AVSYSTEM

M2M Connectivity Management

Introduction

We are observing a rapid increase in the amount of IoT devices on the market and, as a result, a much larger demand for connectivity. Most of these devices require periodic or even permanent access to external resources, such as internet or intranet.

To provide connectivity in mobile networks, the vast majority of service providers are going to rediscover and rely on existing and modernized LTE networks. New technologies such as LTE-M and NB-IoT, that are already being introduced and accompanied by private APN configurations, seem to form the most common approach to enabling device connectivity on the market today.

With the above resulting in an increase of the number of SIM cards delivered to service providers' customers, the biggest challenge is the introduction of a smooth deployment and maintenance scenario. The customers will want know how they are supposed to manage their SIM cards, locate them and make sure they are always operational.

AVSystem M2M Connectivity Management, based on the Coiote IoT Data Orchestration, is the answer to this challenge.
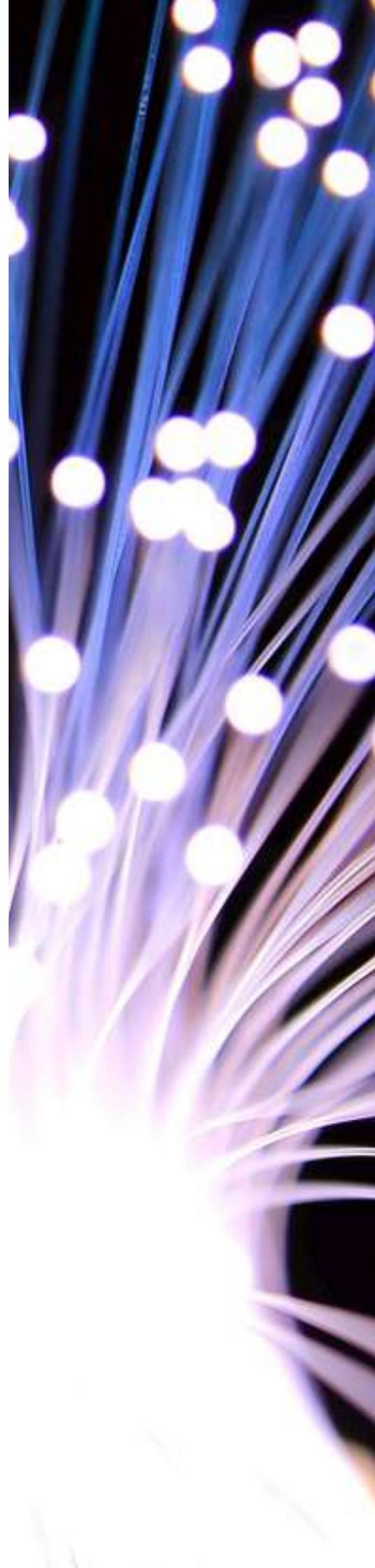
Key Compontents

SIM Inventory

The most important component of the solution is the SIM Card management interface for APN Customers. The M2M Connectivity Management solution gathers and aggregates all information from the operator's legacy systems in one place and presents it in a modern view for the customer in a web interface. A secured structure allows to safely fetch the data from several systems such as: PCRF, location services, billing and support systems which , until now, were restricted only for the service provider's use. Table and map views enable locating a particular SIM card or a group of cards, using any property of the card. SIM cards are grouped by SLA config, company, region or by any specific purpose. The solution supports multiple APNs for a single customer as well as detailed APNs management.

Advanced SIM Lifecycle Management

The customer is able to manage the SIM Cards' business statuses. Entering new cards, moving a card to a different APN, restricting IMEI by entering IMEI blacklist, blocking cards and finally, deprovisioning them. All of the customer's actions have immediate effects in the operator's network systems. The M2M Connectivity Management solution also includes a support portal – the customer may directly issue a support request using the same interface. Any answers in legacy systems are displayed in the system. The number of actions available for the customer is limited only by security precautions and business requirements of the service provider.

SLA Management

The AVSystem M2M Connectivity Management provides one place for SLA measurement for single cards as well as groups of cards. The SLA rules are configurable for each customer. Multiple methods – direct access in APNs and PDP status – are supported for status classification. SLA results are displayed for every SIM card in the interface in real time. Breakdown per APN, customer and SLA groups freely defined is supported as well. Detailed and aggregated reports for SLA in CSV format also complement the feature.

SIM Cards Location, Mapping and Geofencing

The system provides real-time location tracking and visualization using GMLC, PCRF or GPS in the device. Manual location can also be entered. The solution includes advanced SIM cards geofencing with configurable reactions (eg. notify, block, log, execute action on device). Mapping the SIM cards' location in any configurable interval and method is also available. There is also the possibility of exporting data for further investigation. The solution displays current SLA levels for every card as well as the indication about whether or not the SLA is fulfilled (or other statuses as required) on a live map.

Integration with Device Management

The solution also includes integration with a device management protocol hub (device management protocols such as CWMP or SNMP). Additionally, automated correlation of devices with SIM cards by IMEI, IMSI is also supported out of the box. The solution also supports device management via text and binary SMS as part of the user interface.

Web shop for new services

The solution features an additional module dedicated for selling new products. The customer is able to purchase new plans as well as additional data for a particular SIM card or Account. What is more, precise location can be sold as well, which is useful especially for moving assets. The charging method can be based on request or by providing access.

Reporting

All of the data gathered, produced, and aggregated within the AVSystem M2M Connectivity Management can be exported into a report. All data is available in CSV form and SLA summary reports are available in XLS form for the customer's convenience. In case Big Data systems are in place, there is the possibility of exporting raw samples.

Key Technical Features

- Custom flows for SIM Card management
- Easy addition of new interfaces - compatibility with multiple standards (REST, JSON, XML, JMS and others)
- Optional module for direct APN access to provide direct communication with devices (ICMP, SNMP, CWMP) - with IPv4 overlapping capability
- Multitenancy
- Internet and/or VPN access
- REST API for customer reflecting GUI interface

Deployment Highlights

Scalability
The solution is designed to support millions of SIM cards.

Reliability
Designed and produced by AVSystem – years of experience in the telecommunications field are inbuilt into the solution.

Security
In-built security ensures that selected customer's data is fully encrypted.

Flexibility
The solution can include various additional capabilities from Coiote IoT Data Orchestration.

Summary

AVSystem M2M Connectivity Management helps service providers provide better quality of services to their corporate customers. Thanks to new options for APN management, managing SIM cards and ensuring that all SLA agreements are met is an effortless process. As a result, this also means less amount of problems that need to be solved by the service provider's customer care team.

Apart from the above, new revenue streams are created thanks to providing additional purchase options.

What is most important is that all of the above can be achieved with scalability, security and flexibility in mind. Simply, a reliable and tailor-made solution by AVSystem.

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.

Contact us at **sales@avsystem.com** to find out more.