



Zerotouch provisioning

Use Cases

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1. INTRODUCTION

Zerotouch provisioning is one of the main business drivers for implementation of solution for remote management. It significantly decreases installation cost for new customers and services. The aim of such provisioning is to automatically configure device in the network without need of end customer changing/reviewing any settings on the device or customer portal. Most common use cases are covered by this document along with sequence diagrams applicable for UMP implementation.

Most common use cases:

- Configuration of PPP credentials
- Configuration of VoIP credentials
- VLAN/PVC configuration to have separate connections for each service e.g. Internet/VoIP/IPTV
- IP Phones configuration with phone book, codecs and network settings
- Multi-site VPN configuration
- Femtocell activation
- Firmware upgrade

2. GENERAL IDEA

Once end-customer buys a service CRM available in the network is creating service configured for him. CRM is also pushing information to UMP in order to configure service on device when customer connects it at his/her premises.

In order to perform full zerotouch scenario UMP needs to have binding between CPE and a customer. This can be implemented in few possible ways. Below options are most common, binding can be done on any parameter available on device and/or core network side. The only requirement is that parameter needs to uniquely identify device within given network.

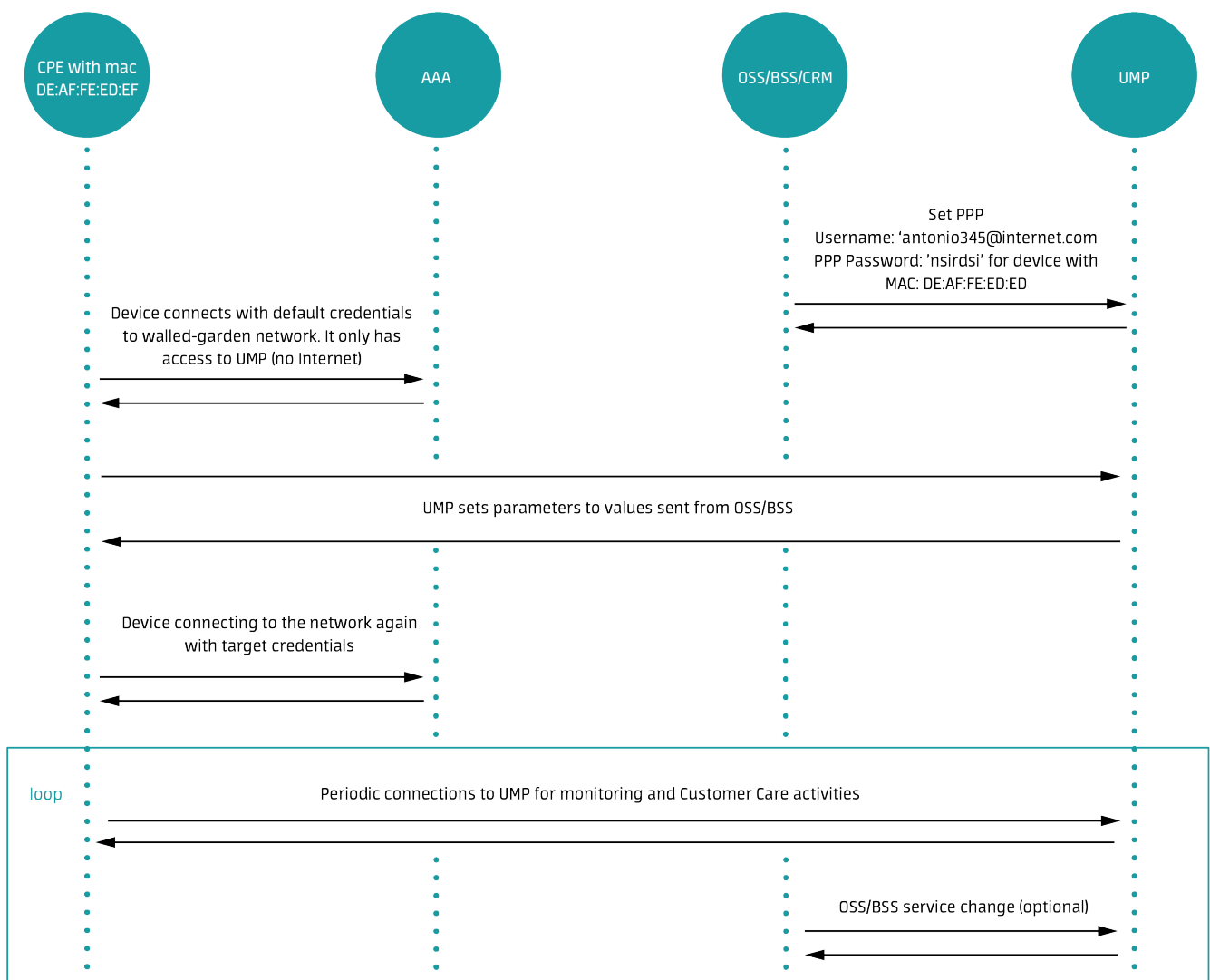
- Binding service configuration with parameter on CPE device like:
 - MAC address
 - Serial number
 - IP address (rarely)
 - ProvisioningCode – quite rare implementation which allows to identify core device port number based on DHCP/Radius options pushed to devices.
- Binding service configuration with parameter on core network side:
 - DHCP option 82 setting – in this case provisioning works per port on DSLAM/OLT, not based on device parameter
 - Client VLAN / Server VLAN – service configuration is bound to VLAN configuration on network side

