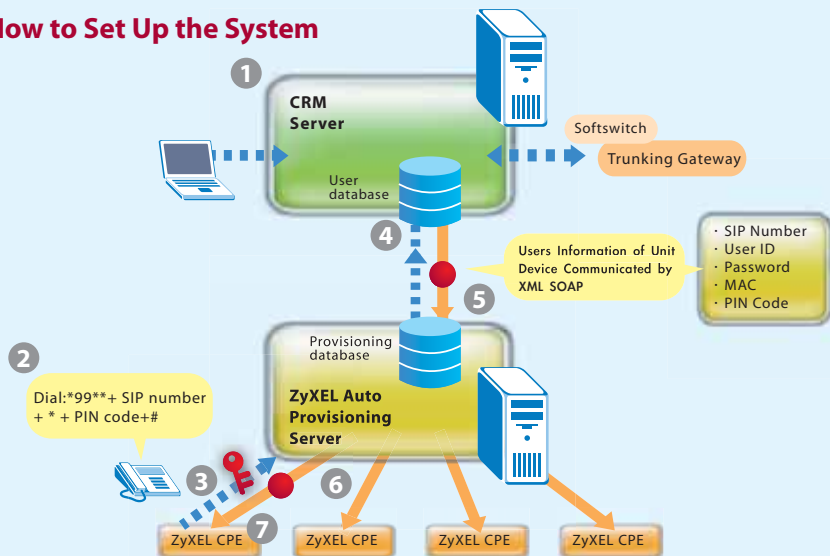 - (1) SIP Number (2) User ID (3) Password (4) PIN code (5) MAC Address

2. Provisioning server/ database

Service provider needs to spend effort on system integration to integrate provisioning database and their CRM system.

3. PIN-code card, (or information system) to provide the PIN code to the subscribers

4. Pre-configure provisioning server's address in CPE devices

How to Set Up the System

1 CRM Server

Softswitch

Trunking Gateway

User database

4

Users Information of Unit Device Communicated by XML SOAP

· SIP Number
· User ID
· Password
· MAC
· PIN Code

5

Provisioning database

2

Dial:*99**+ SIP number + * + PIN code+#

ZyXEL Auto Provisioning Server

3   **6**

7

ZyXEL CPE   ZyXEL CPE   ZyXEL CPE   ZyXEL CPE

❶ Register a CPE device and create a customer profile in the CRM database.

❷ Dial the string of numbers to activate the SIP account

❸ The CPE device tries to authenticate with the Provisioning Server, If the "VoIP Number""MAC Address" and "PIN code" match, then authentication is successful.

❹ For a new subscriber, the Provisioning Server will request the user information from the ISP's CRM database

❺ ISP's CRM server will send the user information to the Provisioning Server in XML format

❻ The Provisioning Server will combine the user information and the CPE device's setting information, then the unique provisioning file will be downloaded to the CPE device.

❼ After the CPE device has successfully downloaded the provisioning file, it will automatically re- configure its settings and automatically register to the ISP's SIP server. Subsequently, the end user is able to use the VoIP service.

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