

Building Reliable IoT Solutions with AI

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Building Reliable IoT Solutions with AI

Enhance your IoT applications with AI

Daniele Cleri



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Building Reliable IoT Solutions with AI

IoT is not a buzzword anymore, and IoT Solutions are deployed every day across all industries.

AI comes to help acquire and control data, enhance data sharing and aggregation, and manage and monitor edge nodes.

And thanks to the latest hardware and software innovations from Silicon Vendors like Intel, AI can run directly on the Edge for low-latency or real-time analysis and decisions.

AAEON Technology



AAEON Technology | founded 1992

Hsin-Tien Taiwan,
Global revenue: \$280 million USD | 2022
Global employees: 850+

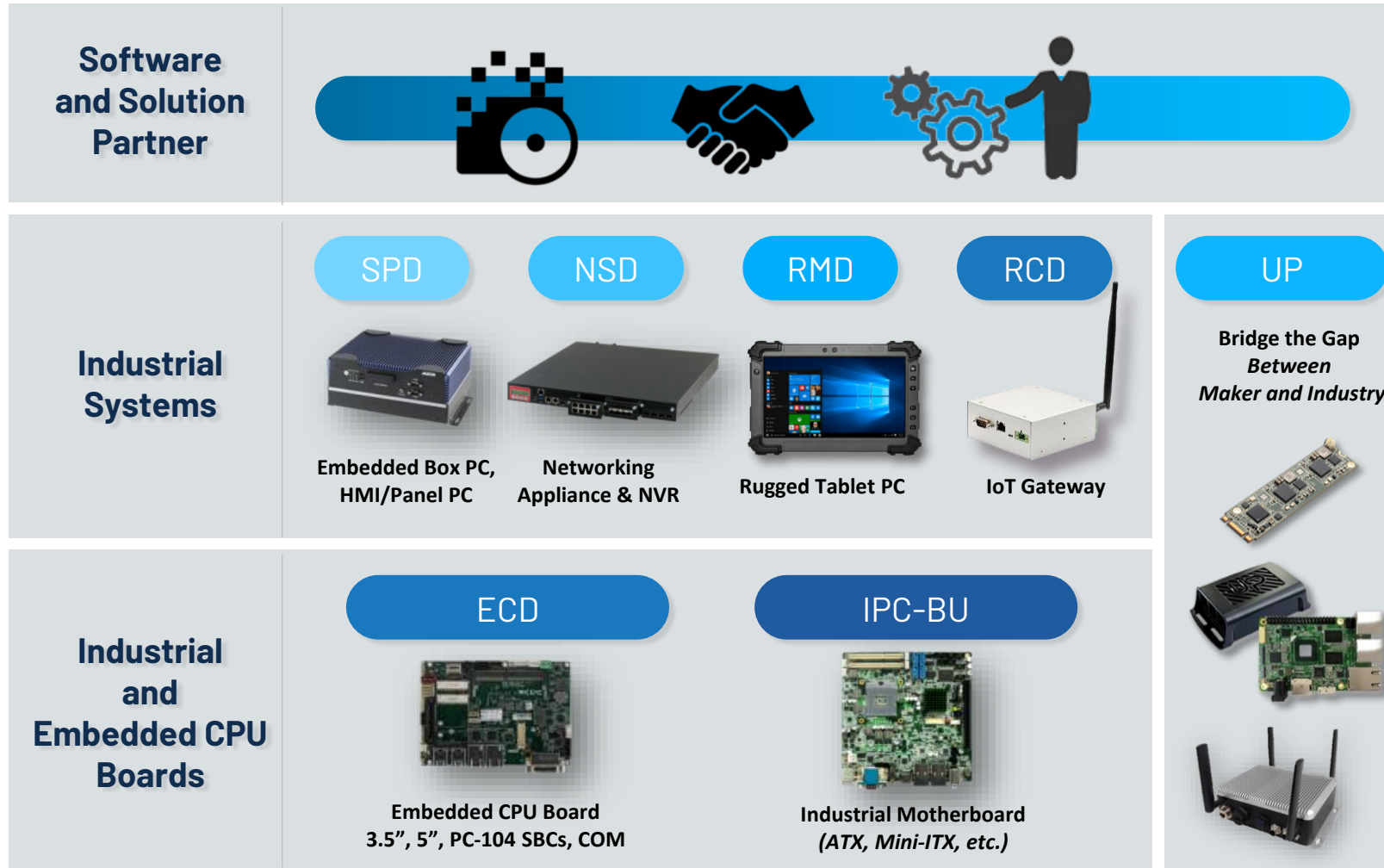
AAEON Technology Europe | established 2005

