



Entitlement Server

Apple and Samsung device entitlement for CSPs

Elitnet's **Entitlement Server** for Apple and Samsung devices provides the CSP with a wide range of service entitlement capabilities. The product features multi-SIM support as well as Voice over LTE (VoLTE) and Voice over WiFi (VoWiFi) service entitlement.

Entitlement Server facilitates companion device enablement by managing the download of eSIMs to smartwatches and other similar devices which are paired with the user's primary mobile device.

The product also allows enabling VoLTE and VoWiFi subscriptions on supported Apple and Samsung mobile devices. It allows switching one of these services on only for subscribers who are authorized to use them. If the subscriber is authorized to use either VoLTE or VoWiFi, the service may be switched on whenever available.

Entitlement Server is fully compliant with both Apple's and Samsung's specifications related to companion device and VoLTE/VoWiFi entitlement.



Multi-SIM Service Entitlement

Entitlement Server facilitates the download of eSIMs to Apple Watches, Samsung Gear smartwatches, and other companion devices for authorized subscribers.



VoLTE Entitlement

The product manages VoLTE subscriptions for mobile network subscribers, allowing authenticated and authorized devices to use the service.



VoWiFi Entitlement

The product manages VoWiFi / Wi-Fi Calling subscriptions for mobile network subscribers, allowing authenticated and authorized devices to use the service.



Authentication and Authorization

Entitlement Server is integrated with the network's AAA component to ensure correct subscriber authentication and authorization for service usage.



Notification Handling

Entitlement Server may be used to request and send asynchronous notifications related to certain services from and to subscriber devices.

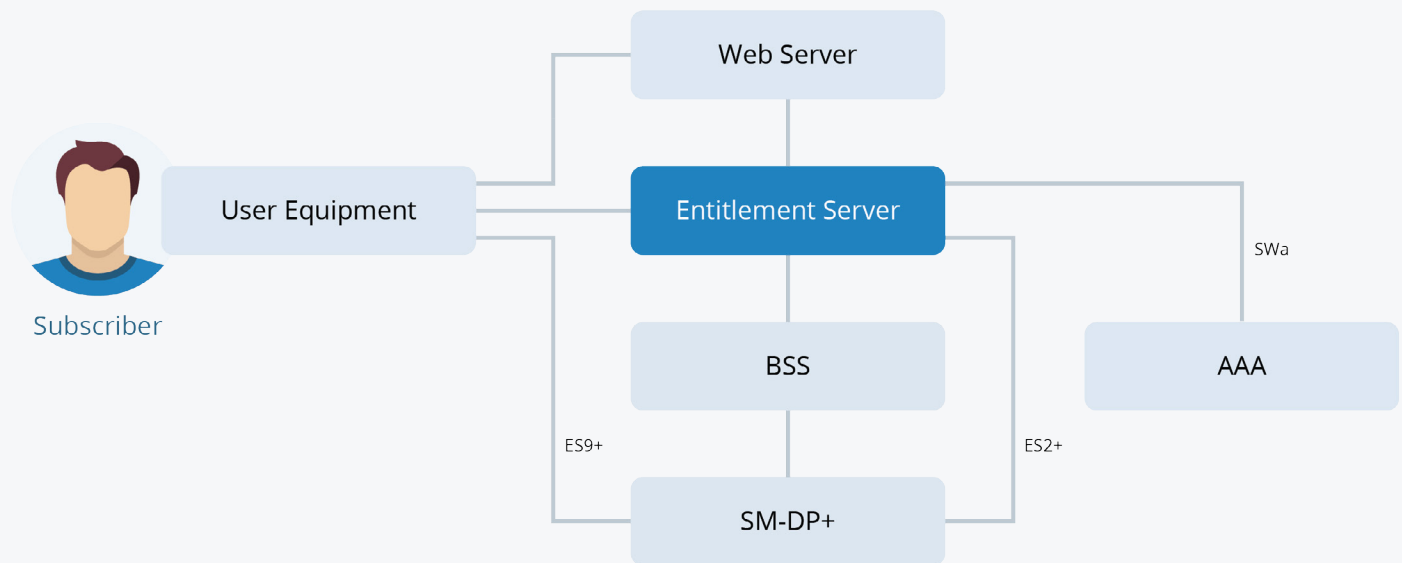


Compliance with Specifications

Entitlement Server ensures that the service entitlement process is fully compliant with technical specifications provided by both Apple and Samsung.

High Level Architecture

To ensure correct service entitlement for the CSP's subscribers, Entitlement Server is integrated with several components in the CSP's network.



Entitlement Server has a direct connection with the subscriber's User Equipment (i.e. their Samsung or Apple smartphone) to notify the phone whether the network allows the particular subscriber to use a service.

Entitlement Server communicates with a carrier bundle on the device provided by either Apple or Samsung. The carrier bundle and the list of allowed services may be different for each CSP depending on their agreement with the device manufacturer.

Other network components which are integrated with Entitlement Server include the Authentication, Authorization, and Accounting (AAA) server for subscriber authentication purposes, the network's Business Support Systems (BSS) / Provisioning to determine whether particular subscribers are allowed to use certain services, the SM-DP+ component for eSIM provisioning, and a Web Server for additional features and functionalities.

Key Features and Functionalities

Elitnet's Entitlement Server encompasses the following main features and functionalities:

VoLTE Entitlement. Entitlement Server allows VoLTE-capable Apple and Samsung devices to check whether the subscriber is allowed to use the VoLTE service. When a VoLTE entitlement request is received, Entitlement Server queries External Provisioning and notifies the device whether VoLTE may be switched on.

VoWiFi Entitlement. WiFi Calling / Voice over WiFi entitlement uses the same principles as VoLTE entitlement. When a VoWiFi entitlement request is received by ES from a device, ES queries External Provisioning whether that subscriber is allowed to use the service.

Multi-SIM Entitlement. Entitlement Server authenticates devices, checks whether they are allowed to

use the service, and facilitates the download of eSIMs to Apple Watches, Samsung Gear smartwatches, and other companion devices.

Compliance with Specifications. Entitlement Server is currently conformant with Apple (Entitlements Protocol Specification 1.3.4, VoLTE Entitlement 1.3, Wi-Fi Calling 1.1 rev4) and Samsung/Android (Companion Device Subscription Management 1.13, EAP-AKA RFC 4187) specifications.

Device Authentication. Authentication is typically carried out via the AAA server which provides standard-based access for the Entitlement Server via the SWa interface.

Websheet Authentication. For Apple devices, Entitlement Server uses the websheet authentication enhancement with TrustFlag to authenticate devices and avoid double authentication.

OpenID Authentication. Entitlement Server allows Samsung/Android devices without SIM to use the OpenID authentication method. In this case, the device has to provide a username and password instead of the SIM card.

Two-step Authentication via SMS. An optional connection with SMSC may be established for sending confirmation codes used for two-step authentication via SMS.

Carrier Bundle Integration. Entitlement Server communicates with the carrier bundle on the subscriber's phone provided by either Apple or Samsung to the


carrier. Carrier bundle allows applications to work via the Entitlement Server.


SM-DP+ Integration. Entitlement Server is integrated with the SM-DP+ component for eSIM support. Supported and authorized devices can download eSIMs from the provided SM-DP+ endpoint.


Notification Handling. Entitlement Server can be used to request and send notifications to devices. For example, it may be used to notify a device to make the next request only when a notification is received instead of sending requests constantly.


To be able to send asynchronous notifications, Entitlement Server is integrated with Apple Push Notification service (APNs) and Samsung Push Service servers, necessary for Apple and Samsung devices respectively.



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