



Manufacturing and Industry 4.0 Solutions Brief

Helping Manufacturers Leverage Their Industrial Data to Optimize Production

Manufacturing and Industry 4.0 Solutions

Industry 4.0 is used interchangeably with the fourth industrial revolution and represents a new stage in the organization and control of the industrial value chain. To help create operationally efficient factories, manufacturers are increasingly focusing on automating the data exchanges between their equipment and control systems, as well as adopting modern technologies such as edge AI and computer vision.

By utilizing key Industry 4.0 standards such as OPC UA, IOTech's open edge data platform Edge Central is helping organizations unlock the value in their industrial data.

Edge Central enables industrial automation and manufacturing solutions to easily access the data locked in the underlying OT environment independently from the equipment and the wide communication technologies that are found in a factory. Data can be normalized into OPC UA and easily made available for local processing/analytics via standard APIs for plug and play integration. Alternatively, data can be stored locally or easily shared with other components of the system including northbound to SCADA, MES, or other endpoints. Edge Central provides out-of-the box integration for all of the leading Cloud platforms and communication standards such as MQTT, REST and Kafka.



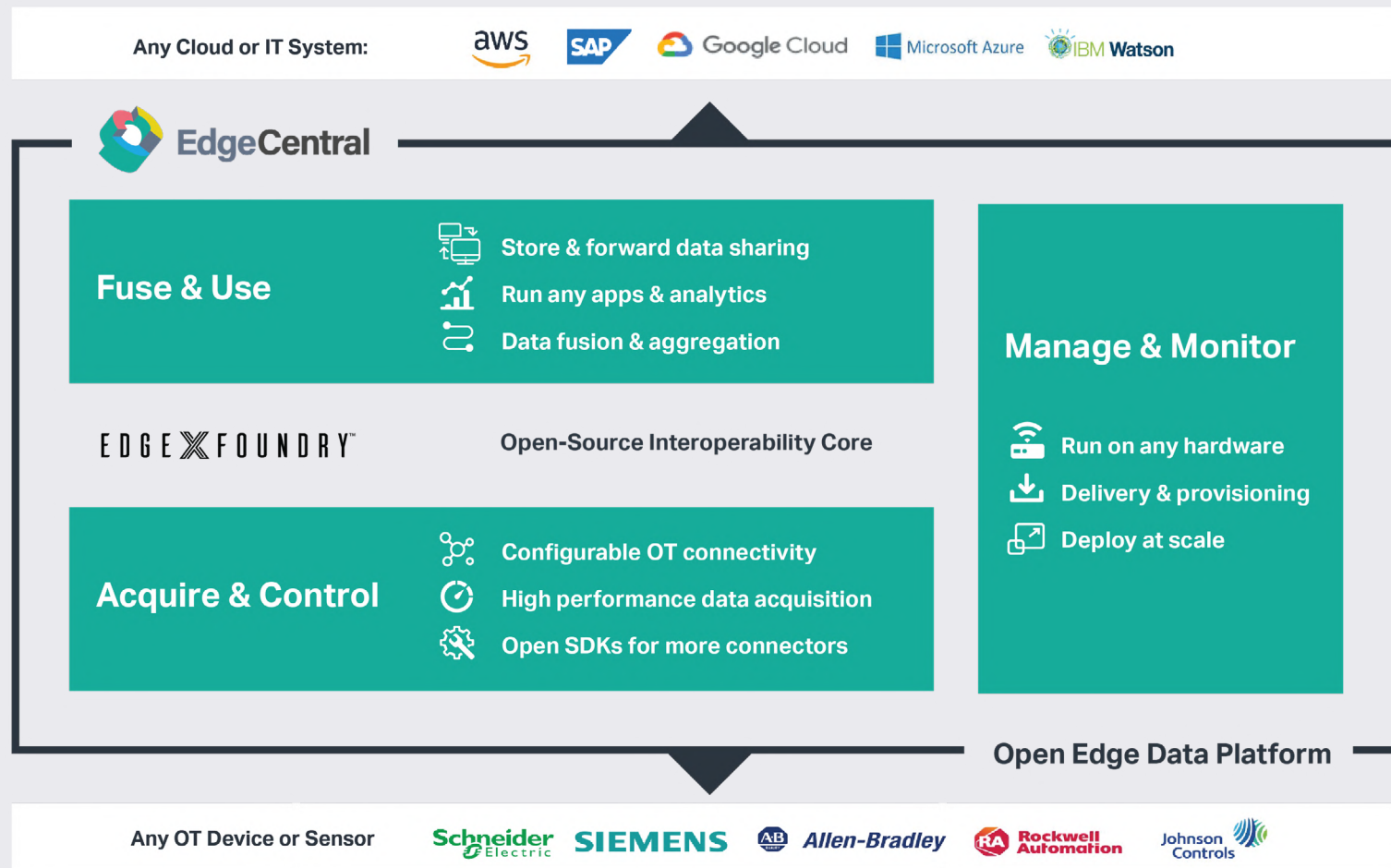
Key Benefits of the IOtech Solution

