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2019 IOT DEVICE MANAGEMENT
SCORECARD

July 2019

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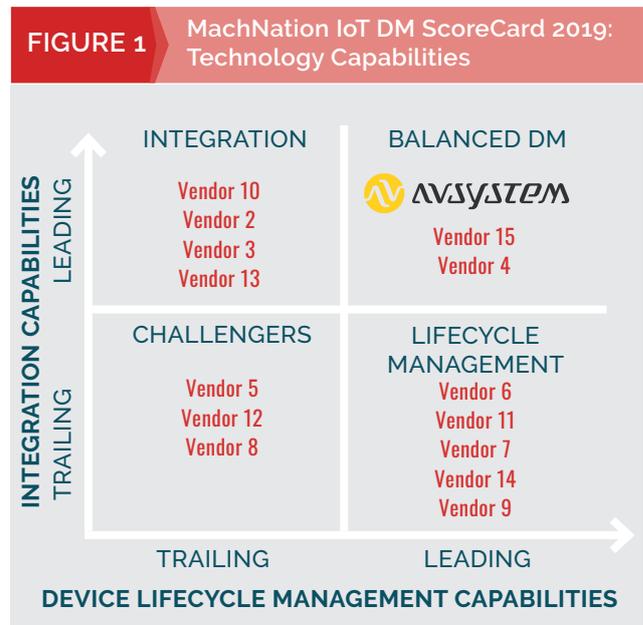
Executive Summary

The IoT device management (DM) space is one of the most important and complex technology areas of the Internet of Things (IoT). According to MachNation forecasts, worldwide IoT application enablement and device management revenue was USD 3.3 billion in 2018 and will grow to USD 64.6 billion by 2026 at a compound annual growth rate (CAGR) of 45%. Enterprises realize that support for IoT devices in a heterogeneous environment enables them to launch new services, create revenue opportunities, and minimize solution support costs.

IoT Device Management

An IoT device management platform is an offering that provides device lifecycle management functionality associated with the deployment and management of IoT assets. Typical IoT assets include IoT gateways, retrofitted and new industrial equipment, and Linux-based devices like Arduinos. Typical DM functionality includes asset provisioning, firmware upgrades, security patching, alerting, and reporting on specific metrics associated with IoT assets.

MachNation rated the IoT DM vendors across a set of requirements spanning four distinct categories. The four categories of requirements consist of 18 sub-requirements that are the underlying bases of MachNation's evaluation.



The four categories are:

- Lifecycle Management
- Architecture and Security
- Integration
- Business and Strategy

Based on MachNation's in-depth analysis of 15 IoT device management vendors, MachNation rates AVSystem as a leading IoT device management vendor.

Below, we describe some of AVSystem's unique strengths and differentiators cited in MachNation's ScoreCard.



AVSystem Overview

AVSystem, based in Krakow, Poland and founded in 2006, offers a variety of IoT services including Coiote IoT Device Management and Coiote IoT Data Orchestration for device lifecycle management and application enablement, respectively. AVSystem also offers LibCWMP, an embedded TR-069 library for device manufacturers and Anjay, a free and open-source Open Mobile Alliance Lightweight M2M (OMA LWM2M) library. Initially, AVSystem focused on device management for the telecommunications industry with a particular emphasis on consumer gateways, but now AVSystem has expanded its offering to more industry sectors. AVSystem is also an evangelist of the LWM2M protocol, offering full support for the LWM2M version 1.0.2 and 1.1 specifications, as well as serving on the OMA advisory board for the LWM2M standard.

AVSystem has a particularly strong offering in the growing IoT device management ecosystem. MachNation believes this strength comes from its fully productized interfaces to the platform, capabilities to enable at-scale bulk device management suitable to large service providers, a series of productized tests available to validate LWM2M devices, and a highly flexible hierarchical model for assigning devices to groups. In particular, MachNation cited AVSystem's unique strengths in the following areas:

AVSystem provides a variety of fully productized interfaces to the platform suited for both service providers and enterprise customers. With distinct administrator, operator, and user interfaces, AVSystem provides a comprehensive suite of methods to interact with the Coiote platform. Administrator interfaces are focused on advanced platform management and bulk configuration of devices, operator interfaces are designed for help-desk or other support teams to quickly access needed monitoring views and device actions, and end-user or enterprise-user interfaces provide customizable dashboards, monitoring plots, and use-case specific actions. These interfaces allow service provider and enterprise customers to rapidly deploy the platform's device management capabilities without investing additional resources into front-end interface development.

Coiote IoT Device Management enables at-scale bulk device management suitable to service providers. With support for statically and dynamically defined hierarchical groups, bulk device actions, and easy provisioning for large quantities of IoT devices, Coiote IoT Device Management provides customers all the tools needed to manage tens or hundreds of thousands of deployed assets. In addition, monitoring and operations views support customizable filters and the on-platform actions system is fully integrated with device group management. Many typical device management platforms perform well for deployments of several thousand devices but fail to provide interfaces and capabilities designed for very large IoT deployments. These typical shortcomings may force customers to develop their own API-driven

workflows to accomplish bulk device management. By providing productized, at-scale device management, AVSystem ensures that customers of any size, even large service providers, can quickly deploy and implement device management functionality without costly or complex custom development.

AVSystem offers a series of productized tests available to validate a LWM2M device on the Coiote platform. In addition to out-of-the-box test capabilities, system developers are able to test and diagnose device actions within a defined data-model via XML task templates. This is a standout feature from other LWM2M-capable offerings that lowers costs and complexity for customers seeking to integrate their own LWM2M devices into the Coiote platform.

Coiote offers a highly flexible hierarchical model for assigning devices to groups. Coiote's multi-tenant and subtenant grouping models enable enhanced device-data

aggregation and monitoring capabilities. One of Coiote's key differentiators in the device management space is the ability to access aggregate device data and execute actions on device groups as individual objects. This is a valuable capability for large-scale deployments with heterogeneous devices and functional requirements that can vary by device, platform user, platform role, enterprise business unit, and geography.

Conclusion

Based on MachNation's in-depth analysis of 15 IoT device management vendors, MachNation rates AVSystem as a leading IoT device management vendor.

MachNation is the only firm exclusively dedicated to testing and researching Internet of Things (IoT) platforms, middleware, and services. MachNation owns and runs MachNation IoT Test Environment (MIT-E), the industry's only independent, hands-on, benchmarking lab for IoT platforms. MachNation specializes in understanding and predicting IoT technologies including their impact on digitization, hardware, communication services, applications, and support tools. MachNation specialists provide guidance to industrial enterprises, the world's leading IT vendors, and communication service providers.

