

The Industrial IoT Brings Challenges



Interoperability

- Legacy device connectivity
- Long-term driver support
- Support for industrial protocols
- IT/OT interoperability



Easy to Use

- Web GUI interfaces
- Configuration wizards
- Industrial profiles
- Software tools

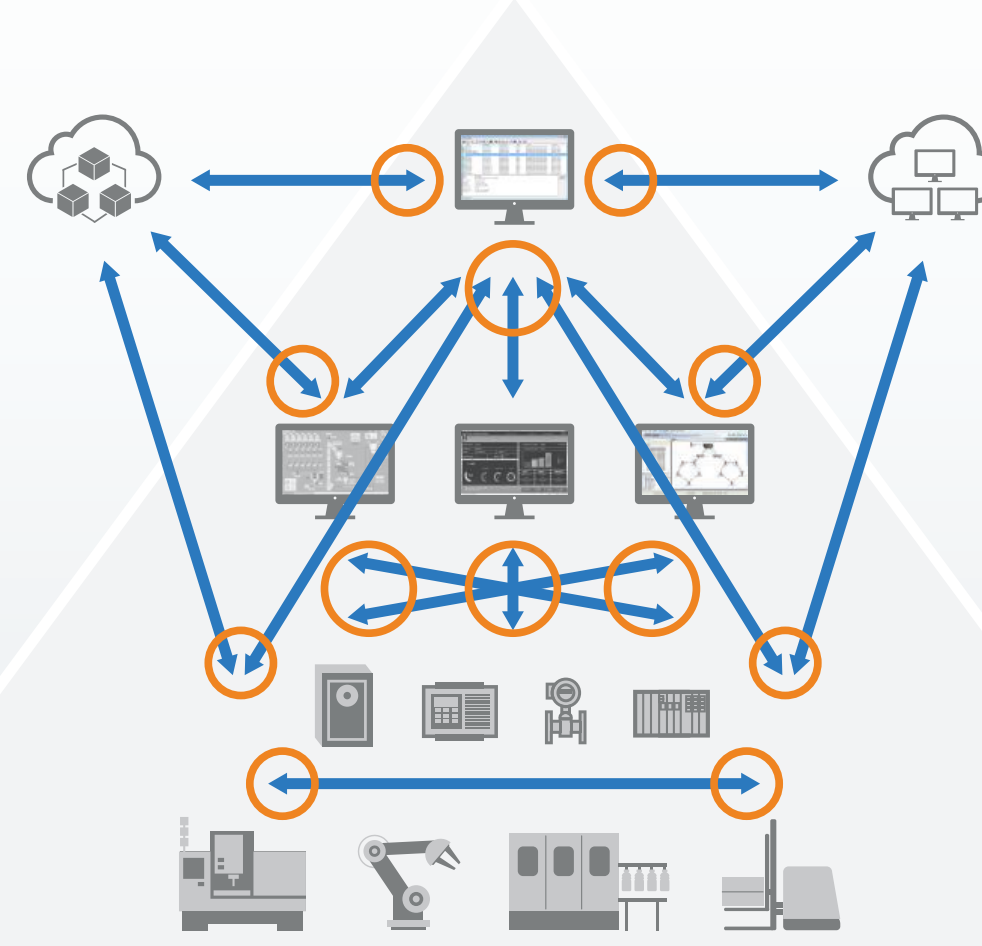
Various Protocols

Multiple communication protocols abound in OT and IT realms, such as fieldbus, proprietary, and open protocols for machine-to-machine communication, and RESTful API and MQTT for IT and cloud applications. The IIoT requires the integration of OT and IT—hence, the protocol conversion challenges.



Various Interfaces

A variety of wired interface conversions occur in OT and IT, including serial-to-serial, serial-to-fiber, fieldbus-to-fiber, Ethernet-to-fiber. With the IIoT requiring hyper-agility, an increase in wired-to-wireless conversions only complicates operations.



Various Vulnerabilities

In the past, ICS networks were physically isolated and almost immune to cyberattacks. However, the IIoT has opened up OT silos to the IT world to expand system and network integration, making IT/OT convergence unfortunately vulnerable to internal interferences and external threats.



Various Networks

Various networks already exist in the worlds of OT and IT, including local area network (LAN), wireless local area network (WLAN), and wide-area network (WAN). As the IIoT requires more device-to-cloud and sensor-to-cloud integration, adopting new communication technologies to achieve interconnectivity will actually complicate network integration.