Eindhoven, The Netherlands
Revenue: \$70 million USD | 2022
Employees: 44

UP Bridge the Gap | established 2015 by AAEON Europe

Focus on professional developers, 7-days delivery, online support
Selected by Intel as AI & IoT dev. platform

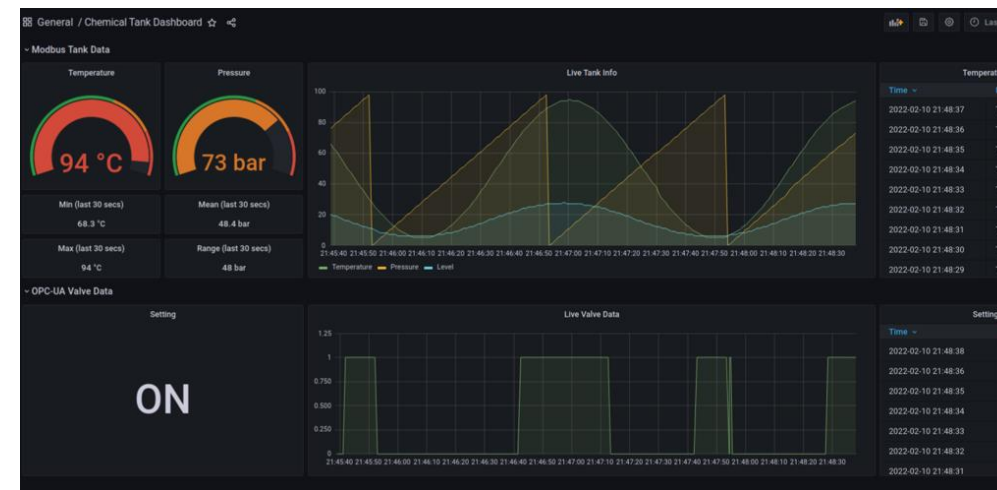
Solutions Portfolio



PRODUCT

Smart Manufacturing "Chemical Tank" Demo

Use case of managing the safe and optimal flow of materials around a manufacturing plant.



- Collecting and ingesting data from two simulated data sources
- Delivering the data to a time-series database
- Visualization of the data via a user-configured dashboard
- Edge decision making, control and actuation via a rules engine
- Streaming data northbound to a Cloud/IT system

