Enabling Complex IoT Solutions with the Everyware Cloud Integration Platform

The Internet of Things has grown rapidly over the past 10 years, and Gartner, Inc. predicts that by the end of the year 6.4 billion connected things will be in use worldwide with 5.5 million new things getting connected every day. Companies will spend $235 billion to support connected projects in 2016, with a large percentage dedicated to businesses contracting with external providers to design, install and operate IoT systems. Projects that seem fairly straight-forward in development often evolve quickly beyond early ideas and plans, ultimately requiring enterprise-class device management and security before full deployment.

EUROTECH
Imagine. Build. Succeed.

Author
Larry Wall
CEO, Eurotech

In order to meet the rapidly growing need for IoT solutions, the embedded world must converge with the enterprise technology world to integrate data and bring value into the enterprise. While some IoT solutions can be relatively simple with a single application operating upon data from a single type of device over a single type of communications system, many solutions are much more complex. More advanced solutions may have multiple services on the edge node, several different connectivity requirements, various data consumers, devices from different manufacturers and geographically diverse services and devices.

The early IoT marketplace has been full of hundreds of "piece-meal" technologies that can be cobbled together from disparate vendors that have, for the most part, never really spoken, communicated or learned from each other. The industry needs tools to reconcile these varied technologies – tools with open protocols that support interoperability over long application development lifecycles as well as software-defined device management and security.

Distributed IoT systems require an intermediary system, also called an IoT integration platform, to connect them seamlessly to business applications. The ideal IoT integration platform is middleware that functions like an operating system for the Internet of Things – between the distributed devices and the applications making use of the data coming from these devices. Any communication must be two-way in nature, allowing those applications to control and manage the devices where required. The system must enable the transfer of device data independent of any other language, platform, or operating system to accommodate the complex nature of IoT projects.

Developers can think of this middleware as an Enterprise Service Bus (ESB) for machines. An ESB is a software architecture model used for designing and implementing the interaction and communication between mutually interacting software applications in a

service-oriented (SOA) manner using a lightweight, ubiquitous integration backbone. ESB solutions hide complexity, simplify access, and allow developers to access and interact with other software components in a generic way, while handling complex details in the background. An "ESB for Machines" can be implemented to connect distributed systems to business applications while effectively separating the consumers and producers of data.

With this type of unifying platform, IoT solutions can provide easy integration of different device data systems and applications to enable the delivery of data to the enterprise.

An IoT Integration Platform – Everyware Cloud

Eurotech's Everyware Cloud is an IoT Integration Platform that simplifies device and data management by connecting distributed devices over secure and reliable cloud services. Once devices are deployed, the Everyware Cloud allows users to connect, configure and manage devices through the lifecycle, from deployment through maintenance to retirement.

The Everyware Cloud functions as the intermediate system between the distributed devices and the applications making use of the data coming from these devices. Any communication must be two-way in nature, allowing those applications to control and manage the devices where required. The system must enable the transfer of device data independent of any other language, platform or operating system to accommodate the complex nature of IoT projects.
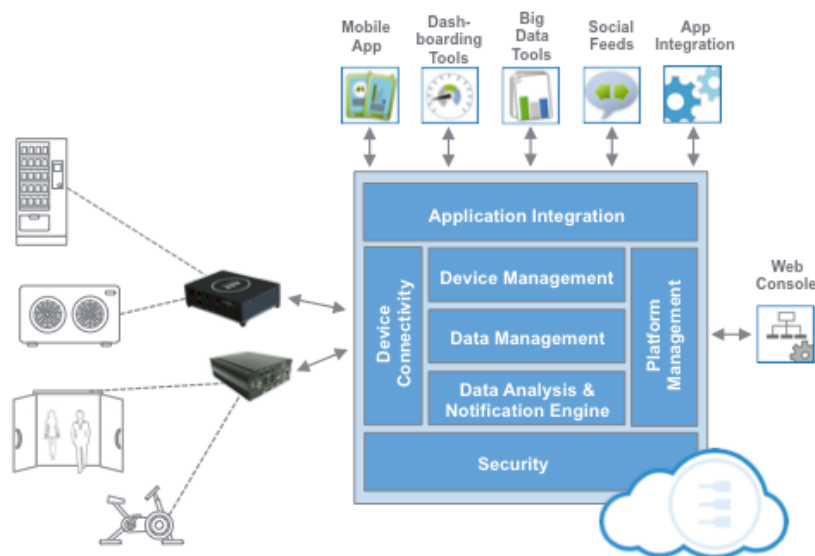

