

1. Need for Edge computing
2. 3rdEye Edge computing Basic component
 - a. Hardware component
 - b. Software component
 - c. Configurator
3. AB-1 Edge IIoT system
4. Contact 3rdEye

1. Need for Edge computing

Driven by the internet of things (IoT), a new computing model – edge-cloud computing – is currently evolving, which involves extending data processing to the edge of a network in addition to computing in a cloud or a central data center. Edge-cloud computing models operate both on premise and in public and private clouds, including via devices, base stations, edge servers, micro data centers and networks.

Edge computing is a distributed open platform at the network edge, close to the things or data sources, integrating the capabilities of networks, storage, and applications. By delivering edge intelligence services, edge computing meets the key requirements of industry digitalization for agile connectivity, real-time services, data optimization, application intelligence, security and privacy protection. Serving as a bridge between the physical and digital worlds, edge computing enables smart assets, smart gateways, smart systems, and smart services.

Edge intelligence (EI) is edge computing with machine learning (ML) and advanced networking capabilities. This means that several information technology (IT) and operational technology (OT) industries are moving

closer towards the edge of the network so that aspects such as real-time networks, security capabilities to ensure cybersecurity, self-learning solutions and personalized/customized connectivity can be addressed.

3rdEye AB-1 edge Iotizer is bullet proof, easy to use fully configurable Industrial edge platform suitable for Industry4.0, smart city, smart farming, smart asset management, smart logistics & smart X industry.

Based on proprietary hardware & software, It provides seamless northbound & southbound integration.

Our Iotizer is a ready to use IoT Node building block for IoT infrastructure can be used in any IoT system design e.g. ISO/IEC 30141, Internet of Things Reference Architecture (IoT RA), ITU-T Y.2060, IIC IIRA, RAMI 4.0, IoT-A ARM, AIOTI etc.