Hardware: UP Squared Pro 7000 Edge Gateway



Based on latest Intel ADL-N SoC



New: add MIPI-CSI2 interface

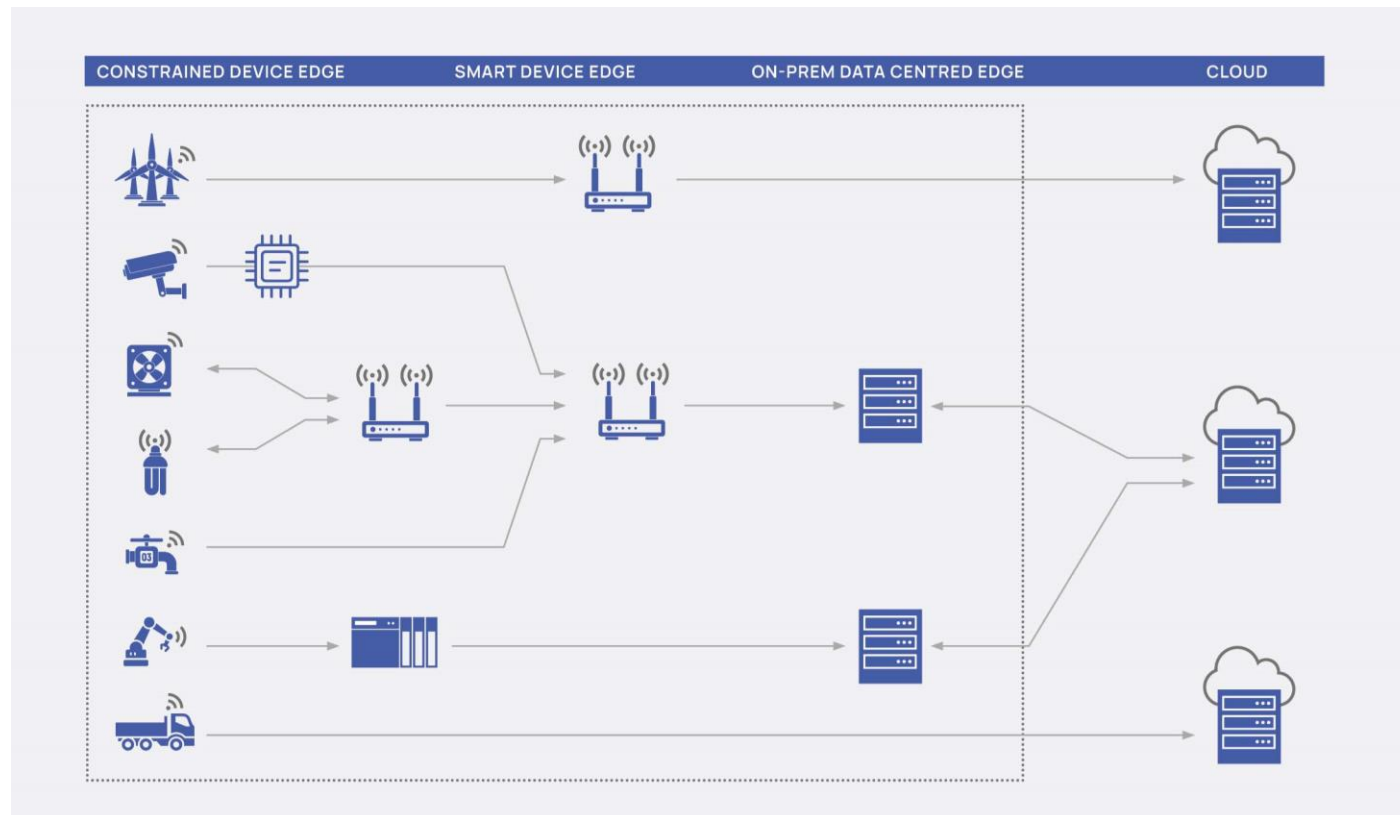


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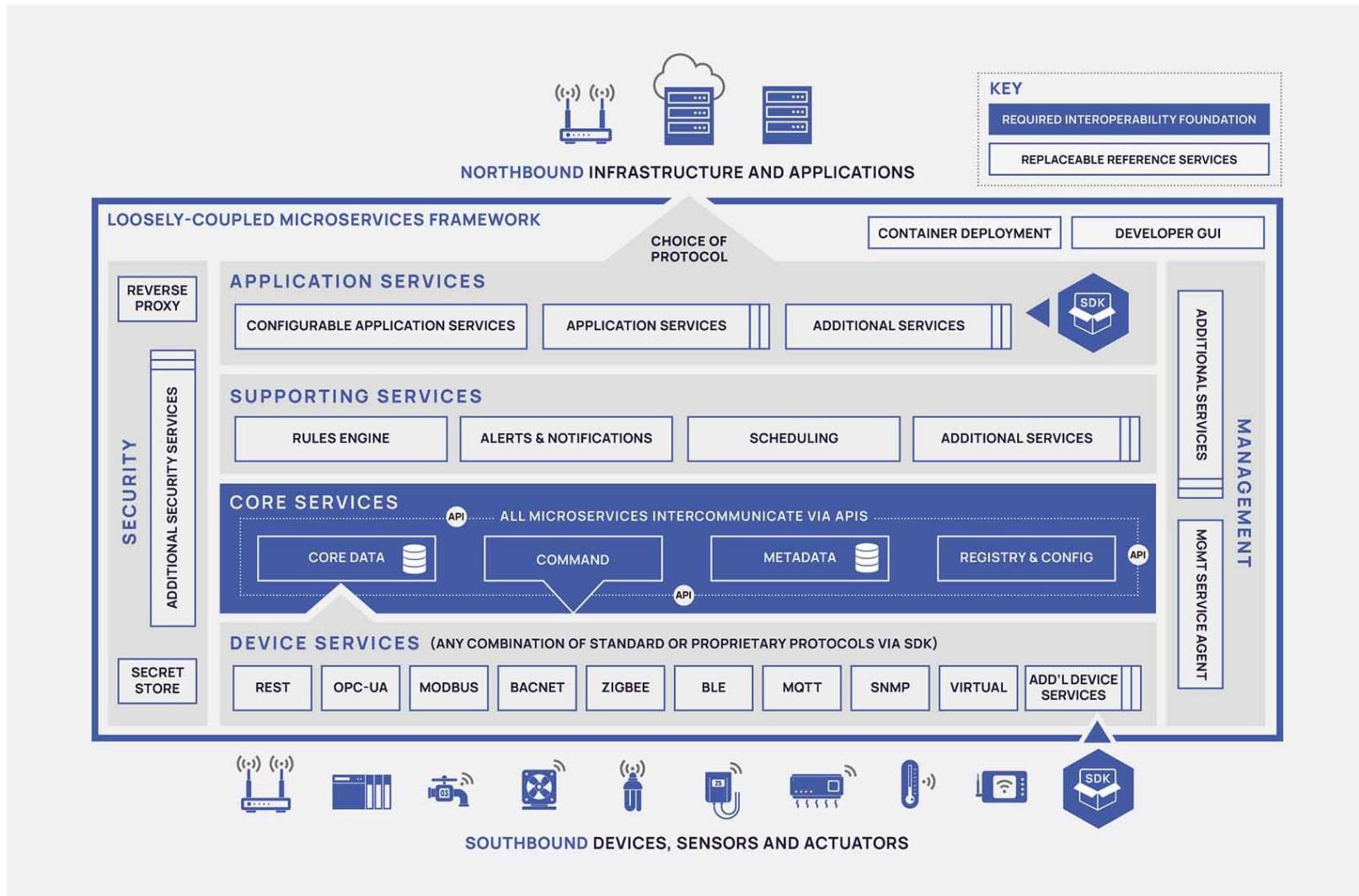