IOtech solves the industrial data problem at the edge. Used by the world's leading providers and consumers of industrial edge solutions, IOtech Edge Central makes industrial data easily accessible, actionable, and manageable.

- Industrial open edge data platform for secure data collection, processing and integration in manufacturing and process industries
- Seamless data acquisition and control independent from the equipment in a factory
- Support for a wide range of Device/PLC communication protocols such as OPC UA, Modbus, EtherNet/IP, EtherCAT, S7, and PROFINET and more
- Data normalization support for key Industry 4.0 standards such as OPC UA
- Open and pluggable edge analytics/AI, rules and visualization/dashboarding
- Integration to major cloud platforms such as AWS, Microsoft Azure, Google and more
- Centralized management of an edge deployment including both hardware and software
- End-to-end security as standard



IOTech Helps Unlock the Value of Data Within a Factory 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:

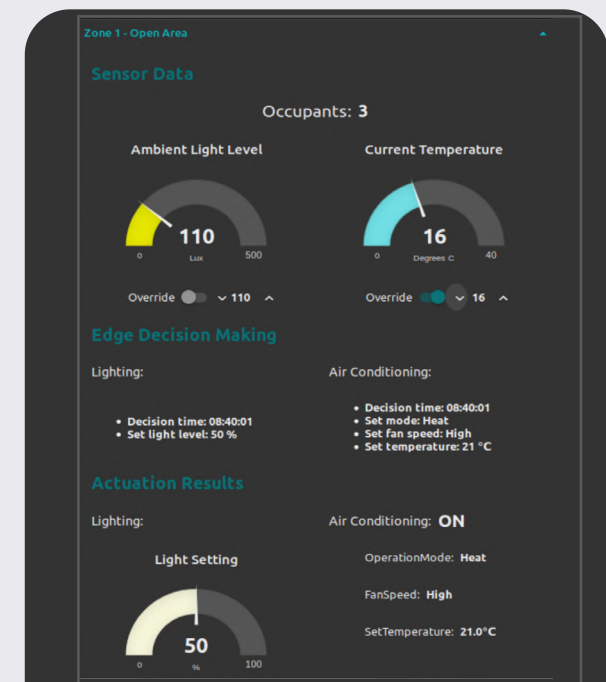
- Simplified connectivity to industrial equipment/PLCs with support for key industrial communication protocols
- Device discovery and automatic device onboarding for key protocols such as OPC UA
- Real-time data acquisition and normalization to OPC UA or MQTT independently from the OT devices
- Automated data tagging support for industry standard information models such as UNS
- User friendly tooling to support device integration and data filtering
- Open SDKs to create more equipment/PLC connectors



