



Driving Intelligent Building Management Through Open Edge Innovation

Enabling Intelligent Building Automation Solutions with Open Edge Computing

Unlocking Building Automation Intelligence

The Building Automation industry is being transformed by the adoption of modern data-driven approaches to building management.

Exciting advancements in artificial intelligence and machine learning help provide tangible benefits to both building operators and their tenants, but it is industrial edge computing that is the key enabler of a new generation of building automation solutions.

Operational Benefits:

As part of a modern building management (BMS) or building automation system (BAS), forward-thinking building operators and system integrators are utilizing the latest advances in edge computing to unlock many operational, environmental and business benefits such as:

- Optimized building efficiency and reduced power consumption
- Reduced system downtime
- Cost-saving predictive maintenance
- Supporting happier, more satisfied tenants
- Enabling new business models

Technical Challenges:

A BMS, however, must be able to address the following key technical challenges:

- Acquire data from a wide variety of building devices and cameras
- Support both greenfield (new) and brownfield (existing) buildings and their devices
- Integrate with Cloud systems for remote management and access
- Be able to manage multiple buildings at fleet scale
- Address security and tenant privacy concerns



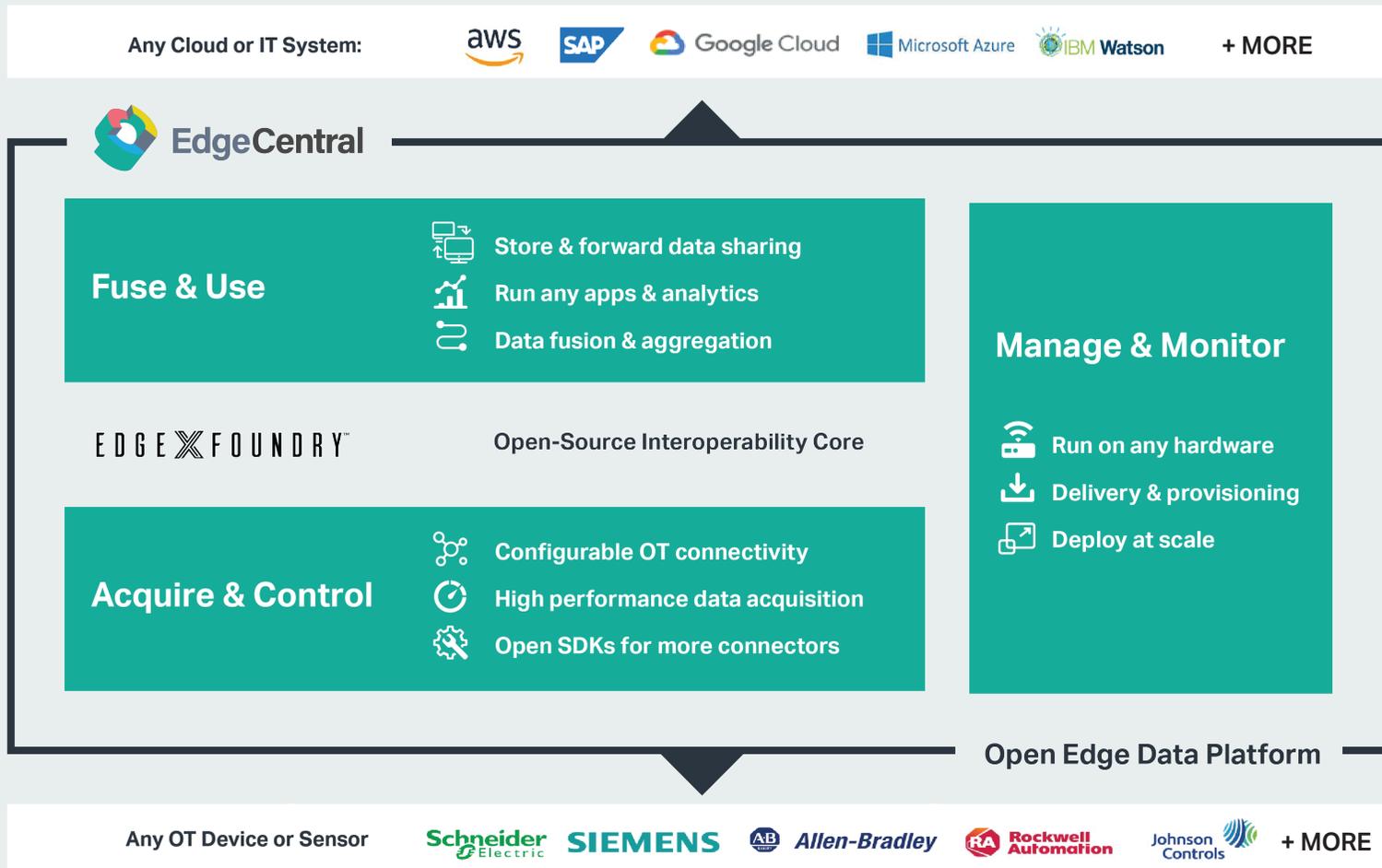
Key Benefits of the IOtech Solution

IOtech's edge computing software is a key enabler helping building management suppliers deliver market leading solutions in the Building Automation industry.

