

# Accelerating IoT Workload Migration To Azure IoT

## Simplify IoT data streaming using Aruba IoT Transport for Azure IoT and reelyActive Pareto Anywhere for Azure

### INTRODUCTION

Integrating data from legacy IoT devices with Azure applications can entail months of custom engineering work. Data from non-IP based IoT devices need to be securely streamed and terminated in a form optimized for use with Azure IoT services and applications, a task that typically requires an expensive gateway and custom code. Once received at the Azure IoT Hub, all of the IoT payloads need to be separately formatted for use by Azure IoT services and applications.

IoT data collection can be an arduous task given the many non-interoperable IoT protocols and physical layers in use today. Once collected, the data need to be securely streamed and landed in Azure IoT Hub, a task traditionally accomplished using a dedicated gateway. Finally, IoT payloads need to be formatted for use by native or custom Azure applications. If, at a later date, another IoT protocol needs to be added then the process starts anew. End-to-end integration can take months to develop, and the added cost of gateways and associated maintenance fees can make the economics challenging for small to medium sized sites.

### A COLLABORATIVE SOLUTION

Aruba, Microsoft, and reelyActive™ worked in concert to address these issues. Aruba added IoT radios to its Wi-Fi access points so they can simultaneously serve IT mobility needs and act as IoT gateways. Aruba and Microsoft then jointly developed Aruba IoT Transport for Azure. Running as a workload within Aruba Wi-Fi access points, Aruba IoT Transport for Azure is activated by Aruba Central cloud management and then encodes IoT device data from access points into base64 strings, encapsulates them into JSON formatted messages, and forwards them to the Azure IoT hub.

Aruba IoT Transport for Azure seamlessly enables the secure, bi-directional movement of data from IoT devices connected to Aruba's access points to take advantage of cloud applications and services available in Azure. This allows customers to leverage existing Aruba infrastructure

### KEY FEATURES

- Securely transports BLE, Zigbee, EnOcean, and other IoT device data between Aruba access points and the Azure IoT Hub
- Automatically formats IoT data, regardless of origin, into a form compatible with Azure and third-party applications
- Rapidly implemented without custom engineering
- Open-source data conversion software is free to use and easily extended
- Eliminates the cost and complexity of a dedicated gateway

and thereby reduce the cost and complexity of migrating IoT workloads to Azure. Eliminating an intermediate gateway, server, or application reduces processing latency and eliminates the cost, security, maintenance, and traffic visibility issues associated with gateways.

reelyActive's Pareto Anywhere for Azure open-source converter completes the edge-to-cloud journey by quickly and efficiently decoding base64 strings, including units of measurement, and formatting JSON payloads so they are intelligible to native Azure or other third-party applications.

Pareto Anywhere for Azure abstracts the original data format so data received by applications are intelligible, consistent streams of immediately consumable data in recognizable units of measurement. The converter's abstraction function allows customers to deploy hybrid IoT systems, consisting of different IoT device types and protocols, in which the IoT data appear in a homogeneous format regardless of their origin.

### EDGE-TO-CLOUD SECURITY

Aruba IoT Transport for Azure was designed from the ground up with security as a driving principle. All northbound and southbound communications use 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, and customers can flexibly configure security settings to meet their specific needs.

### IOT HUB CONNECTIVITY: HOW IT WORKS

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 AMQP, providing IoT data in the JSON format required by many Azure services and applications. Similarly, southbound data and commands are converted by IoT Transport for Azure into a format compatible with Aruba infrastructure and the IoT devices to which it is connected. This design maintains a secure, reliable end-to-end flow of data (Figure 1).

Azure IoT Hub is the gateway to a broad range of Azure IoT applications and 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.

Aruba IoT Transport for Azure can be used in conjunction with Azure Digital Twins to gain insights that drive better products, optimization of operations, cost reduction, and

breakthrough customer experiences. Azure Digital Twins fuses data from disparate devices and businesses systems to track both past and present events, simulate possibilities, and help predict future events across environments of all types.

### RAPID IMPLEMENTATION, LASTING BENEFITS

IoT Transport for Azure and Pareto Anywhere for Azure can be configured rapidly, allowing users to configure in one hour what previously required months of custom engineering. Should new IoT device types be added in the future, system expansion is just minutes away.

Aruba IoT Transport for Azure is available as part of the Aruba Edge Services Platform and enabled via the Aruba Central Management Platform (Figure 2). Additional information is available from <https://www.arubanetworks.com/resource/simplifying-it-and-ot-operations-with-aruba-iot-transport-for-microsoft-azure/>.

reelyActive Pareto Anywhere for Azure is available as open source from <https://www.reelyactive.com/pareto-anywhere/integrations/azure/>.

