



USP (TR-369)

Create new IoT and Smart Home services

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 the devices 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 standardized device data model and proved to be a great solution for device management in the telco industry. Then, in the advent of mass smart devices deployments, a standard that could handle appliances more and more commonly found in our homes, has risen into great importance.

This is why **User Services Platform (USP/TR-369)**—a new, modern unified standard for device management—has been demonstrated for the first time at Broadband World Forum 2018.

AVSystem, as an expert in device management, decided to introduce full support for the USP protocol in its Unified Management Platform (UMP).

USP

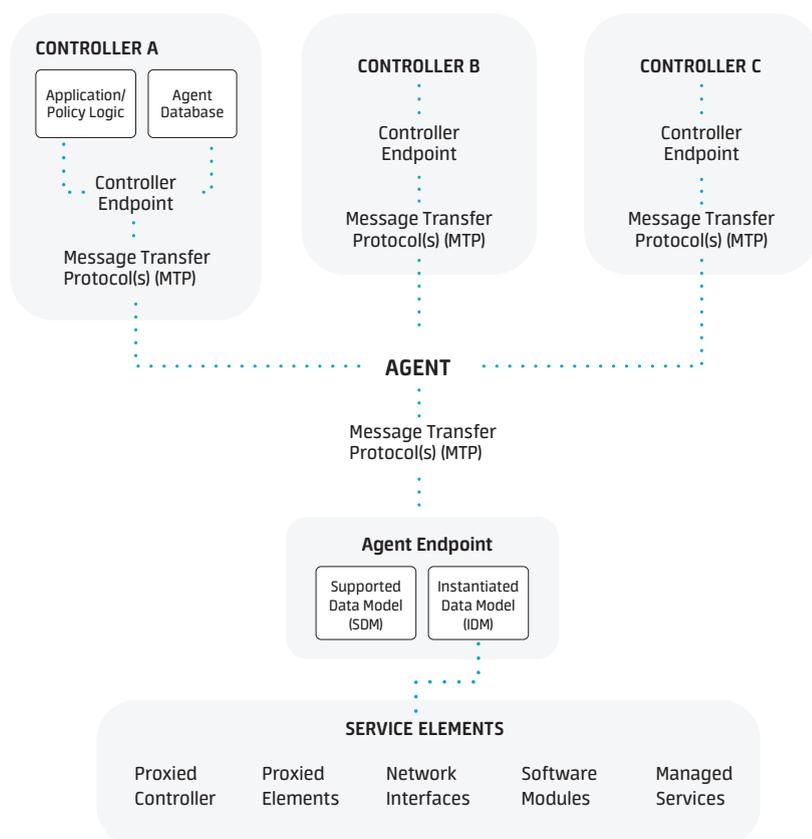
User Services Platform is a device management standard created by Broadband Forum. It is targeted towards developers, application providers and network service providers that want to deploy devices particularly in areas such as smart home, smart building and other smart energy applications.

The standard is a natural evolution of the TR-069 device management protocol and makes use of Device:2 data model (TR-181) which makes it backwards-compatible with TR-069. The coexistence between these two standards is further enhanced by USP's IoT device proxy which enables the user to maintain connection with legacy devices or different architectures.

The key features of USP include:

- Standardized and well-modularized data model allowing efficient telemetry which gives the operators the ability to increase their quality of experience and keep their customers satisfied
- Support for multiple Management Platform from various CSPs managing one device
- End-to-end security guaranteed by encrypted communication channel via TLS/DTLS, regular firmware upgrades and strict access control rules
- Network traffic efficiency with bidirectional communication between devices and Management Platform using binary data encoding and lightweight protocols
- Devices supporting IoT protocols can make use of USP's IoT device proxy which lets the user connect to legacy devices and various different architectures

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.

USP technical advantage

USP supports many use cases such as mass telemetry, IoT devices on-boarding and more, as it allows:

- The ability to have both the application and network service provider manage, troubleshoot, and control different aspects of the services they are responsible for, and enabling provider partnerships.
- Allowing the users to interact with their devices and services using customer portals or control points on their own smart devices.
- Simple migration from the CPE WAN Management Protocol (CWMP)—commonly known as “TR-069”—through the use of the same data model and data modeling tools.
- Devices supporting IoT protocols can make use of USP’s IoT device proxy which lets the user connect to legacy devices and various different architectures.
- Efficient data transfer thanks to binary encoding of either CoAP, STOMP, MQTT or WebSocket which can run over TCP/UDP.

USP (TR-369) vs CWMP (TR-069)

USP, first presented in 2018, provides a few advancements over the good old CWMP, including:

- Standardized and well-modularized device data model
- More compact communication using binary data encoding and new lightweight protocols
- Always-on, bidirectional communication
- Multiple management server support
- Device proxy mechanism allowing for interoperability with legacy devices

Even though USP is intended to be faster, more secure and more lightweight than TR-069, it is not meant to be a replacement for its predecessor. It offers an easy migration path for anyone who wants to switch from the old standard to the new one. To ease the process, AVSystem UMP allows easy management of both USP and CWMP devices in one platform. What's more, it allows to simulate USP features on older CWMP devices.

UMP

Unified Management Platform (UMP) is a highly scalable and flexible multi-protocol system for provisioning, management and monitoring of various types of devices. As an industry-proven device management platform UMP offers many powerful mechanisms that allow efficient management via various protocols including USP. Some of the platform's features are:

- Automated management of a single device as well as a group of devices
- Flexible modeling of customer business processes and provisioning workflows
- Customer Care with configurable Graphical User Interface
- Quality of Experience with diagnostics and monitoring of device or groups
- Comprehensive reporting
- Device auto-discovery
- Scalable architecture
- Easy integration with OSS/BSS systems
- Multi-tenancy

Your next step

If you want to learn more about USP and how it is supported in our Unified Management Platform (UMP) contact us at sales@avsystem.com.

About AVSystem

No IoT deployment is successful without proper device management—this is what AVSystem stands for.

As a 12-year-old company, AVSystem is an expert in its field. We help companies around the world deliver better quality of service thanks to our top-class device management solutions. We also focus on WiFi VAS & indoor location as well as other systems for SDN and NFV. Apart from creating software, we actively participate in the standardization process of the LwM2M standard to enable secure device management and service orchestration in the IoT ecosystem. 100+ large companies worldwide prove the superiority of AVSystem's technology.