

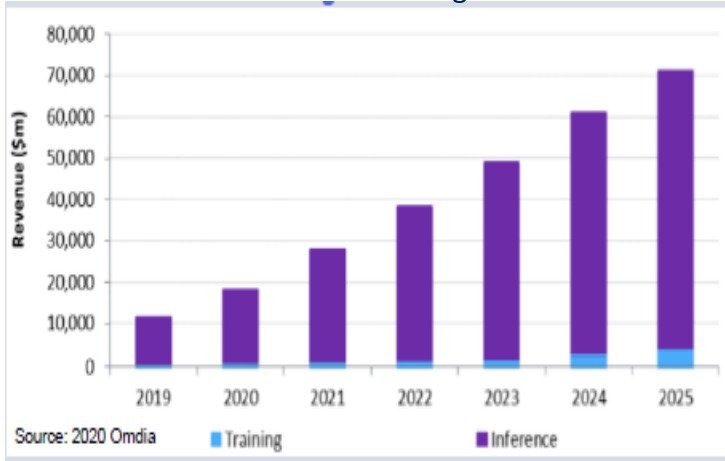


# Growing Demand On AIoT Market

“IoT devices to generate 79.4 ZB of data in 2025”-- IDC

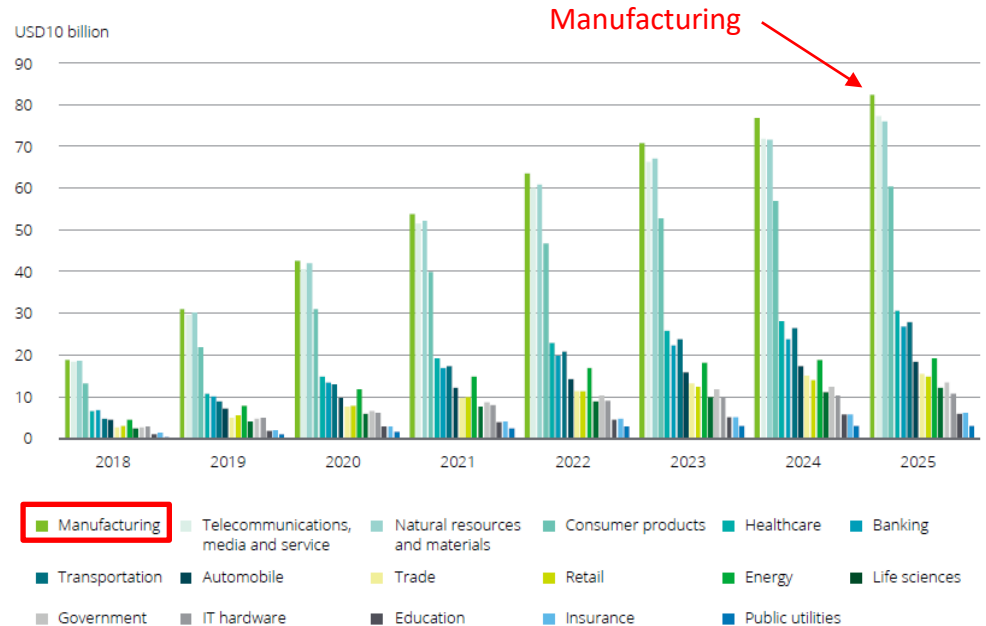
## Growth on AI Market

AI Inference & Training Market



## Growth on AI Market By Industry

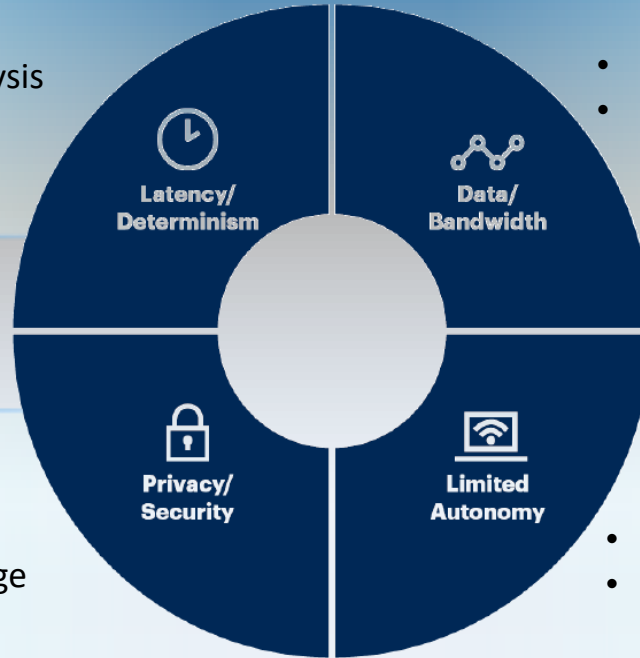
Figure 1-23: AI market size (by industry)



