AVSYSTEM

CSP

User Services Platform TR-369

Create new services for managed WiFi, mesh networks, and smart home

Introduction

Everyday there are more and more devices being connected to the Internet. These devices range from simple small sensors to complicated and powerful gateways. Although they may vary in size and complexity, they have one thing in common: they need to be managed. Historically, there were many approaches to device management: from SNMP (Simple Network Management Protocol), which represented device data in a custom format, to TR-069, which introduced a standardized device data model and proved to be a breakthrough solution for device management in the telco industry.
As useful as these standards proved to be, at some point they will not stand up to the test of mass smart deployments and the constant proliferation of devices and become obsolete. This is why the Broadband Forum introduced the User Services Platform (USP, also known as TR-369) – a modern standard for device management that takes into account the future needs of the telco industry.

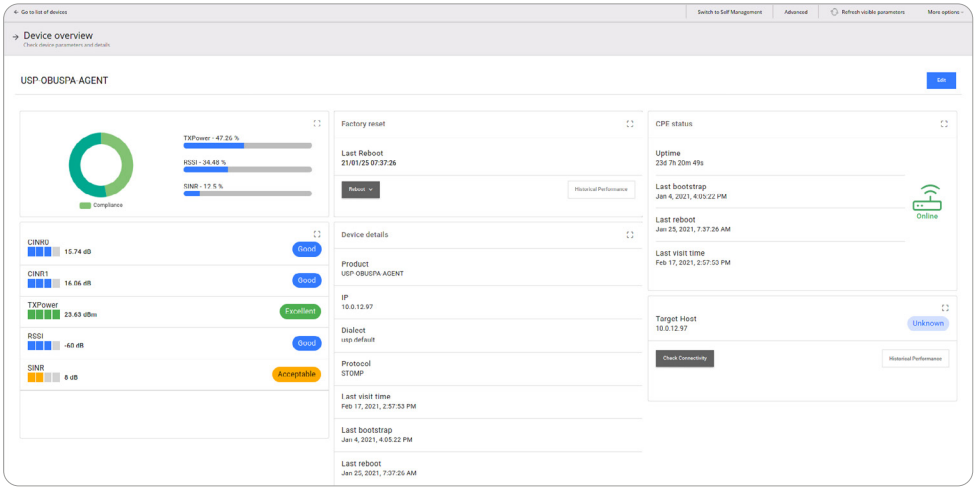
USP

User Services Platform is a device management standard created by the Broadband Forum as a successor to its highly influential TR-069 standard. It is aimed at developers, vendors, and providers who want to enhance their offer by addressing recent trends, such as managed WiFi, mesh networks, or smart home.

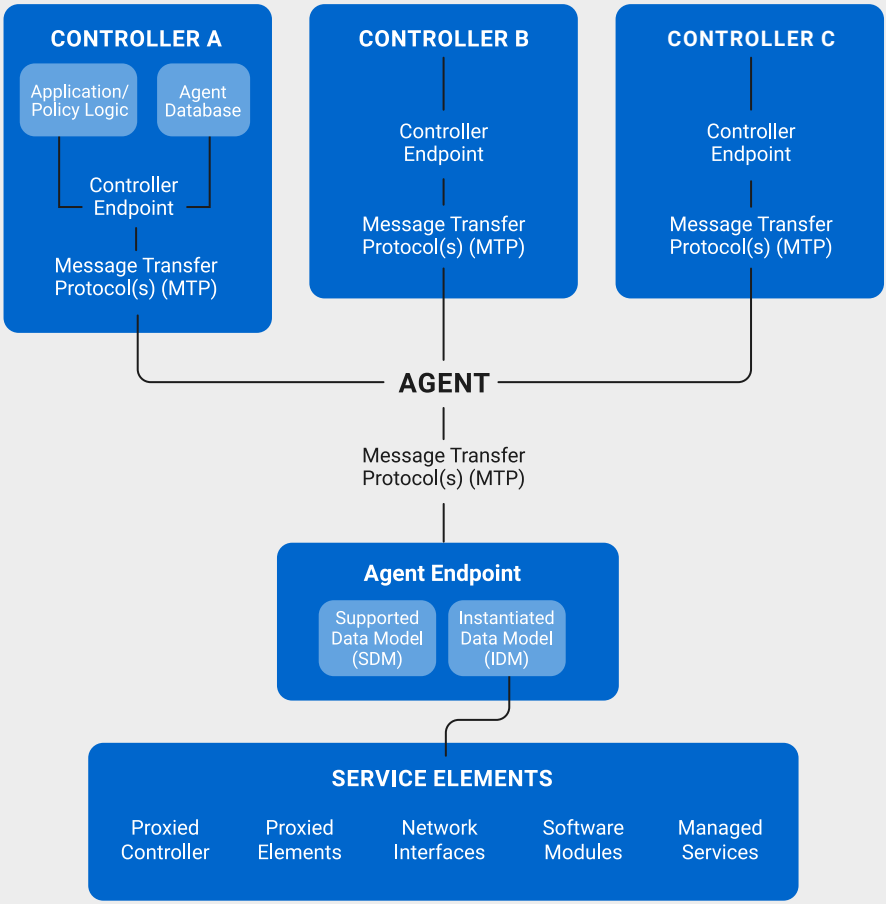
The crucial benefits that distinguish the USP protocol from its predecessor are distributed architecture and real-time access to data.