During initial connection of the device system is determining all services which should be activated and their parameters and push them to device. After device is restored to Factory Defaults or parameters change (e.g. in case of connecting to different port) services are re-provisioned. More advanced workflows and cyclic configuration is also possible, but these scenarios are quite client specific.

3. SAMPLE USE CASES

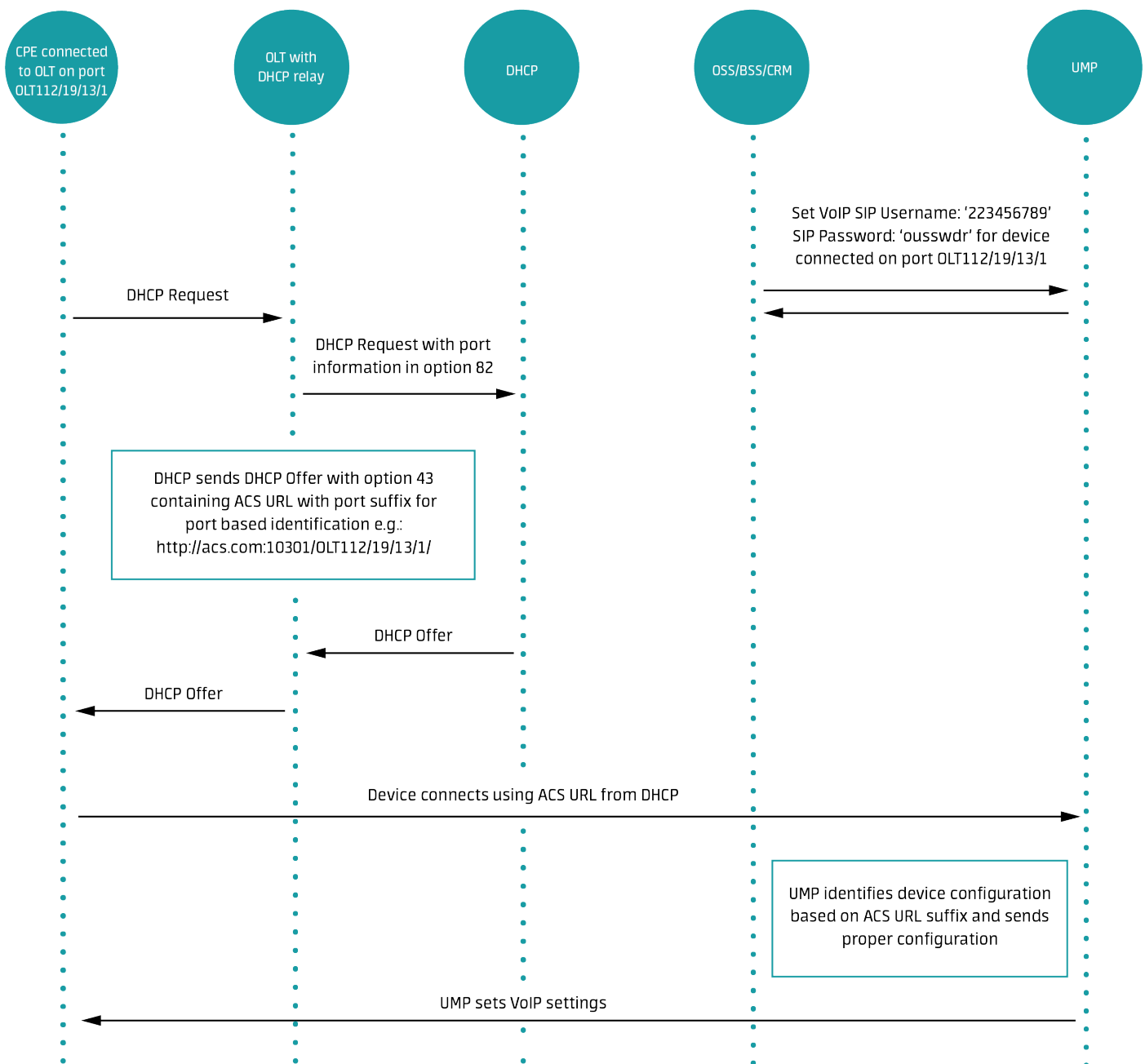
3.1 Provisioning PPP credentials using MAC address of device

In this scenario CRM system is aware of device MAC and uses it for link between customer and device. All service related data are bound to MAC address. Before device is even connected to the network CRM (or other external system) is pushing service information to UMP. As soon as device connects UMP is configuring proper parameters and sending them to device. Later device periodically connects for monitoring and Customer Care activities.



