

WISE-DeviceOn for Azure

IoT Management Optimized for Vertical Production Environments

The development of IoT has increased the use of edge devices in many industries. These devices require solutions that improve machinery/product reliability, prevent cyber threats by strengthening device security access-control, and ensure smooth operation by reducing equipment failure. WISE-DeviceOn reorganizes software architectures to decouple data and services. In addition, it uses containerized architecture to integrate with AKS (Azure Kubernetes service) and other PaaS services — yielding a complete solution with high scalability, availability, security and reliability.

Challenge

Enterprises are confronted by tough device management challenges, including complex edge to cloud deployment, fast-increasing device counts, rising cost and strict regulatory compliance.

Solution

WISE-DeviceOn Device Management on AKS helps enterprises assemble a complete IoT device management platform quickly by simplifying management and leveraging Azure Cloud.

Device Management via Azure Cloud

WISE-DeviceOn makes onboarding, visualizing, operating, and managing industrial IoT devices easier than ever. This simple, out-of-the-box solution leverages a single console adaptable to different device types. It helps monitor device health, takes real-time power on/off action, troubleshoots problems, and sends software and firmware updates over-the-air (OTA). WISE-DeviceOn is downloaded and deployed easily from Azure Marketplace. Enterprises that use Azure can start daily IoT device management, and flexibly scale out platform capabilities to accommodate and manage hundreds of thousands of devices.

WISE-Device on Azure Cloud Advantages

When enterprises transfer their IoT application to the cloud, they digitally transform OT, IT, and CT. This enables device/data management, provides uninterrupted services, and dynamically accommodates growing numbers of devices. WISE-DeviceOn Device Management on Azure Cloud provides a cloud-native approach to managing IoT device lifecycles, thus maximizing total operational performance and lowering costs.

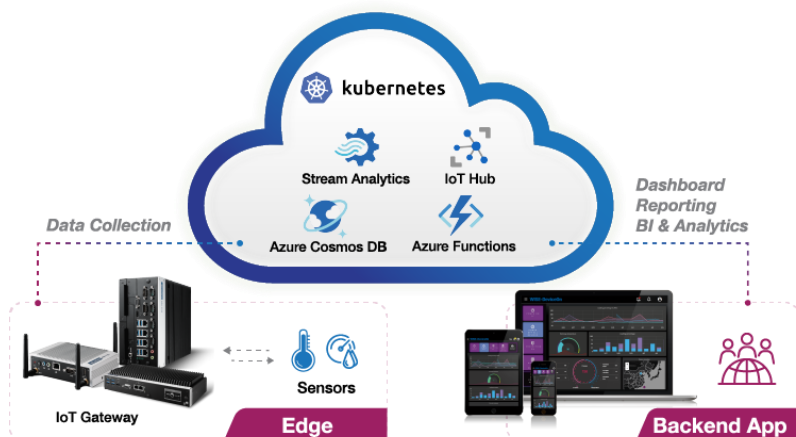
- **Realize IoT Application Deployment**
Quickly onboard, monitor, and manage IoT devices
- **Minimize TCO of Managed Devices**
Perform bulk management and maintenance with ease
- **Improve Operational Efficiency**
Real-time monitoring and batch control empower daily management
- **High Availability and Scalability**
Linear scalability up to million devices
- **Regulatory Compliance**
Complies with 140+ country/regional regulations to strengthen security

WISE-DeviceOn for Azure Functions

WISE-DeviceOn is now fully integrated with Azure Cloud and divided into two versions — VM and Azure Kubernetes Service (AKS). The AKS version leverages container techniques to decouple backend management services (ie. Containerized architecture running on AKS). WISE-DeviceOn establishes a secure channel capable of sending data to Azure IoT hub after collecting and aggregating sensor data using an IoT gateway. It also leverages other Azure Cloud services — including Stream Analytics, Azure Function, and Cosmos DB — to streamline device management.

Integration with Azure Cloud eases upgrading and uses necessary resources only. AKS’s auto scaling ability, high availability, advanced security, and rapid deployment supports large projects with hundreds of thousands of devices while addressing performance management concerns.

Solution Architecture and Data Flow (AKS version)



About Microsoft Azure

Microsoft Azure is an ever-expanding set of cloud computing services that help organizations address business challenges. With Azure, your business or organization has the freedom to build, manage, and deploy applications on a massive, global network using your preferred tools and frameworks.

For more information, visit www.microsoftazure.com



Cloud Use Case

WISE-DeviceOn can be deployed as a PaaS-based platform instance on Azure Cloud, or as a single Azure Virtual Machine server through the public Azure Marketplace. Users can pick one of the two SKUs to fulfill their application needs with just a few easy steps.

Complete Device Lifecycle Management

Wind farms are distributed across multiple locations. Deploying WISE-DeviceOn as a PaaS instance on Azure Cloud enables users to onboard, monitor, control, and troubleshoot myriad disparate critical-mission devices. It also supports device data visualization and OTA device software updates throughout their lifespan.

Secure MQTT IoT Communication Protocol

Semiconductor Manufacturers use Azure IoT Hub to create stable and secure communication data channels connected to the cloud. This maximizes production by monitoring processes and preventing unexpected downtime.

High Availability and Scalability

Signage, kiosk, and peripheral solutions provide important services in retail applications. Users can leverage Azure Cloud services and AKS to develop POC applications scalable for different production environments. This accommodates increasing numbers of retail devices and applications on-demand for use in the field.

Regulation Compliance and High Security

Public infrastructure and transportation systems require advanced safety measures and regulatory compliance. Azure Cloud ensures IoT management and security by complying with regulations from 140 regions/countries.

Global Central Management

WISE-DeviceOn on Azure cloud breaks geographic barrier and offers global central management capability. This fulfills cross-regional management needs in smart city, smart building, retail, and factory automation applications.

About Advantech WISE-DeviceOn

Advantech's IoT software solution, WISE-DeviceOn, is aimed at IoT device remote monitoring and management. This IoT Platform Architecture includes IoT device, system, and cloud layers. Advantech strives to integrate partner solutions and enable seamless, secure IoT solutions from the edge-to-the cloud by providing pre-integrated, pre-validated hardware and software building blocks.

For more information, visit:

<https://select.advantech.com/deviceon/>

One Platform

The WISE-DeviceOn platform supports multiple types of edge devices and OS — including x86/RISC, Windows, Linux, Android, and RTOS.

Advantech Certified Devices

Advantech's WISE-DeviceOn comes preloaded with over 600 Advantech certified board and system models that deliver device data and software management. WISE-DeviceOn facilitates diverse IoT management by offering free license support to certified devices.

For certified device information, visit:

<https://www.advantech.com/solutions/embedded-modules-and-design-in-services>