Software: EdgeX Foundry

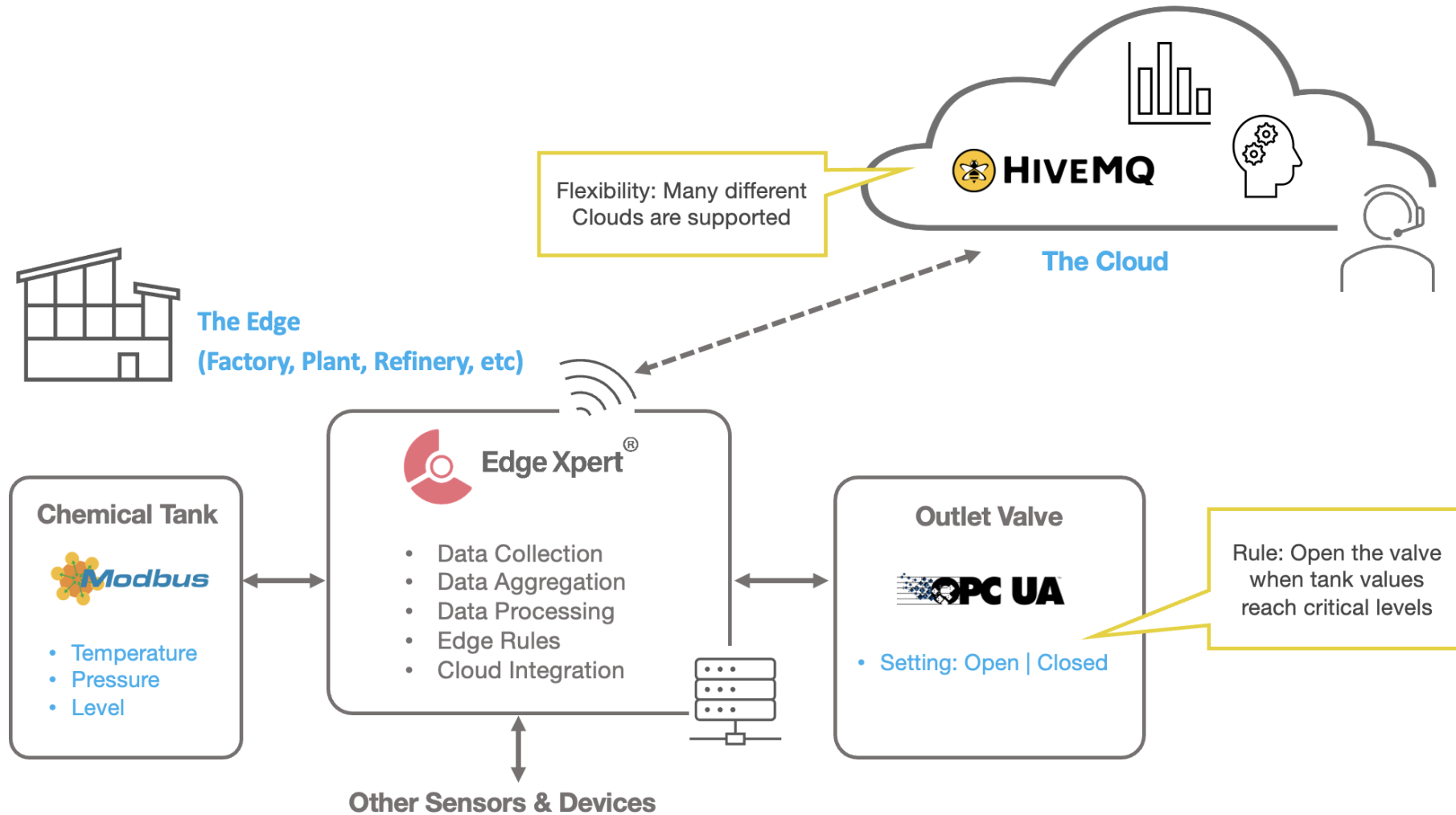
- Open Source Edge IoT Platform
- Edge data collection from sensors
- Sending and Receiving data to and from enterprise, cloud, and on-premise applications
- Data processing and intelligence (AI) at the edge