Source: Gartner

# The Value of Edge Computing

- Data pre-processing and analysis
- Event driven rule engine



- Data collection and protocol convert
- Edge data filter for bandwidth control

- Keep privacy data AT Edge
- Data transmission and storage security

- Standalone work ability
- Self-management

Edge computing is entering the mainstream as organizations look to extend cloud to on-premises and to take advantage of IoT and transformational digital business applications..

# EIS Series: Edge-to-Cloud Connect Acceleration

Realizing Data Integration & Visualization from Edge-to-Cloud



CNC Monitoring and Management



Semiconductor



PCB Manufacturing



Smart Energy Storage Monitoring



## Equipment Connectivity

- Support industrial protocol OPC-UA/Modbus/ODBC
- Domain focus solution for semiconductor and smart factory



## Edge Intelligence

- Edge Data pre-processing and analysis
- Event driven rule-engine

Microsoft Azure  
WISE-PaaS  
aws  
Alibaba Cloud



EIS-S230



kubernetes  
Edge Cloud



## Easy Deployment

- Centralize configuration and deployment
- Edge protocol setting and duplicate



Device0N  
iEdge

## Edge-X



## Data Visualization

- One-key generate dashboard
- Based on vertical application and customer using scenario

Built-in



EI-52



EIS-D620



EIS-D210



EIS-D150

Edge Intelligent Server

ADVANTECH

# EI-52 Edge Intelligent System

All-in-one Compact High Performance for AIoT Application

## Plug & Play System Design

- Easy start-up and configuration for IoT deployment
- 11th Gen Intel® delivers powerful computing with built-in SSD/memory

## Edge-to-Cloud Interconnection

- Integrated software architecture and low-code integration
- Sensing data integration and built-in remote management software

## AI x 5G Platform Ready

- Compatible AI acceleration model with Intel® Movidius™ Myriad X VPU
- Compatible 5G modules achieve 10 x faster throughput and 100 x traffic capacity



Increase in Operational Efficiency



Reduction in Maintenance Cost



Reduction in Deployment Time

# EI-52 Feature Highlights



- Intel® Core i5-1145G7E/i3-1115G4E/Celeron-6305E, i5 Turbo boost up to 4.1 GHz
- 4K HDMI + DP 1.4a Dual display
- 2x Intel GbE, 2x RS-232/422/485, 4x USB 3.0, 2x USB 2.0
- Built-in 16G/8G DDR4 Memory & 64G SATA Slim SSD
- OS supports Win 10 IoT & Ubuntu 20.04
- Pre-installed Edge X Expendable data acquisition API and WISE-DeviceOn
- Intel VNNI/OpenVINO & Advantech Edge AI Suite support for AI/deep learning

## Target Applications:

Smart City/ Factory Automation/ Retail/ Self-service kiosk

11th Gen.



HDMI+DP



Fan-less

Edge-X  
WISE-DeviceOn

OpenVINO™



ADVANTECH

# EI-52 Expansions: 5G

## Optional AMK-A0039: Thermal kit for AIW-355 5G Module



**AIW-355**  
5G Module

**AMO-I026A**  
M.2 to mPCIe Adaptor

**AMK-A0039**  
EI-52 Thermal kit for AIW-355



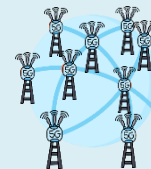
### 10x Faster Throughput

Compared to 4G peak speed 1 Gbps, 5G can provide up to 10 Gbps.



### 10x Latency Decrease

With 5G, lag time will drop to <1 ms compared to 4G lag time 10~20 ms.



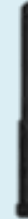
### 100x Traffic Capacity

5G can connect up to 1M devices per square km, increased 100x over 4G capacity.