2. Basic component

AB-1 Iotizer is made of three components

a. Software component

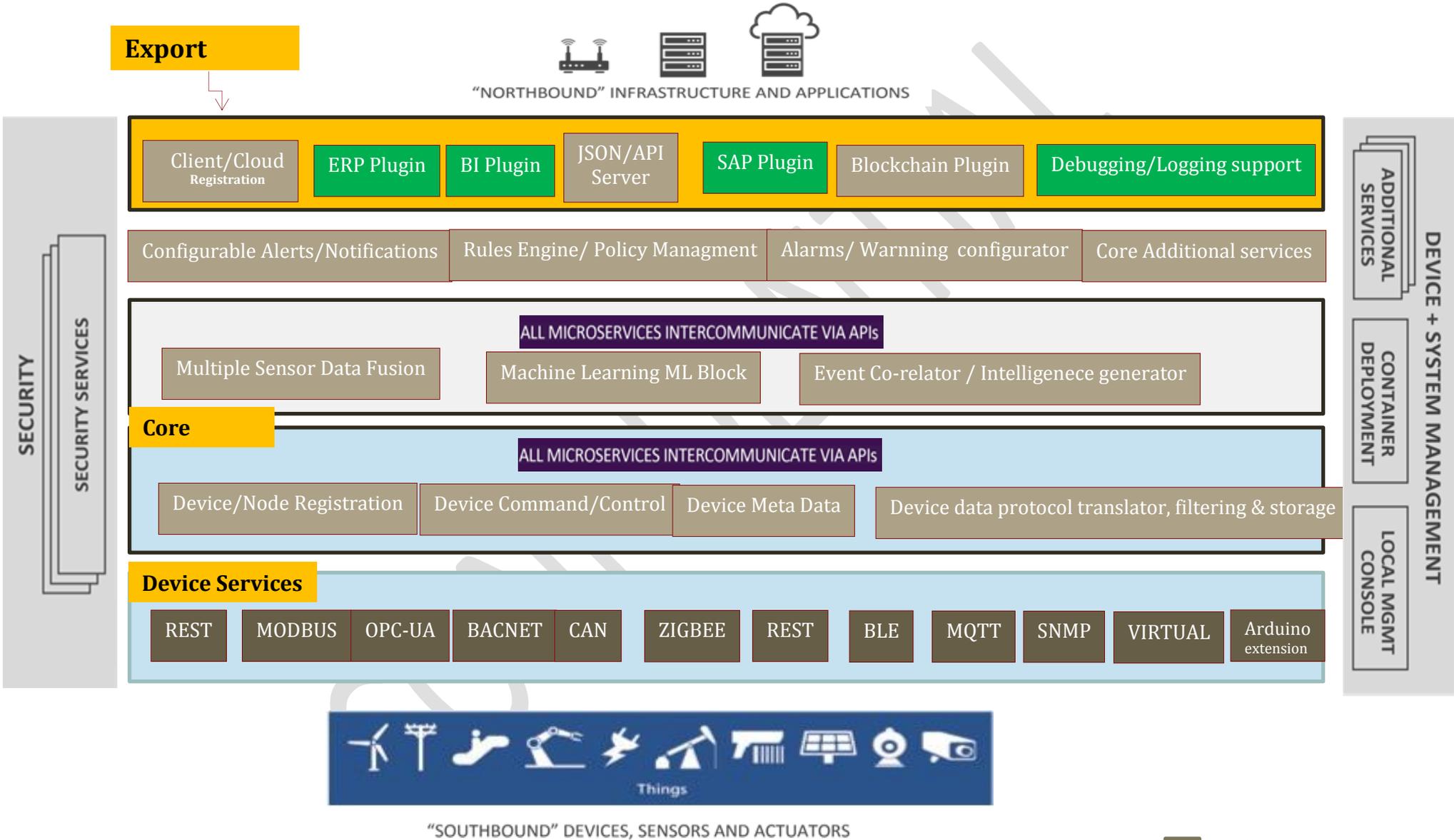
Technical specification

- Microservices architecture supports the use of any combination of heterogeneous
- components plugged into a common interoperability foundation.
- Agnostic to any hardware CPUs (x86, ARM), OS (Linux, Windows, Mac OS), and
- app environment (Java, JavaScript, Python, Golang, C/C++ to work together through
- the common APIs
- Allow services to scale up and down to highly-constrained devices, based on device
- capability and use case

- Support for any combination of device interfaces to normalize connectivity
- protocols (both IP and non-IP) into a common API
- Functionality across multiple edge hardware nodes or across processors within
- a given node
- Optional microservices (e.g., northbound message bus, rules engine, database)
- can be quickly replaced with preferred open-source or proprietary alternatives
- Industrial-grade security, manageability, performance, and reliability while still
- maintaining extensibility.
- Drop-in replacements of microservices or entire subsections with more performant
- versions without requiring architectural changes

Features

- **Interoperable Ecosystem:** Makes it easy to integrate service offerings from many
- sources into a unified IoT edge
- **Security:** A pluggable unified security model that makes secure solutions
- development easy in any context.
- **Scalable:** Builds on industry models (IIC, OpenFog, OCF, etc)
- **Flexible:** Enables rapid deployment without technology lock-in
- **Integrating:** Unifies existing standards with proprietary solutions
- **Generative:** Creates a marketplace/ecosystem of plug-and-play components
- to quickly scale up or down fueling higher-level market innovation
- Performant versions without requiring architectural changes