EdgeX Foundry: Architecture



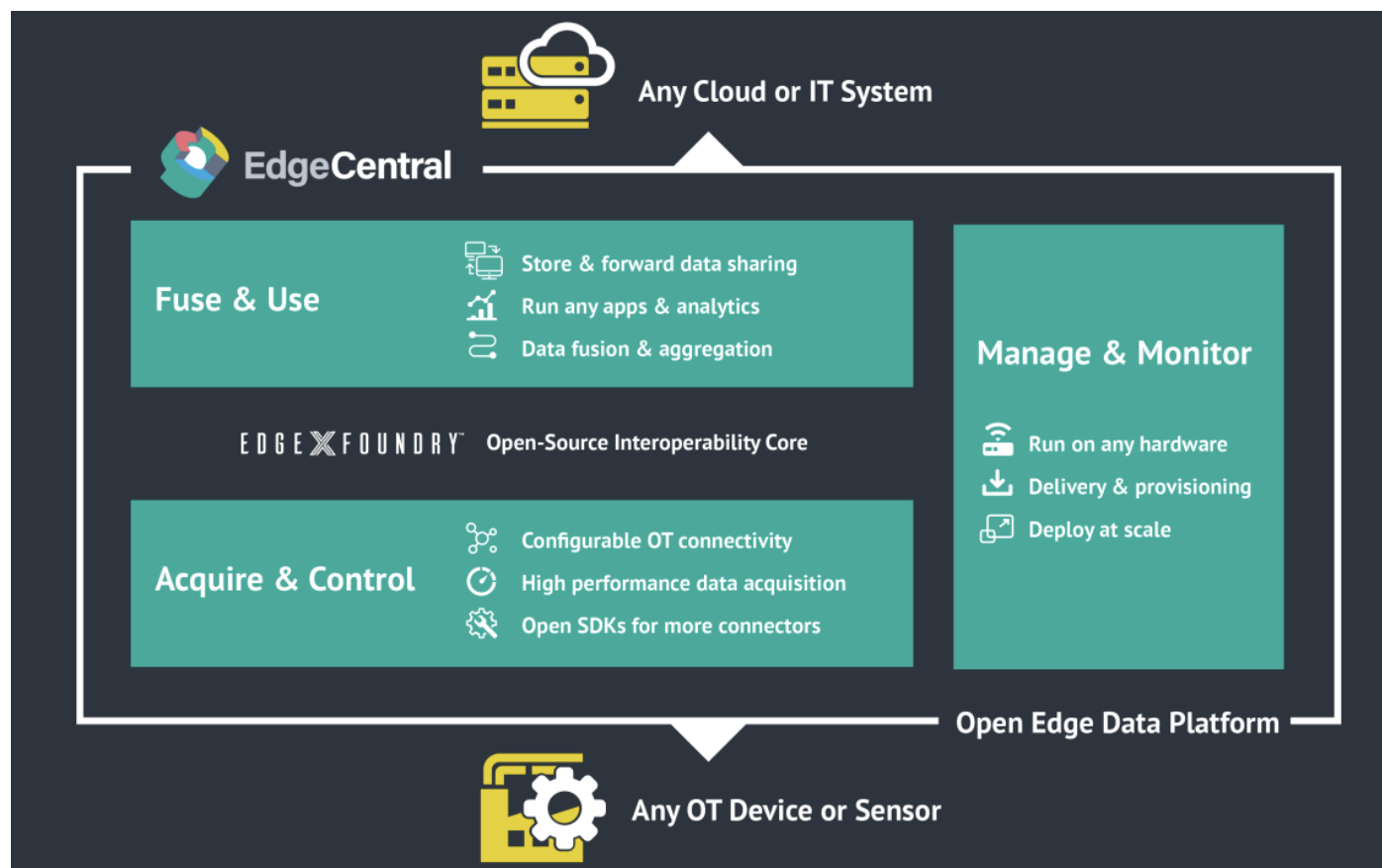
Demo: Architecture



Edge Central – The Open Edge Data Platform Solution

Edge Central is a modular, “plug and play”, open edge data platform and edge management software toolset from IoTechSYS.

It leverages the Linux Foundation’s EdgeX Foundry for its base set of core services on top of which IoTechSYS add significant value-add capabilities required for commercial use across different industrial markets.



Live Demo Quick Setup and Demonstration

The screenshot displays the Edge Xpert Manager web interface. The browser address bar shows 'localhost:9090'. The interface features a dark sidebar on the left with the 'Edge Xpert' logo and a navigation menu including: Dashboard, Services Control, Devices, Data Center, App Services, Notifications, Schedules, Gateways, and Users. The main content area is a dashboard with several widgets:

- Devices:** Shows a count of 0.
- Device Services:** Shows a count of 2. Below this is a donut chart labeled 'Admin State' with a legend: UNLOCKED 2 (blue) and LOCKED 0 (red).
- Subscriptions:** Shows 'Service not available'.
- Notifications:** Shows 'Service not available'.
- Interval Actions:** Shows 'Service not available'.
- Device Profiles:** Shows a count of 0.
- Application Services:** Shows a count of 0.
- Data Readings:** Shows a count of 0.
- Events:** Shows a count of 0.

At the bottom left of the sidebar, the IOTech logo and copyright information '© 2022 IOTech v2.2.2' are visible.

Add Intelligence to our IoT Solution

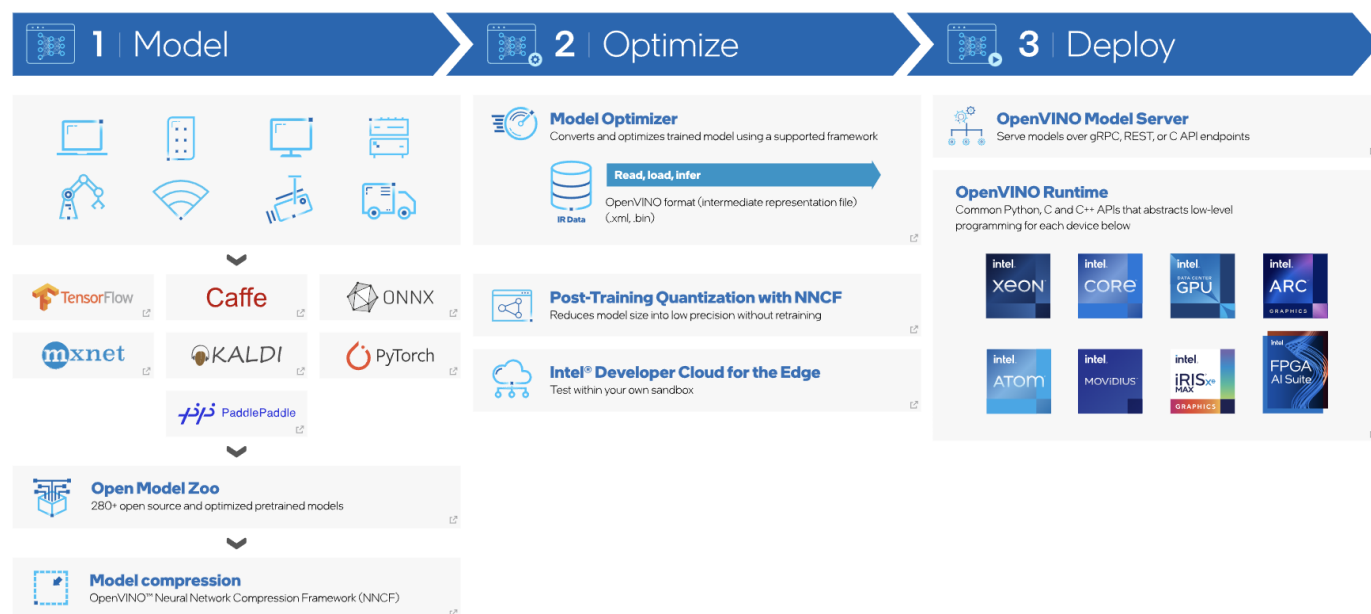
Enable the device service control camera devices (IP or USB) to collect video streams

The service supports Vision inference right at the edge, deploying AI models like object detection, classification and recognition.

