ARUBA IOT TRANSPORT FOR MICROSOFT AZURE

Secure and simple bi-directional connectivity between Aruba Access Points and Azure IoT Hub

IoT devices are the eyes and ears of any smart facility. The better instrumented a facility is with IoT devices, the more hyper-aware it becomes, yielding richer insights. Though the benefits of IoT data are well understood, providing secure and simplified connectivity to harness IoT data to properly use that data represents a challenge.

Aruba IoT Transport for Azure, part of Aruba ESP, addresses this challenge by seamlessly enabling the secure, bi-directional movement of data from IoT devices connected to Aruba's access points and controllers to take advantage of cloud applications and services available in Azure. It allows customers to run their edge-based IoT devices on their Aruba infrastructure, thereby reducing the cost and complexity of a separate on-premises IoT solution.

Aruba IoT Transport for Azure was developed with support from Microsoft to simplify connectivity and drive economies of scale. It eliminates the need for an intermediate gateway, server, or application, while reducing processing latency and the cost, security, maintenance, and visibility issues associated with gateways. It also enables organizations to accelerate IoT application delivery and redirect budget that would otherwise be required to develop and test a custom interface over several months.

## IOT HUB CONNECTIVITY: HOW IT WORKS

Configuration is simple using existing toolsets. IoT data from devices connected to Aruba Access Points are sent directly to the Azure cloud. Aruba IoT Transport for Azure transmits northbound data to the Azure IoT Hub using MQTT, providing IoT data in a JSON format which is required for consumption by many Azure services and applications. Similarly, southbound data and commands are converted by IoT Transport for Azure into a format compatible with Aruba Access Points, controllers, and ultimately the IoT devices themselves. This design maintains a secure, reliable end-to-end flow of data.

KEY FEATURES

- Enables secure bi-directional communication of IoT data and control between Aruba Access Points and Azure IoT Hub
- Delivers IoT data for consumption by Azure services and third-party providers in the Azure Cloud
- Eliminates the need for additional hardware and management overhead by delivering IoT solutions using Aruba access point infrastructure
- Accelerates development and deployment by using existing Azure IoT capabilities and tools to build comprehensive and scalable IoT solutions

Built on the flexible and innovative Microsoft Cloud Platform, Azure IoT Hub enables you to connect devices and sensors and capture untapped data creating a launching point for a broad range of Azure IoT applications and powerful Azure services including Azure Event Grid to react to critical events, Azure Logic Apps to automate business processes, Azure Machine Learning, and Azure Stream Analytics to run real-time computations.

Enterprises in need of deeper understanding of not just assets, but also the complex interactions across environments, can use the Aruba IoT Transport for Azure service alongside Azure Digital Twins to build solutions that help them gain insights that drive better products, optimization of operations, cost reduction, and breakthrough customer experiences. Azure Digital Twins breaks down silos within intelligent environments by fusing data from disparate devices, businesses systems and more to track both past and present events, simulate possibilities, and help predict future events across environments of all types, including buildings, factories, farms, energy networks, railways, stadiums—even entire cities.
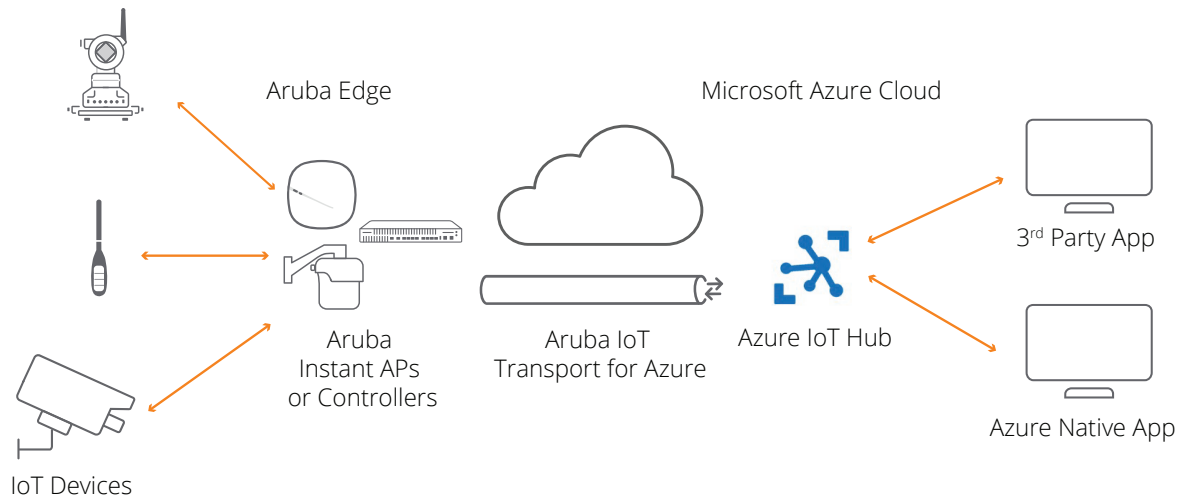
Figure 1: Aruba IoT Transport for Azure was developed by Aruba, in close collaboration with Microsoft, to bi-directionally connect IoT device data with the Azure IoT Cloud.