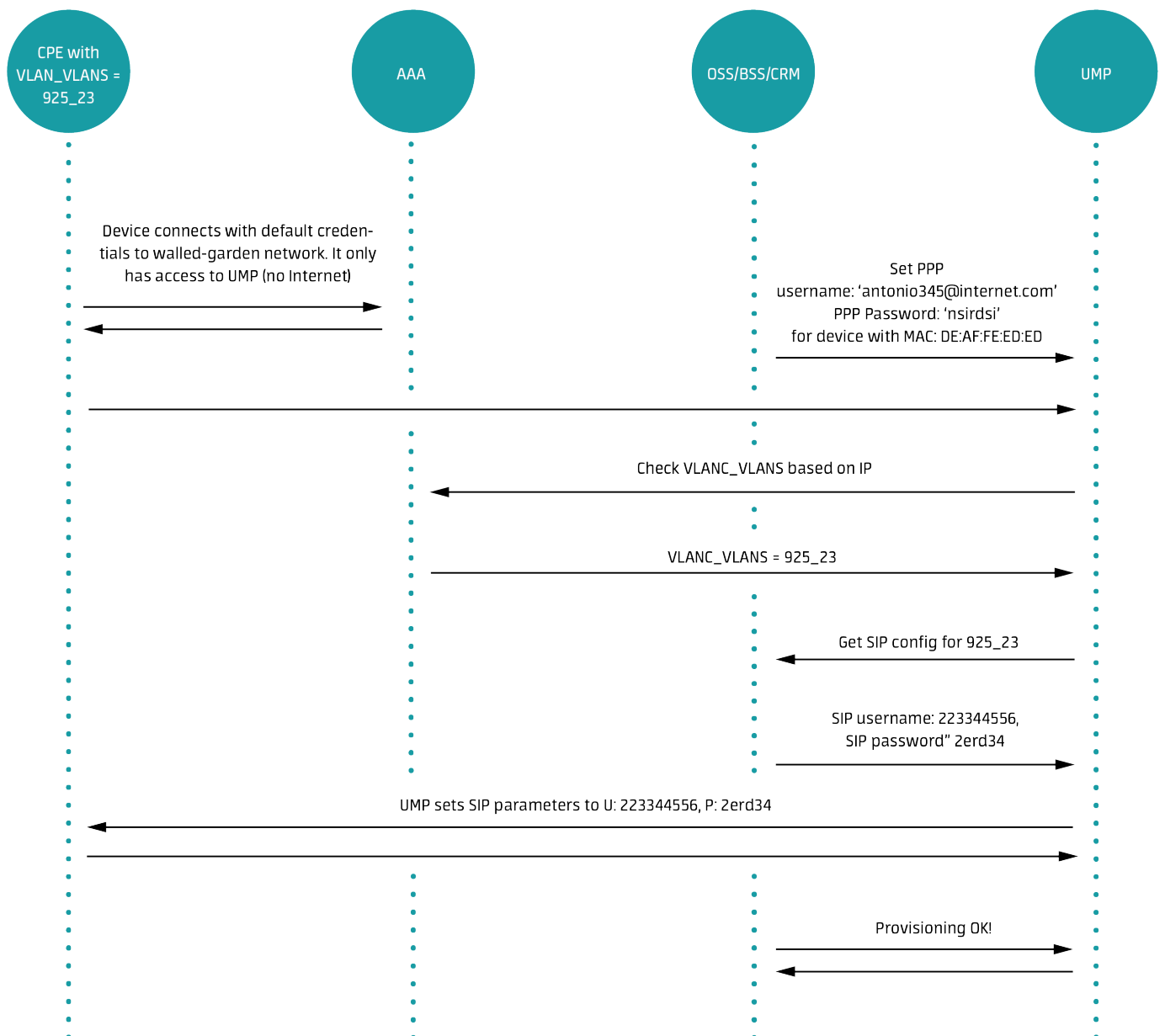
3.2 Provisioning SIP credentials using DHCP option 82

This approach is commonly used for FTTx installations where DHCP is used for providing IPs. DHCP relay on OLTs is adding information about port to which ONT is connected and it is then injected into DHCP Offer ACS URL. In this way configuration is automatically reapplied if even device of different type is connected to replace device on the same port.