# EI-52 Expansions: WIFI

## Optional WIFI kit: Support EWM-W189H02E WIFI+Bluetooth Module

- Add-on wireless capability: EWM-W189H02E WIFI module
- Support WIFI 802.11 a/b/n/ac & Bluetooth upto 3 Mbps
- Support -40~70C operating temperature



**EWM-W189H02E**

CE RED/FCC Ready in Q3



# EI-52 Expansions: AI

## Optional AMK-A0038: VEGA-330 with Intel Movidius Myriad X VPU

- Add-on AI capability: up to 8 TOPS with 7.6 watt only
- Edge AI Suite with 100+ pre-trained AI models, graphic UI and built-in OpenVINO to accelerate development
- DevCloud to evaluate
- FaceView industrial app with high precision AI engine and SDK for face recognition applications



**AMK-A0038**  
Including VEGA-330 and Thermal solution

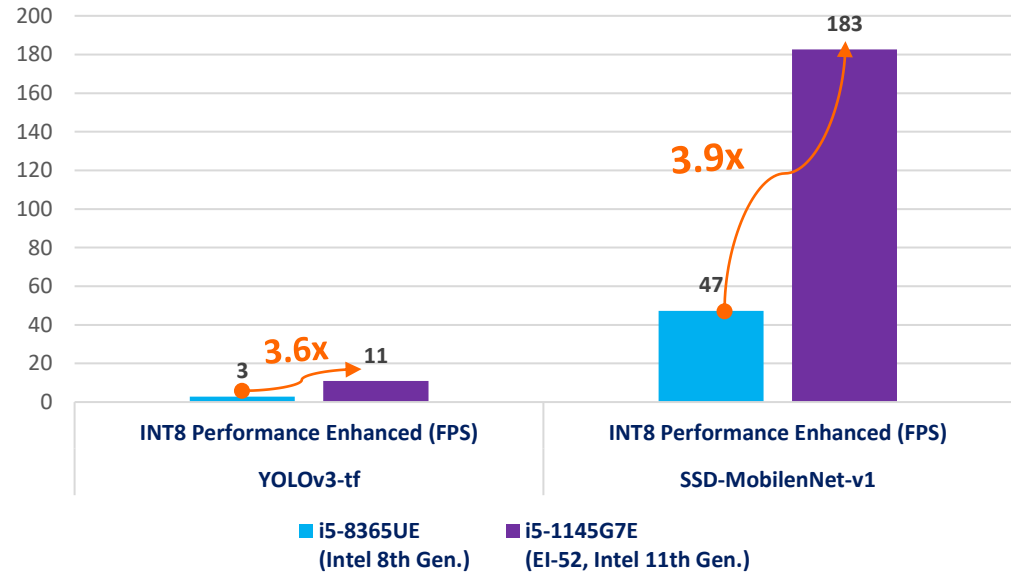
Power Efficient Edge AI Inference:  
up to **8 TOPS @ 7.6 Watt**

**Certificate PASS!**

# Intel 11th. Gen. VNNI AI Performance

- Compared to previous 8th Gen., Intel 11th Core i processor supports **Vector Neural Network Instruction (VNNI)**, which improves AI inference performance about 4x higher.

## Intel VNNI AI Performance (FPS)



# Open Platform Edge-to-Cloud Integration EdgeX-API

## DeviceOn/iService

Intelligence Services Mgmt.



## EdgeX Productivity Tools

POCLink for Battery Mgmt.