It then passes that inferred intelligence to other services for decision-making and control.

Intel OpenVINO support

Based on Intel's OpenVINO toolkit, the custom camera service provides users with the capability to deploy advanced vision-based workloads on Intel platforms.



Enhance your IoT Solution with AI: Demonstration

The screenshot displays the Edge Xpert Manager web interface in a browser window. The browser address bar shows 'localhost:9090'. The interface includes a sidebar with navigation options: Dashboard, Services Control, Devices, Data Center, App Services, Notifications, Schedules, Gateways, and Users. The main content area features several data cards:

- Devices:** 0
- Device Services:** 2 (Admin State). Legend: UNLOCKED 2, LOCKED 0.
- Subscriptions:** Service not available
- Interval Actions:** Service not available
- Device Profiles:** 0
- Application Services:** 0
- Data Reading:** 0

A large, tilted blue banner with the OpenVINO logo and text is overlaid on the right side of the interface. The IOtech logo and '© 2022 IOtech v2.2.2' are visible in the bottom left corner of the interface.



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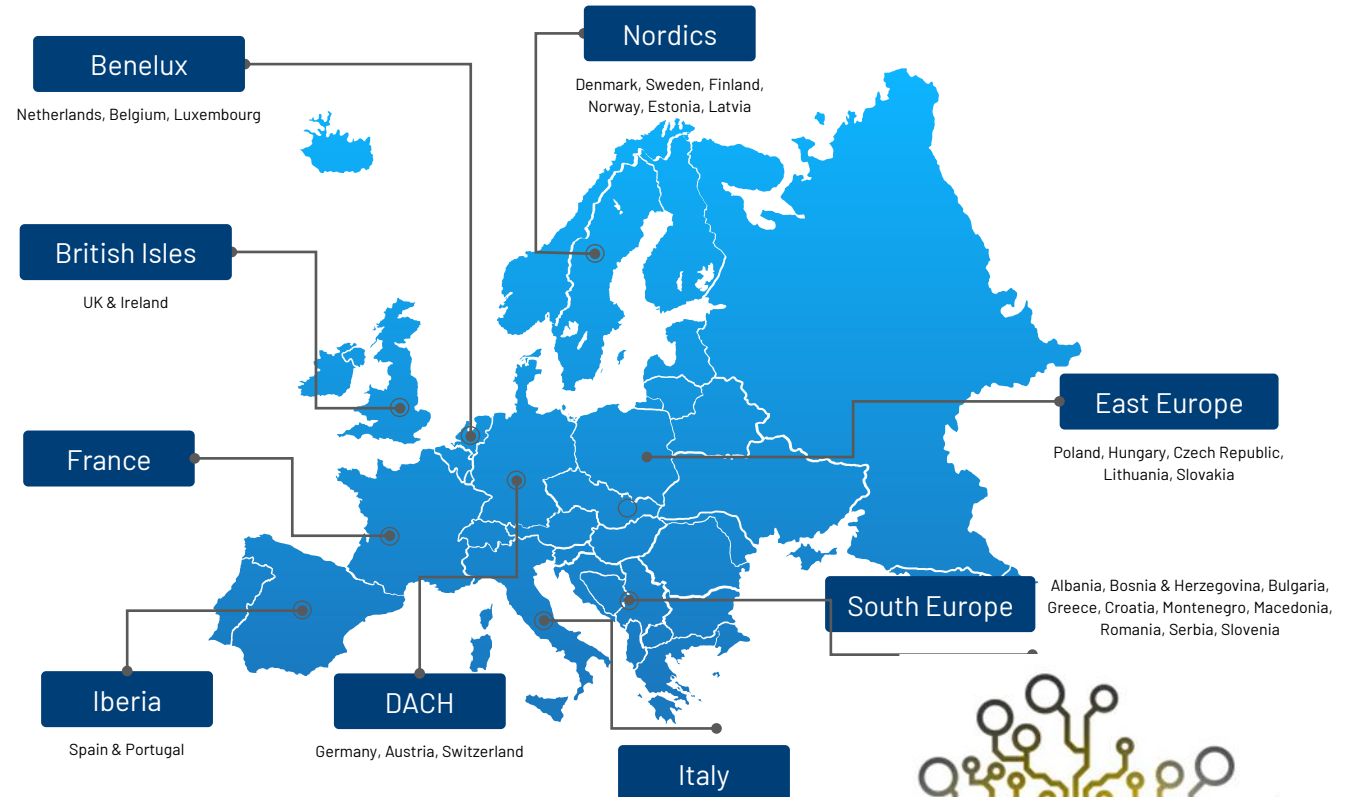
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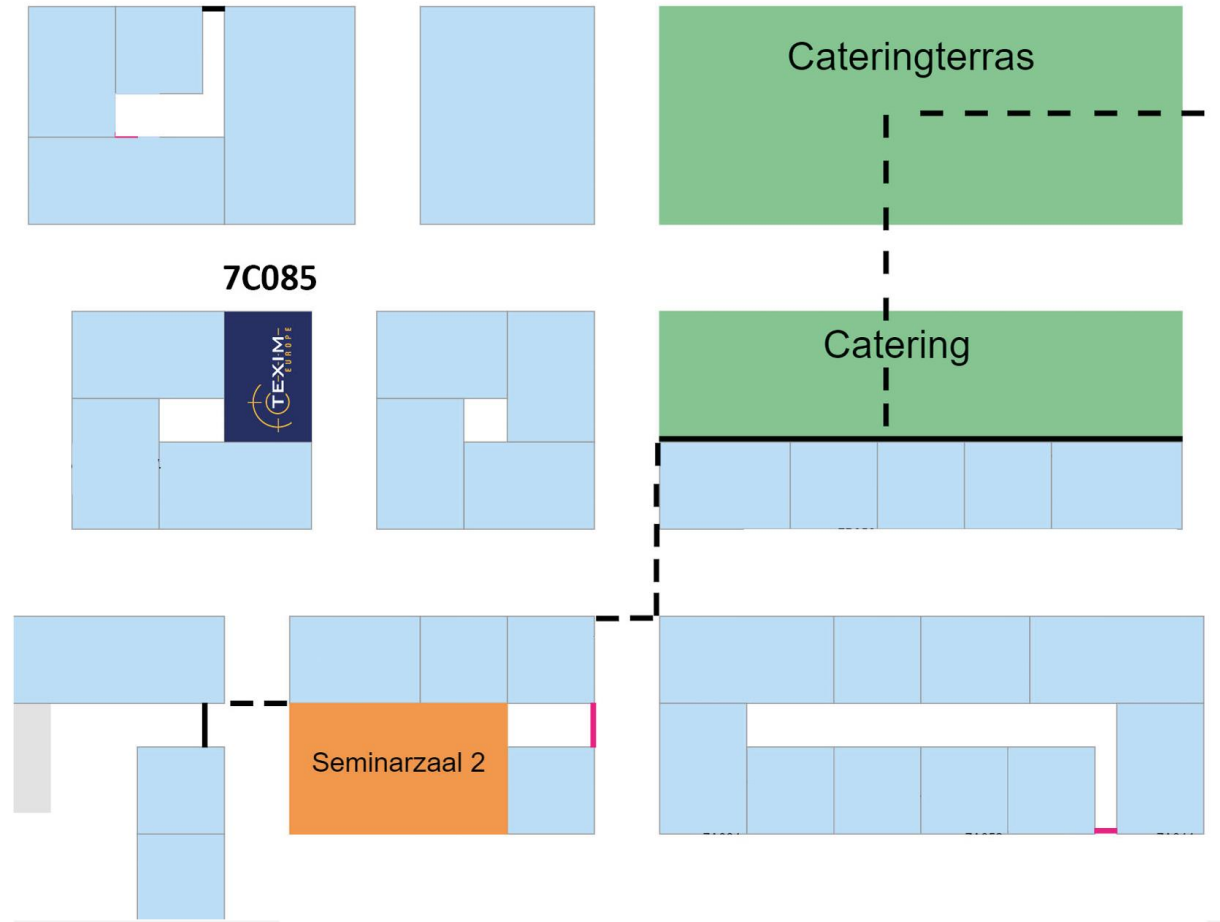


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Thank you

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