



# AVSYSTEM IOT PORTFOLIO

# Introduction

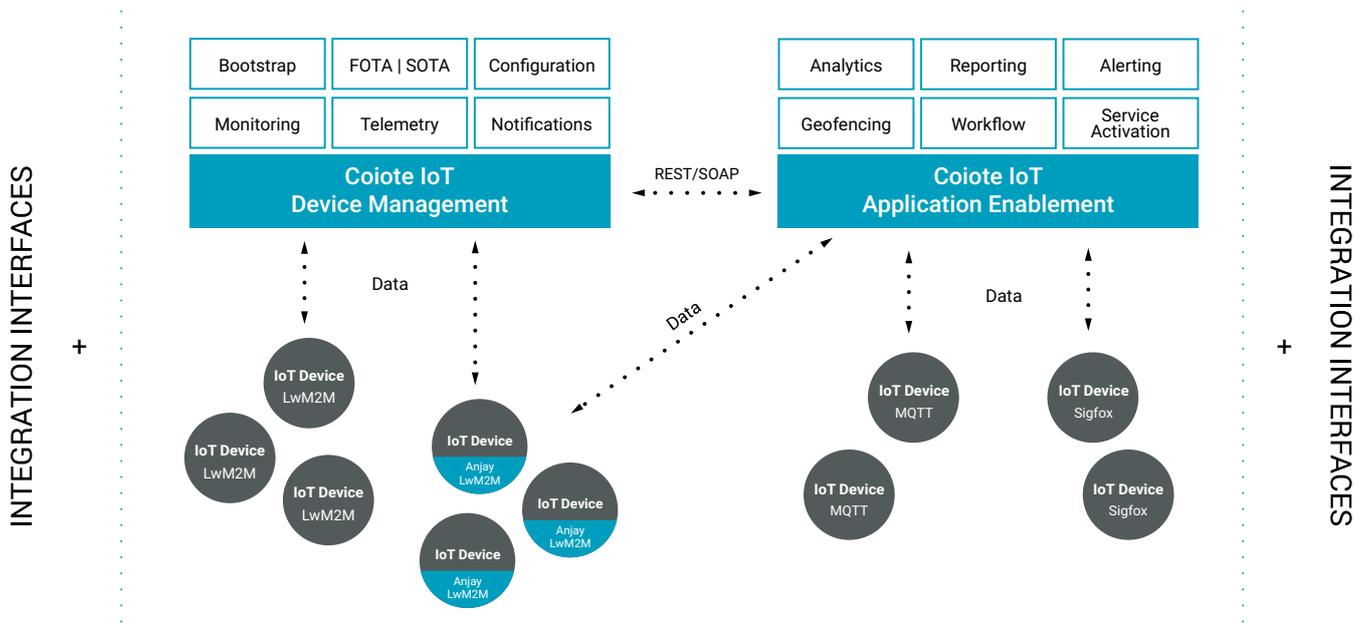
Internet of Things, or **IoT**, is a very wide term for the technology that has been with us since early 2000s and for the last 10 odd years has been constantly evolving to reach the point of being called the next **Industrial Revolution**. As a leading IoT software vendor, AVSystem believes that there are 2 main aspects at which you should look at Internet of Things: **devices (“Things”)** and **data these devices generate**.

The first aspect includes all the connected **smart things** such as sensors, actuators, computer devices, gateways and more. The number of IoT devices reaches nearly 10 billion in 2019 and all of these things have to be **managed** and maintained through their entire lifecycle.

The second aspect tightly linked to the first one is the **amount and quality of data** generated by those billions of smart things. This data is precisely the **entire potential** of all “things” in the Internet of Things and thus it needs to be harnessed and **orchestrated**.

As a result, one can say that if all the devices are properly managed and all the data is properly used, any business can unleash the **full power from IoT**. The role of AVSystem in the Internet of Things is to provide tools to make it happen – **device management and application enablement solutions**.