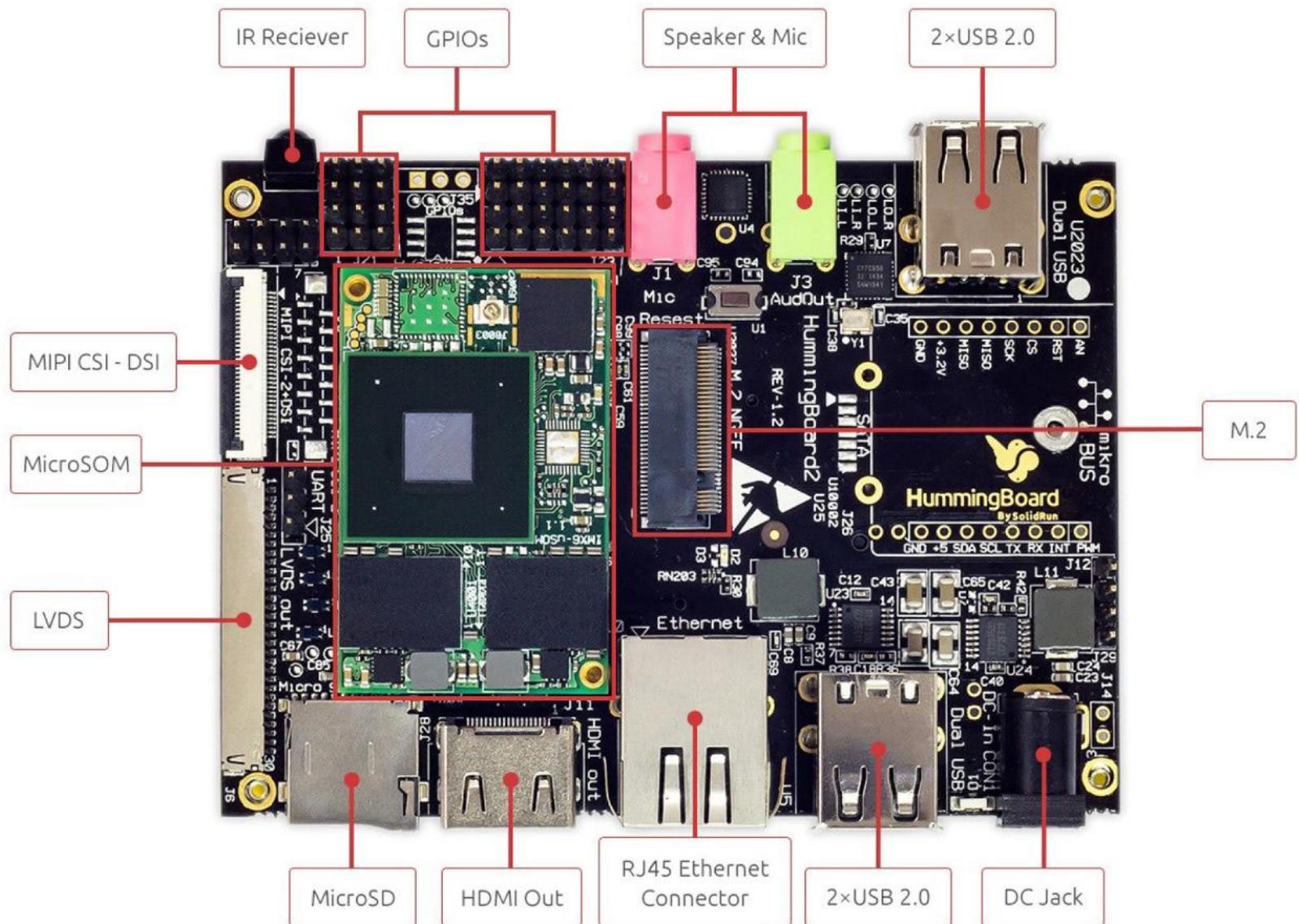
- Open source
- Proprietary
- Proprietary Patched Open source