- Industrial open edge data platforms for secure data collection, processing and integration in each building
- Seamless data acquisition and actuation of devices, cameras and sensors prevalent in the buildings industry
- Support for key industry protocols including BACnet, Modbus, and OPC UA as well as protocols such as ONVIF for connecting to IP Cameras
- Data normalization and data fusion at the edge in each building with support for key industry data standards such as Haystack
- Open and pluggable edge intelligence, rules and visualization
- "Integration with major cloud platforms such as AWS, Microsoft Azure, Google, and more"
- Centralized management of the solution covering both hardware and software
- End-to-end security as standard



IOTech Helps Unlock the Value of Data Within a Building Environment



Acquire and Control

The fundamental challenge of any edge industrial IoT system is to first connect to the devices and acquire their data in an efficient and timely manner. IOTech provides the following key capabilities:

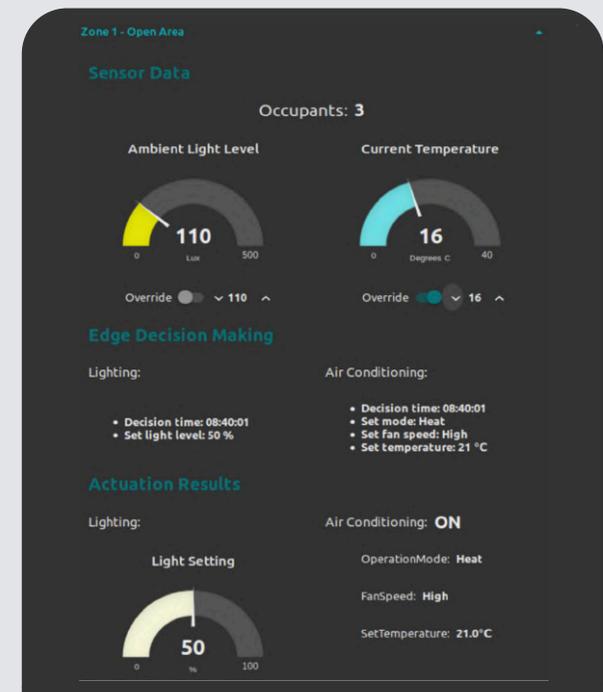
- Simplified connectivity to industry devices and cameras
- Device discovery and automatic device onboarding for key protocols such as BACnet
- Real-time data acquisition and normalization independently from the OT devices
- Automated data tagging support for industry standard information models such as Haystack
- User friendly tooling to support device integration and data filtering
- Open SDKs to create more device connectors



Fuse and Use

Once acquired, the data can be processed on site to produce the key operational insights needed by the BMS. IOTech edge processing capability includes:

- Data fusion from many different data sources to provide a holistic view of the building environment
- Built-in rules engines for user-defined decision making and control logic
- Provide alarms and notifications to inform users of key building behavior, including any issues or failures detected
- Pluggable third-party analytics and computer vision AI
- Reliable time-series edge data storage
- Visualization and dashboarding
- Cloud platform integration including AWS, Microsoft Azure, Google and IBM
- Configurable data flow to the Cloud with filtering, batching, compression and security



Manage and Monitor

Once a building solution is developed, the next challenge is to deploy and remotely manage the solution to all of your buildings in a scalable manner. IOtech provides the critical software capability for performing this task, including:

- Centralized management of the gateways and servers in each building
- Centralized management of edge software provided by both IOtech and third-party vendors
- Host on any cloud or on-premise environment
- Modern graphical interfaces for user friendly operation
- Integration to existing systems with command line tooling and REST or GraphQL APIs

The screenshot displays the 'Apps' management interface. At the top, there are three summary cards: '20 Running' (green checkmark), '0 Stopped' (yellow minus sign), and '0 Error' (red X). Below these is a table of applications with columns for Name, Status, Node, App Definition, App Config, and Created. A filter dropdown is open, showing options for Status (Creating, Stopped, Running, Removing, Error) and Type (Docker, systemd). The table lists ten 'SimpleWebServer' instances, all in 'Running' status, distributed across various nodes.

NAME	STATUS	NODE	APP DEFINITION	APP CONFIG	CREATED
SimpleWebServer_0838eb...	Running	node5	SimpleWebServer	N/A	14/03/2022
SimpleWebServer_215398...	Running	node20	SimpleWebServer	N/A	14/03/2022
SimpleWebServer_5610c7...	Running	node10	SimpleWebServer	N/A	14/03/2022
SimpleWebServer_630228...	Running	node12	SimpleWebServer	N/A	14/03/2022
SimpleWebServer_63b448...	Running	node9	SimpleWebServer	N/A	14/03/2022
SimpleWebServer_66fa44...	Running	node3	SimpleWebServer	N/A	14/03/2022 15:45 UTC
SimpleWebServer_765dfc...	Running	node15	SimpleWebServer	N/A	14/03/2022 15:50 UTC
SimpleWebServer_83896e...	Running	node4	SimpleWebServer	N/A	14/03/2022 15:45 UTC
SimpleWebServer_912209...	Running	node16	SimpleWebServer	N/A	14/03/2022 15:50 UTC
SimpleWebServer_9133fd...	Running	node13	SimpleWebServer	N/A	14/03/2022 15:50 UTC



Summary

IOTech software is designed to greatly simplify the work involved in the creation and rollout of a new generation of building management and automation systems that utilize the latest advances in industrial edge software. IOTech provides advanced device connectivity options that allows BMS or BAS providers to easily acquire data via a variety of industry-standard protocols and then process and utilize that data on site, in each building, and integrate to cloud systems as necessary.

IOTech software is agnostic of hardware, machine architecture, operating system and cloud vendor, meaning that deployment flexibility and reusability of the system is assured.





For additional information on our products, contact us at
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