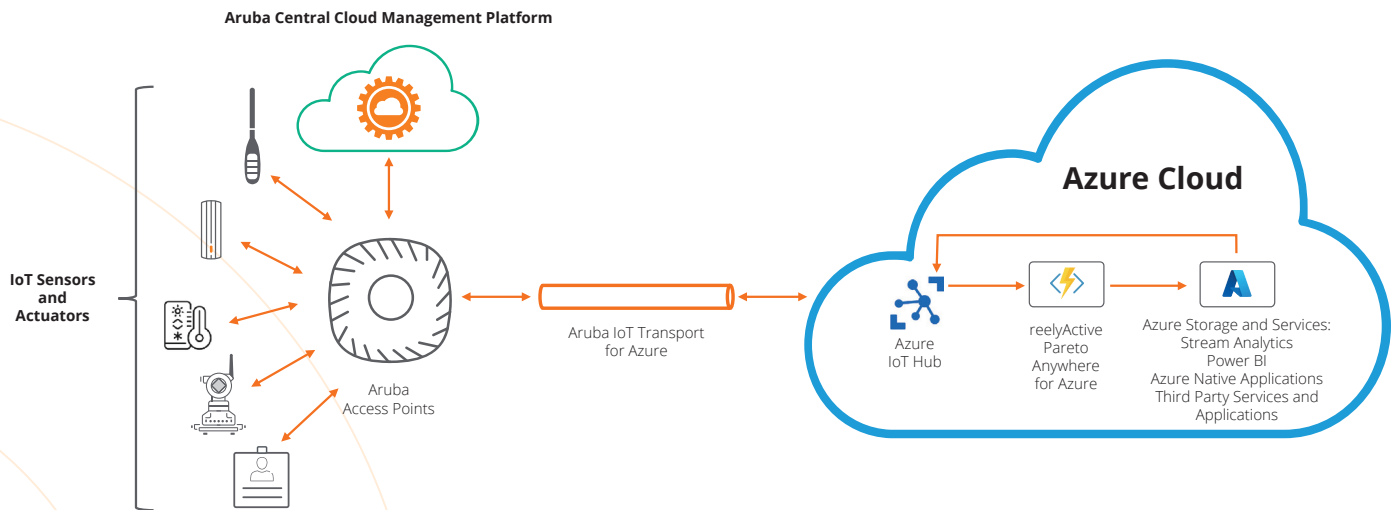


Figure 1: Aruba IoT Transport for Azure bi-directionally streams IoT data to the Azure IoT Hub.

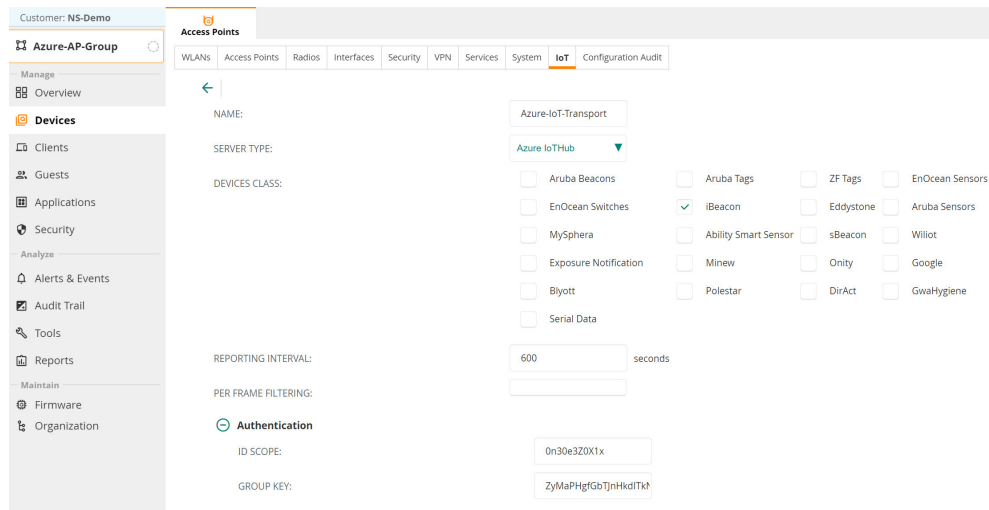


Figure 2: Aruba IoT Transport for Azure is a feature of Aruba Central's Edge Services Platform

## SUMMARY

Aruba IoT Transport for Azure provides a simple, secure and efficient way to deliver IoT sensor data to the Azure IoT cloud. By eliminating the need for dedicated gateways, Aruba IoT Transport for Azure lowers costs and reduces complexity. reelyActive Pareto Anywhere for Azure complements these features by standardizing IoT data so they can be consumed by Microsoft Azure services or third-party applications running on Azure.

## DEPEND ON MICROSOFT AND REELYACTIVE



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