Device Diagnostics

Microsoft Azure

Alibaba Cloud

WISE-PaaS

aws

ADVANTECH

WISE-PaaS

IoT Edge Intelligence

IoT Edge Intelligence Solution

ADVANTECH

WISE-PaaS

AIoT Solutions & Marketplace

Cold Chain Management



Cloud/APP Connect

Device Connect

## Ubiquitous Data Stream

Device  
Connection

Data  
Processing

## Fast Application Integration

Edge  
Analytics

Cloud  
Integration



Edge Gateways



Fleet Gateways



Medical Computers



Intelligent Service



Self-service Kiosks

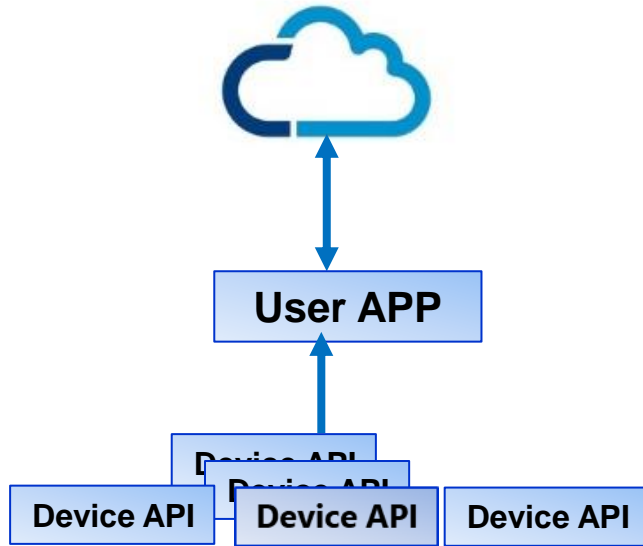


LoRa Gateway

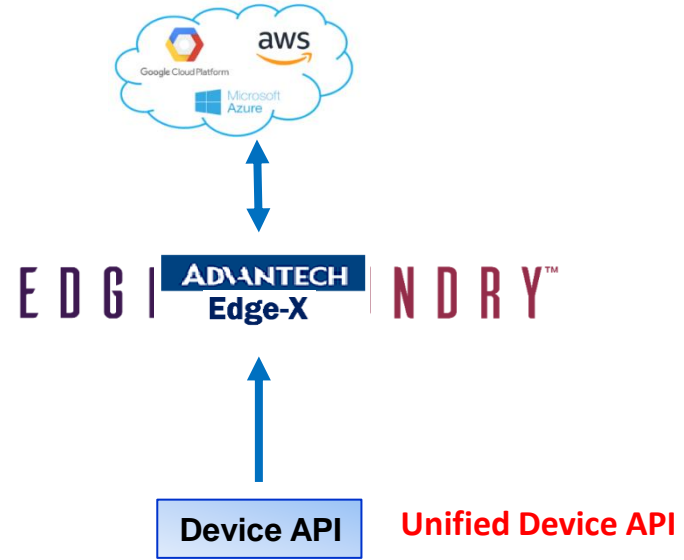
# Why Edge X?

Open Platform to Speed up Data Acquisition and Application Development

## Traditional Architecture












## Edge X Architecture



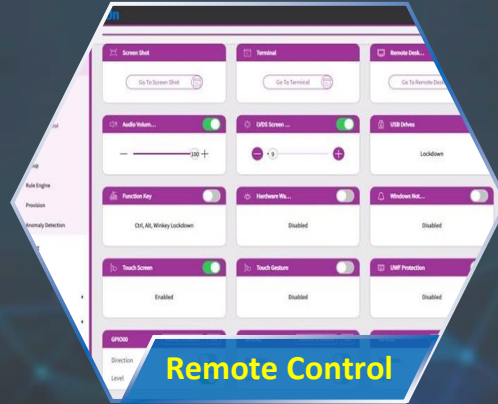
# Edge X Supported Data Protocol & Device List

<b>Supported Protocol</b>	BACnet
	BLE
	Grove
	Modbus
	MQTT
	NEMA
	OPC-UA
	ONVIF
	REST
	SNMP
	UART Command
	USB
	VIRTUAL
	ZIGBEE
Others (Proprietary)	

	Category	Device	
	<b>Tested Device</b>	Battery	POC-IPSM90 
Cold chain sensor		Trek-120 	
GPS sensor		NEO-M8U-06B 	
I/O Module		WISE-4012 	
IP cam		GeoVision GV-TDR2700/TBL2703 	
Printers		URPPT800	
		TMT82II	
		TMT88V	
		PPTC31	
		SLKTL212	
USB devices: Cam/MSR/Rfid/2D Scanner		UTC-P01 camera	
		UTC-P02 Magnetic card reader	
		UTC-P03 RFID	
		UTC-P06 smart camera	
	UTC-P07 2D scanner		
Monitor devices	External VGA/HDMI monitor		
	Integrated monitor LVDS		
Scanner MQTT devices	Honeywell N3640/N4680/5860		
	New Land EM2096		
	JayRay IG 380/820		
	Jogtek ADT007A		

# WISE-DeviceOn

*Empower Edge Intelligence & Enhance Data Security*



## Highlights

- Dashboard overview
- Real-time status
- Device list & health status
- Easy-to-Use UI
- Remote power management
- Windows lockdown
- Backup w/o interrupting current tasks
- Dynamic scheduling for backup timing
- Unauthorized applications blocking