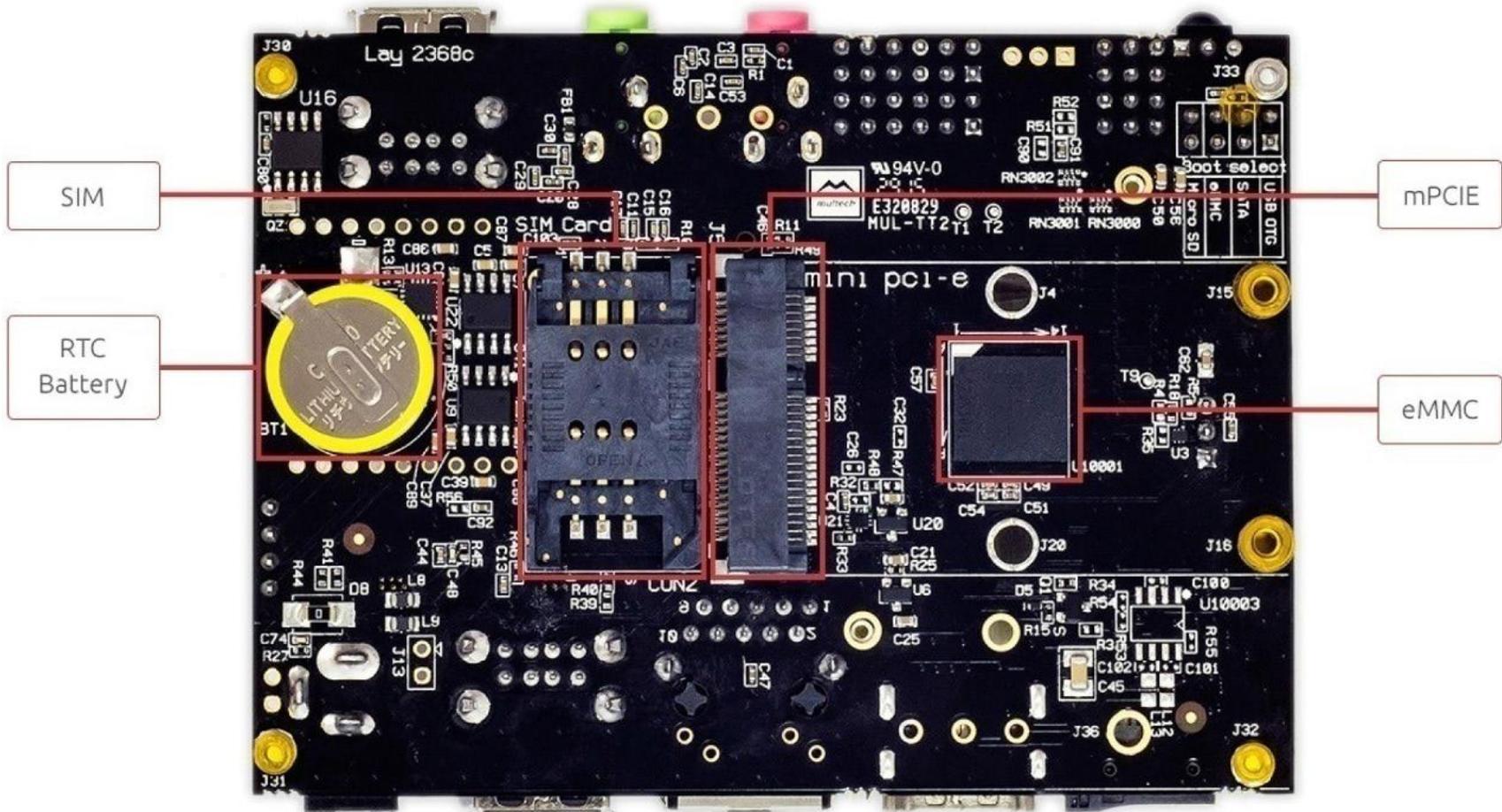
b. Hardware component

The low power hardware belongs to ARM Cortex-A7 product family. It is also an industrial grade item with 256M DDR3 and 256M NAND flash, most preferable for IoT EDGE solution. The whole board size is only 100mm X 73mm, on board LCD, Ethernet, CAN, USB host/OTG, RTC, SD card, LED are all available, 41x GPIO pinned out by dual- row pin connectors with pitch of 2.54mm.

Features –

- Compact size and flexible
- Industrial grade component working stably in environment tem ranges from -40 to +85 °C.
- Low memory footprint (RAM)
- Small size binaries
- Low latency
- High performance
- Deploy only micro services you need
- Feature rich physical radio connectivity: WiFi, BLE
- Cellular connectivity: GSM/GPRS/LTE/CAT-M/NB-IoT, LoRa, 6LoWPAN/Zigbee



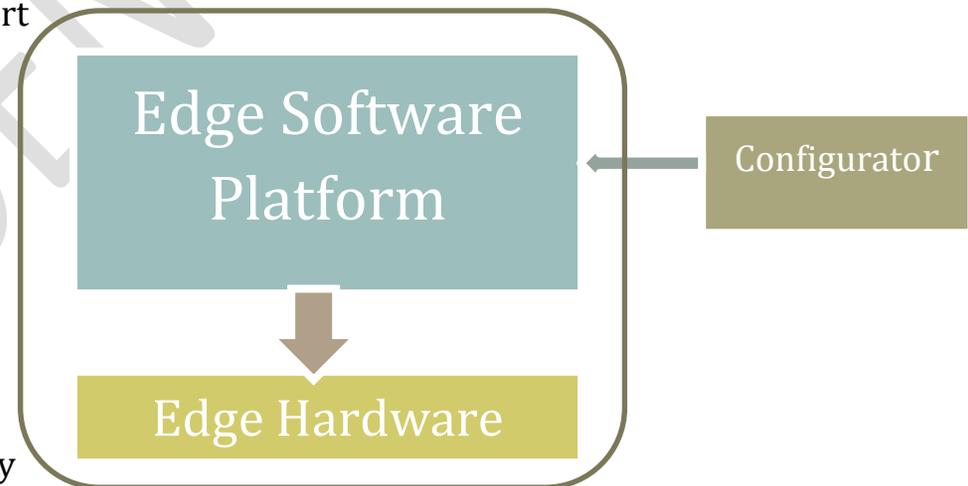


c. Platform configurator “Avenger”

Avenger is in-house flashing & platform feature configurator tool which provides full control on edge software stack, below diagram shows how it works –