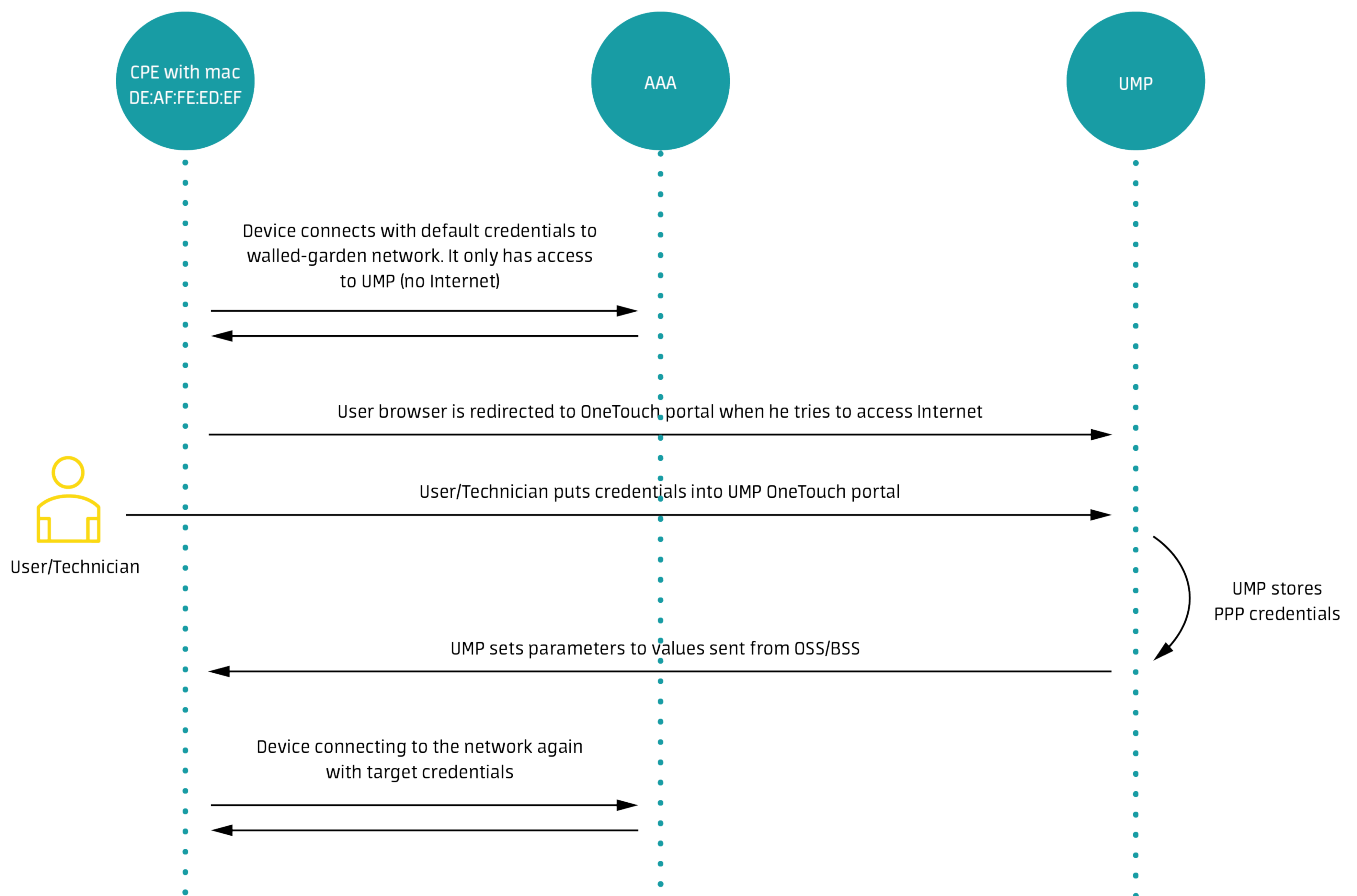
3.3 Provisioning SIP in Pull scenario with AAA integration

In this case devices are provisioned with Pull scenario – based on IP UMP is getting information about Customer from AAA. UMP is the active side here asking OSS system what service configuration should be pushed to devices. In this scenario devices are uniquely identified by core network connection VLANs stored in AAA along with IP information. It is scenario using per-port provisioning approach.



3.4 OneTouch approach

This scenario is a last resort when there is no possibility to match device with user (there is no database for matching device with customer). In such case end-user or technician needs to input parameters once in order to push proper information to device. From this point system will store MAC-service binding and it will be re-provisioned in case of device Factory Reset or misconfiguration.



4. SUMMARY

Above examples cover vast majority of implementation cases for zerotouch provisioning. However, sometimes implementation might be more complex when there is broader scope of integration e.g. UMP is also managing core network equipment like DSLAMs or OLTs (setting link profiles or QoS). For more information and details regarding custom integrations please contact AVSystem technical staff.



Contact

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