# EI-52 Target Markets



*Intel 11th Gen. Powerful Performance / Compact Dimension / AI & 5G Compatible*



**Smart City**



**Intelligent Automation**



**Self-service Kiosk**

## 3 Key Values

**Large-Scale Deployment**

**Connectivity Service**

**Software Integration**

**Simplify Deployment**

**Management Software**

**IoT Development Tools**

**Device Connection**

**Vertical Focus Software**

**24/7 Security**

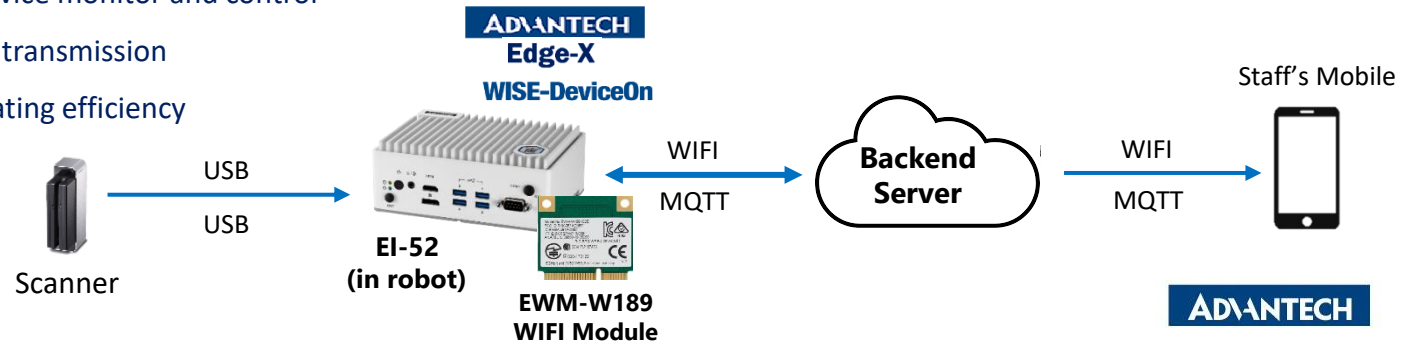
# Retail Robot Wireless AI Notification System

The compact EI-52 equipped with Edge X WISE-DeviceOn is deployed in autonomous retail robot. When the robot moves along the aisle, the scanner would scan the goods on the shelves and detect issues need to be fixed, for example, out of stock, price issue or wrong product. The detected data is transmitted to the backend server, and then the central system can notify the staff to correct the issues. On the other hand, IT operator can remote control and monitor EI-52 in real-time through the built-in WISE-DeviceOn software.



### Key Benefits:

- Built-in Edge X for robot and backend data connectivity
- Built-in DeviceOn for real-time device monitor and control
- WIFI module support for wireless transmission
- Save man cost and enhance operating efficiency