## AVSystem IoT Portfolio Overview



## Device Management in IoT

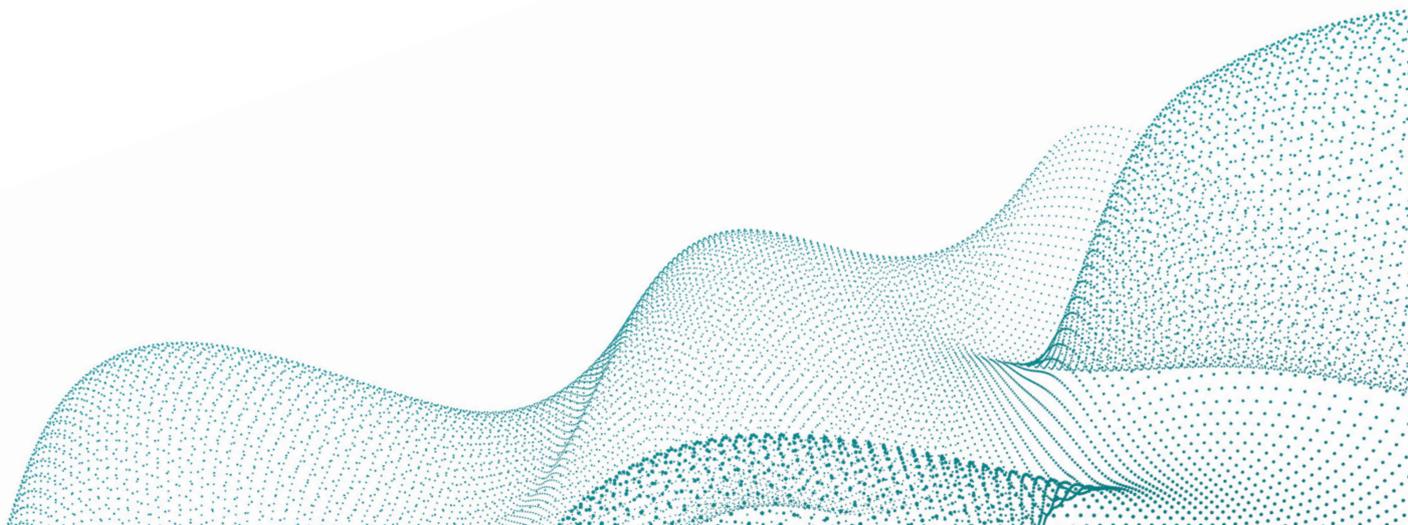
Device management is the **first and most important** thing to think about when building services around IoT. Thanks to a proper device management system, you can ensure security for your devices and establish secure telemetry channels for data from these devices.



## Lightweight M2M

OMA SpecWorks' Lightweight M2M is a sophisticated **device management** and **telemetry** protocol designed initially for resource-constrained devices such as sensors and other devices running on battery or with limited processing and storage capabilities. LwM2M's simplicity and its ability to work over low power wide area networks as well as its robust security mechanisms and well-defined object model makes it a **perfect choice** for M2M communication in the Internet of Things ecosystem.

With the **LwM2M 1.1** release the protocol has been enhanced with even more mechanisms improving its performance in the IoT. AVSystem as an active member of OMA SpecWorks always strives to keep its solutions compliant to the latest version of the standard.



## Coiole IoT Device Management

Our flagship product for device management in IoT is **Coiole IoT Device Management**. It is a platform that enables **device management** and **telemetry** through **OMA SpecWorks' Lightweight M2M** standard (LwM2M). The platform also **supports MQTT** for telemetry data handling.

By utilizing LwM2M, Coiole IoT Device Management is able to provide a leading solution in device management and telemetry for all IoT devices – from small and simple sensors to big and complicated M2M gateways in various IoT verticals.

### Key Features:



Remote configuration



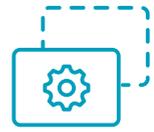
Fault Management



Monitoring



Firmware over the air



Application Management

## Why Coiole IoT Device Management?

- 15 years of experience in large-scale device management
- Robust architecture – proven scalability, option to be deployed on-site or in any Cloud environment (AWS, Azure, Google Cloud)
- Easy integration with other systems (e.g. Coiole IoT Application Enablement, Amazon AWS, PTC ThingWorx)
- Proven interoperability (best results at OMA SpecWorks' Test Fests)
- Leading Device Management Technology Stack in MachNation IoT Device Management ScoreCard



## Application enablement

Application enablement facilitates the creation of IoT applications and allows organizations to scale to millions of devices with very little code. A well-built application enablement platform saves significant development time and money in the creation and operation of an IoT solution.

## Coiote IoT Application Enablement

**Coiote IoT Application Enablement** is a platform that serves enterprises as a flexible, scalable, and efficient pathway for bringing new IoT solutions to market. Thanks to its strong integration capabilities, Coiote IoT Application Enablement fits perfectly

into any IoT ecosystem. The platform also lets users easily set up business rules and processes, build complex dashboards and test the results in runtime in a no-code environment.



### Get one source of data

**Integrate** various platforms – device management platforms (such as Coiote IoT Device Management), OSS platforms, etc. Coiote IoT Application Enablement is capable of **collecting data from various sources** – devices, assets and other platforms – to process, aggregate and unify it.