Platform configurator features –

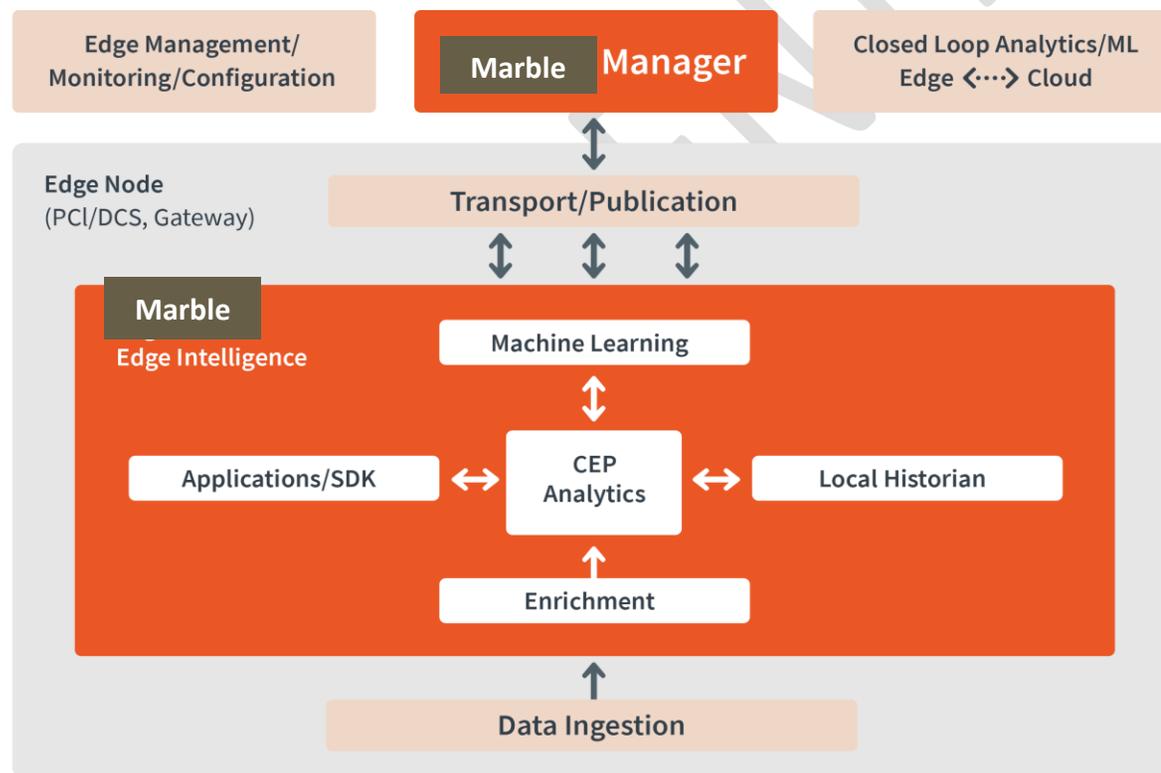
- Full edge platform feature selection
- Windows/iOS HOST connectivity
- Hardware connection using micro USB or serial port
- Cloud provider selection e.g. AWS, Azure etc
- ERP plugin selection e.g. SAP etc
- Alarm/warning policy selection & configuration
- General policy selection
- Hardware flashing support
- ML/AI enable/disable feature selection
 - On the shelf ML model selection
- Feature micro service selection & configuration
- full north bound/south bound configuration facility
- Multiple device flashing support with same configuration



3. AB-1 Edge IIoT system

Full turn-key Internet of things system composed of highly-performant IoT Cloud platform and edge computing gateway supported with ecosystem of plug and play components that significantly accelerates and simplifies deployment of IoT solutions across a wide variety of industrial and enterprise use cases.

The turn-key system is designed for scale, performance, operational efficiency and the ability to create intelligent products and value-added services across the range of industries.



Marble Differentiators

- Tiny Footprint
- OT-Centric
- Cloud Agnostic

Main Use Cases

- Condition Monitoring
- Predictive Maintenance
- Asset Performance Management
- Industrial Process Optimization

Key Customer Benefits

- Lowers Bandwidth/Hosting Costs
- Triggers Real-time Insights
- Enables Proactive Use Cases
- Maximizes Security and Privacy



4. Contact 3rdEye

3rdEye Technik is a technology company providing full-stack, IoT Edge platform, IoT edge computing gateway and consulting services for all IoT technology stack layers.

Technically diverse our cross-functional team covers hardware expertise, embedded software development, IT operations and management, software and web application development, distributed systems, data science and blockchain development.

From the initial phase and strategic planning, PoC stage, to data analytics after rollout, we are providing professional services and support to ensure success of your IoT development.

3rdEye Technik

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