Azure Digital Twins offers ready-to-use building blocks that simplify the creation of detailed, comprehensive digital models that bring solutions to life. This trusted enterprise-grade platform brings the scale, reliability, security, and broad market availability that enables customers to build production-ready solutions. Customers can take advantage of a comprehensive set of capabilities to easily create custom models of intelligent environments using the open modeling language (Digital Twins Definition Language), bring those digital twins to life with a live execution environment that uses data from IoT, including devices connected via Aruba IoT Transport for Azure service and Azure IoT Hub, and other sources to extract insights in the context of the modeled world in addition to integrating with other key Azure services such as Azure Data Lake for long-term storage or Azure Synapse Analytics to apply machine learning.

BUILT IN SECURITY

Aruba IoT Transport for Azure was designed from the ground up with security as a driving principle. As discussed, all northbound and southbound communication uses secure WebSocket-based protocols. In addition, built-in credential management and authentication policies in Azure IoT Hub protect against a wide range of security threats across the end-to-end flow of data. To comply with their enterprise security policies, customers can flexibly configure security settings to meet their specific needs.

APs for IoT Connectivity

From the location where they are mounted, Aruba access points have an unobstructed view of all nearby IoT devices that is ideal for IoT radio communications. Aruba's Wi-Fi 6 APs include wake-up features for low-power devices, multiple IoT radios, and flexible USB ports that enable APs to act as communication hubs for a wide range of wireless IoT devices.

PROTECT AGAINST CHANGING REQUIREMENTS

New IoT devices and Azure IoT services and even third-party applications that run in the Azure Cloud can be added and customized as facility monitoring and control requirements change over time. The broad and growing range of IoT devices supported by Aruba infrastructure can easily accommodate new requirements as they are requested by Facilities, Health & Safety, Compliance, Security, and other stakeholders. These might include, among others, lighting control, air quality monitoring, hoteling space management, social distancing, leak detection, food temperature supervision, and gunshot detection. New Azure IoT services can be spun up on-demand to support these requirements, even linking them with business applications running on Azure, e.g., contact tracing or maintenance scheduling. The flexibility and extensibility of this design helps future-proof investments against changing requirements without ripping or replacing infrastructure.

KEY TAKEAWAYS

Aruba IoT Transport for Azure provides a simple, secure way to deliver IoT sensor data to the Azure IoT cloud. By eliminating the need for additional hardware, Aruba IoT Transport for Azure also reduces equipment spend. With IoT Transport for Azure, it's significantly easier to build or leverage existing Azure IoT services and applications, including Microsoft Azure or third-party solutions running on Azure.

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