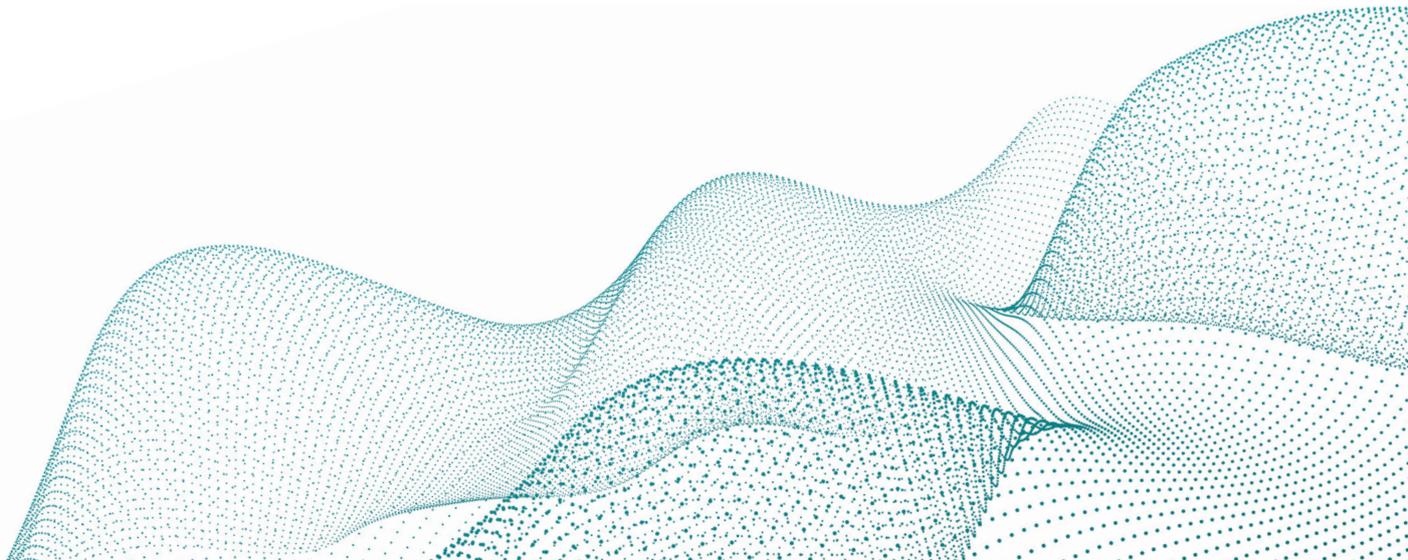
### Visualize & analyze the data

Make your data easy to use by building **customizable** and dynamic **dashboards**. With Coiote IoT Application Enablement you can also view the data in **separate views** (end-user, operation team, admin etc.), monitor data, maps and external UIs, analyze it in real-time and download ready-to-read report.



### Perform actions based on integrated data

Create **fully customizable workflows** and dashboards dedicated to your teams, departments or customers. Perform event-based actions such as service activation, geo-location, monitoring, reporting and more.



## Anjay LwM2M SDK

**Anjay** is a **free and open-source** Software Development Kit (SDK) that can be used to create an LwM2M Client to help vendors of Internet of Things equipment implement support for OMA SpecWorks' Lightweight M2M on their devices and enable remote management over LwM2M. Anjay together with Coiote IoT Device Management offer **full support for LwM2M** standard (Client and Server).

Anjay is also available in a **commercial version** with implemented **support for the latest version of LwM2M** and more features including integration with various operating systems such as: Intel, PowerPC, ARM, Free RTOS, Thread-X.

### Technical Specification

Language standards	C99
TLS libraries supported	OpenSSL, mbed TLS
LwM2M interfaces implemented	Bootstrap, Register, Management and Information Reporting
Support for multiple LwM2M Server connections	Yes
Pre-implemented LwM2M objects	Security, Server, Access Control
Underlying protocols implemented	CoAP (RFC 7252) Observing Resources in CoAP (RFC 7641) CoAP Block transfers (RFC 7959) CoAP over TCP, TLS, and WebSockets (RFC 8323)
User guide, full API documentation	Sphinx, Doxygen, code documentation

## LwM2M Interoperability Program and Professional Services

Having obtained in latest years the **best results** in OMA TestFests in LwM2M Server and LwM2M Client categories, AVSystem decided to create an **LwM2M Interoperability Program** to deliver professional services related to **LwM2M interoperability** verification.

The tests include execution of protocol-level scenarios, service-level scenarios as well as performance/stability testing.

The extended portfolio of professional services includes porting of Anjay LwM2M client to selected target platforms (Linux, Android, Free RTOS, Thread-X, Contiki, mbedOS), maintenance and support of OEM integrations, consulting and design and preparation of LwM2M SDK customized for the customer.

## Your next step

Grow and develop your business thanks to a long-term partnership with AVSystem.

Contact us at [sales@avsystem.com](mailto:sales@avsystem.com) to find out more on how we can help your business or visit

<https://www.avsystem.com/products/iot-solutions/>

## About AVSystem

AVSystem is a vendor of Internet of Things and device management software present on the market since 2006. Our mission is to develop solutions that help enterprises create and manage ecosystems of connected devices. We offer platforms for device and network management, IoT application enablement, WiFi marketing, and indoor location, as well as embedded tools.

As market leaders in IoT device management, we manage millions of devices worldwide. We focus on scalable solutions based on standards such as LwM2M to help companies speed up the time to market of their IoT projects.





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