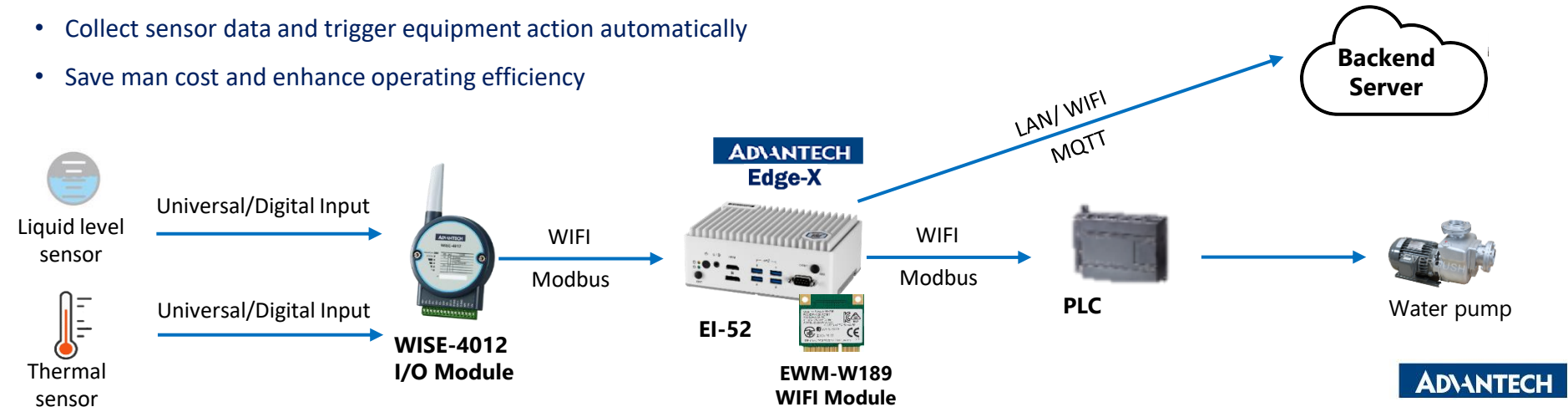


# Automatic Water Pump Control

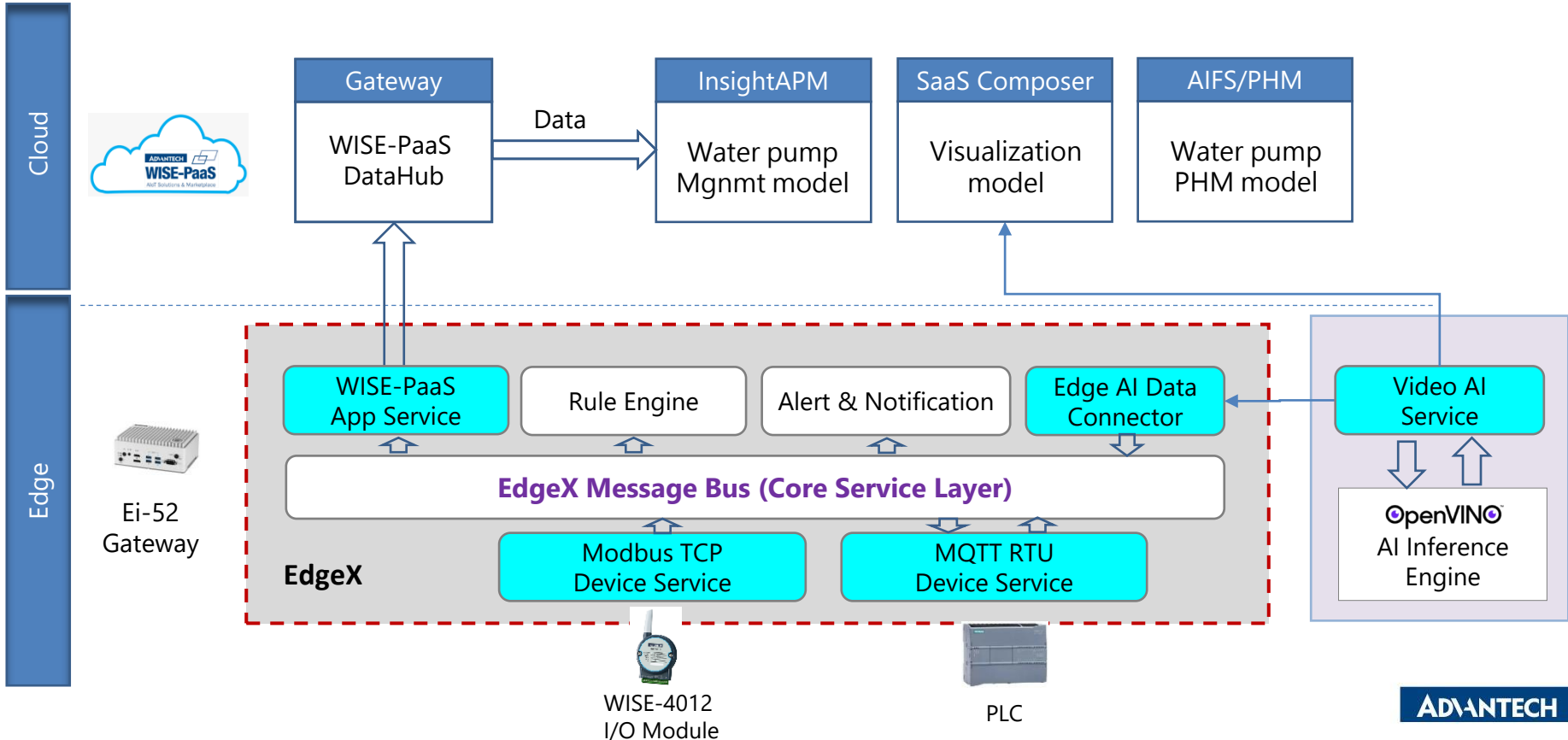
EI-52 equipped with Edge X data acquisition API is deployed in the factory and connect with IoT I/O module and PLC. Through the connection, the water pump can be automated set according to the liquid level and temperature sensor data to save man cost and enhance operating efficiency.

## Key Benefits:

- Built-in Edge X data acquisition API
- Collect sensor data and trigger equipment action automatically
- Save man cost and enhance operating efficiency



# Automatic Water Pump Control: Software Architecture



# Automatic Water Pump Control: Application Dashboard



Water Pump Dashboard



Water Pump PHM Model (Device Health Status)

# Co-Creating the Future of the IoT World