Figure 1: The Everyware Cloud encompasses IoT project complexities to bring device data to business applications

Everyware Cloud uses industry-standard MQTT as the default transport protocol for device connectivity and adds intelligence on top, allowing customers to create innovative apps while reducing connection costs. The protocol is bidirectional, open, secure and proven in data intensive applications, built from the ground up to satisfy demanding IoT applications reliant on distributed devices.

On the device side, the Everyware Cloud platform provides tools for remote device management including software and firmware updates and configuration. Managing the devices is just as important as managing the data, and the ability to achieve this across a geographically dispersed device population without the need for site visits by skilled engineers produces potentially huge savings in the ongoing cost of running and maintaining the system. Everyware Cloud allows the customer to dynamically control, configure and evolve the app that runs on the field device through a fully integrated feature-rich device management layer. Any device can be easily configured, updated or modified without the need to use different tools or ad-hoc field services.

Everyware Cloud is hardware agnostic; any device, even small footprint computational devices, can be connected to the IoT integration platform to provide data to applications or systems to run the business efficiently and effectively. This hardware flexibility allows IoT projects to combine deployed technology with new technology. As shown in Figure 2, one IoT project can have several devices ranging from sensors to digital cameras and they can all connect to the Everyware Cloud simply. Hardware independence also allows projects built with the Everyware Cloud to grow and evolve over time, since an update in field hardware will not require a change in the entire device to cloud system. Everyware Cloud makes it simple to add a new hardware device, capture and store data and send it to the business application immediately.
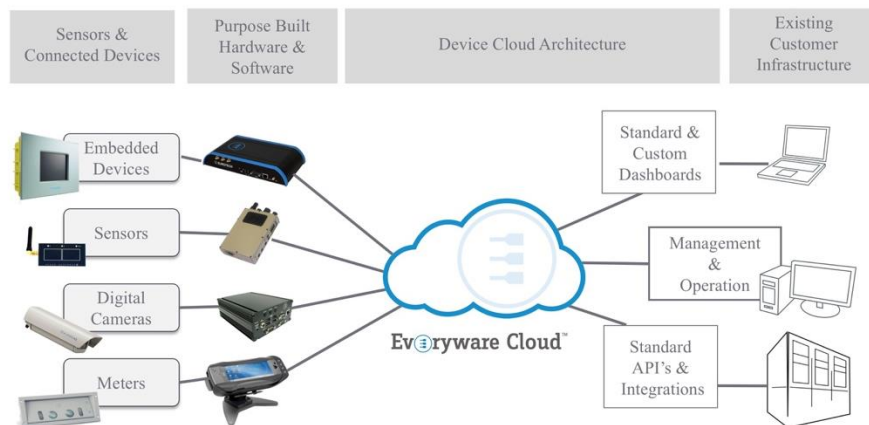

Figure 2: Everyware Cloud is hardware agnostic and connects several types of devices seamlessly to the cloud

Everyware Cloud automatically stores device data into a schema-less, distributed, decentralized database which is fault tolerant and elastically scalable. This database stores any data in any format for the market's longest queryable period. The database also enables access to real-time data, in its native form, for use by the final application.

Without a unifying platform in an IoT solution, you get multiple different integration methods that lead to inconsistency and higher costs of device management and change. With the Everyware Cloud unifying integration platform, IoT solutions can provide easy integration of different device data systems and applications to enable the enterprise to access and use data to make decisions.

Contact Us Today!

Call **1-800-833-3557** to speak with your local Arrow M2M
business development manager, or email us at m2m@arrow.com
for more information.

ARROW
Five Years Out

Arrow Electronics, Inc.
Intelligent Systems
9201 E Dry Creek Rd.
Englewood, CO 80112