Fuse and Use

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

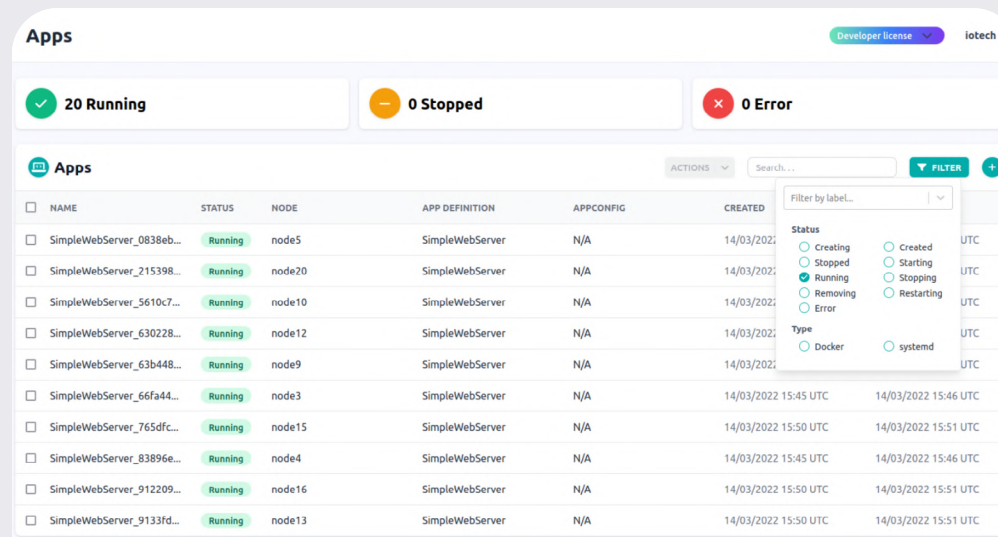
- Data fusion to combine different data sources and provide a holistic view of the factory environment
- Built-in rules engines for user-defined decision making and control logic
- Alarms and notifications to inform users about factory / plant operations including any issues or failures detected
- Pluggable third-party analytics and computer vision
- 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 manufacturing solution is developed, the next challenge is to deploy and remotely manage the solution across your organization in a scalable manner. IOtech provides the critical software capability for performing this

- Centralized management of the gateways and servers in each factory
- 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 IOtech Apps management dashboard. At the top, it shows 'Developer license' and 'iotech'. Below this, there are three summary cards: '20 Running' (green checkmark), '0 Stopped' (yellow circle), and '0 Error' (red X). The main section is a table titled 'Apps' with columns: NAME, STATUS, NODE, APP DEFINITION, APPCONFIG, and CREATED. A search bar and a 'FILTER' button are located above the table. A filter dropdown menu is open, showing options for 'Status' (Creating, Stopped, Running, Removing, Error) and 'Type' (Docker, systemd). The table lists 10 applications, all with a 'Running' status and 'SimpleWebServer' as the app definition.

NAME	STATUS	NODE	APP DEFINITION	APPCONFIG	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's edge computing software is a key enabler helping industrial organizations deliver market leading solutions for the Industrial Automation and Manufacturing markets.

Our software platforms are optimized to enable low latency time-critical decision making and span the complete spectrum of "hard" to "soft" real-time system requirements.

Technology independence combined with highly optimized implementations mean that our solutions can be deployed in a broad range of target edge environments, including running on resource constrained devices.

IOTech's Edge Central can support a broad range of Industry 4.0 use cases from product design, prototyping and development, remote control, services and diagnosis, condition monitoring, proactive and predictive maintenance, track and trace, structural health and systems health monitoring, planning, innovation capability, agility, real-time applications and more.

For systems consisting of hundreds or possibly thousands of nodes, the management of hardware, infrastructure and applications is a major challenge. IOTech's open edge management solution simplifies the provisioning, configuration, monitoring, and life cycle management of node applications and their connected devices throughout the lifetime of a system.





For additional information on products, contact us at
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