The distributed nature of the protocol means that a single agent (a device) can have multiple controllers subscribed to it. Thus, several providers can manage a single device simultaneously while having different access settings (e.g. one can manage WiFi services, while the other manages VoIP). What is more, the USP protocol supports open sessions, meaning that once a session between the agent and its controller is established, it won't be broken immediately after a designated task is performed, but it will stay alive. This provides real-time access to data and allows for more efficient telemetry.

Clearly, these features also require extensive security and privacy settings, which are realized through dedicated security and authorization mechanisms (such as encrypted communication via TLS/DTLS, strict access control rules, and regular firmware upgrades).



USP architecture



Agent
An agent is a representation of a device – it contains service elements representing device data model and exposes device data using the endpoint that communicates using message transport protocols with one or more controllers.

Controller
Controllers are a representation of a management platform used by the CSP. USP introduces the ability for several controllers to communicate using their endpoints with one agent.

This opens the door for many up-and-coming trends that we observe in telecoms, such as:

Managed WiFi services

Thanks to standardization and multicontroller architecture, USP makes it possible to create systems for external WiFi provisioning, monitoring, and management.

Smart homes and mesh networks

With the increasing number of devices in our homes, USP facilitates the creation of wireless mesh networks and connected environments.

Proactive maintenance

USP allows for network usage and activity monitoring in real-time, but also historical data collection for AI analysis to proactively identify network issues or optimize WiFi.

Customer self-care

Multicontroller architecture means that the customers can manage their devices, thus reducing the customer care calls and improving customer satisfaction.

Key features of the USP

- **Flexible deployment capabilities** for traditional, mobile, and constrained devices that fulfill the needs of smart home, smart buildings, and other smart energy applications.
- **Well standardized and modularized device data model** that builds on over 15 years of TR-069 market experience.
- **End-to-end security** guaranteed by encrypted communication via TLS/DTLS, regular firmware upgrades, and strict access control rules.
- **Always-on efficient binary data transfer** thanks to lightweight protocols such as CoAP, STOMP, MQTT, or WebSocket which can run over TCP/UDP.
- **Backwards-compatibility** thanks to Device:2 data model, which enables seamless coexistence between TR-069 and USP in one environment.
- Devices that support IoT protocols can make use of the USP's IoT device proxy, which lets the user **connect to legacy devices and various different architectures**.

Committed to assisting its telco clients in all their deployments, regardless of their preferred technology, AVSystem's platforms naturally support the USP protocol as well. They have been tested against Broadband Forum's USP Agent (OB-USP-Agent) reference implementation (for both STOMP and MQTT). This ensures that both the agent and the platform will be ready for deployment just as soon as you are – at whatever scale you choose!

Because USP evolved from TR-069 and is rooted in the same data model (TR-181), it is easy to migrate to the new protocol thanks to ensured backwards compatibility. However, it is equally easy to manage both protocols in a shared environment, if you don't want to invest all the way. With over a decade of experience in managing TR-069-based devices, AVSystem has already successfully rolled-out the features offered by USP in TR-069, ensuring benefits such as extensive device grouping, advanced monitoring, or WiFi optimization in an easy-to-navigate GUI. This way, our customers can be sure that whatever protocols are used, their devices will work seamlessly within one platform environment.

Trusted us:

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Unified Management Platform

The Unified Management Platform (UMP) is a system that combines a TR-069 ACS and a TR-369 (USP) controller. It can be used both on-premises and on the cloud. UMP is a versatile and scalable solution that can manage, monitor, and provision Customer Premises Equipment from any supplier and support all access technologies.

On-premises ACS

- Solution delivered on customized network & hardware architecture, designed per customer requirements;
- Fulfilling diverse needs for data governance, security, deployment strategy, software integration, and network automation.

Cloud ACS

- Flexible SaaS to accelerate your growth, ready to use from day 1;
- No need for any hardware investment, scalable payment plans (pay as you grow);
- Site-to-site VPN;
- Free regular system upgrades with the latest roadmap features.

AVSystem

Broadband services management and assurance on truly open standards.

AVSystem was founded in 2006 with a focus on providing automation solutions for connected device ecosystems. Although the company started by serving the telecommunications industry, it has since expanded its services to various sectors in over 60 countries. Catering local internet service providers as well as multinational telco operators and enterprises, we develop top-notch solutions dedicated to telecommunications, WiFi VAS, and the rapidly growing Internet of Things. Our goal is to create flexible and dynamic technology based on open standards accessible to everyone. We not only follow the newest trends but also co-create them with other IT industry pioneers by actively participating in organizations such as the Broadband Forum.

Get in touch!
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Learn more about UMP