Cybersecurity

- Device security based on IEC 62443
- Industrial secure routers with firewall, NAT, and VPN
- Network security management

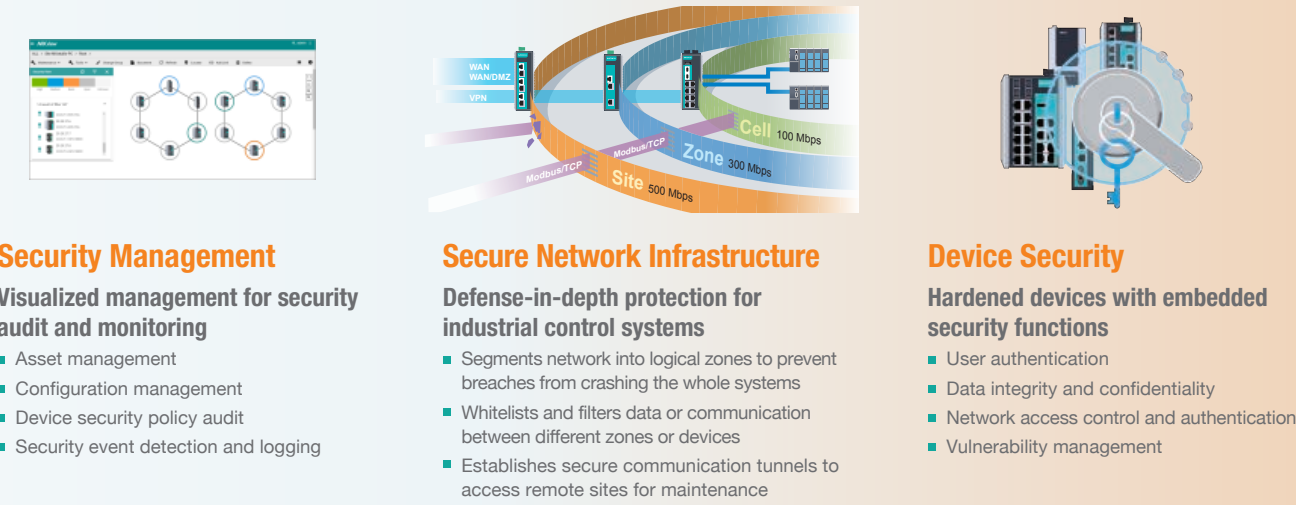


Industrial Reliability

- Wide temperature, fanless design
- Power/network redundancy
- Industrial certifications
- Free support, software updates

Technology Highlights

3-Layer Security Architecture Based on ISA 99/IEC 62443



Security Management

- Visualized management for security audit and monitoring
- Asset management
 - Configuration management
 - Device security policy audit
 - Security event detection and logging

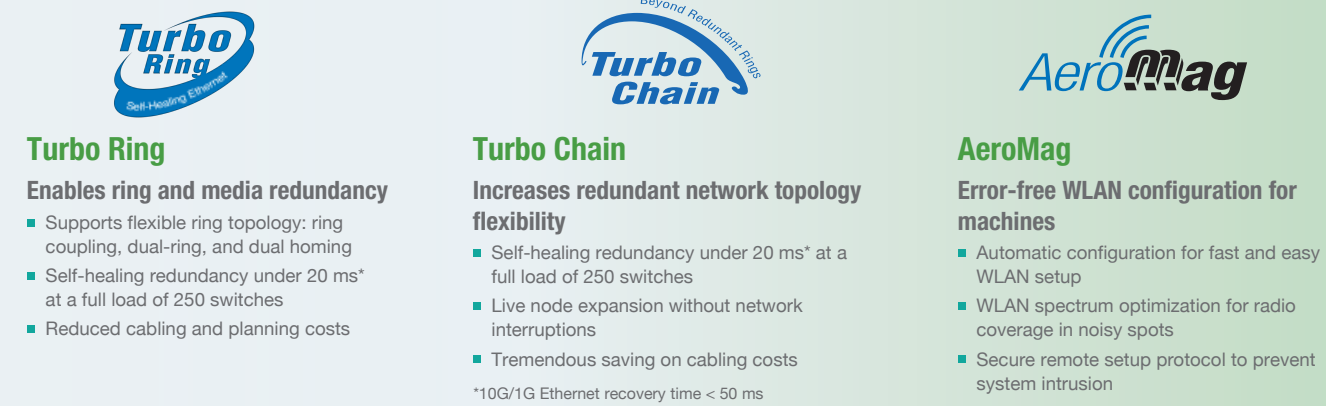
Secure Network Infrastructure

- Defense-in-depth protection for industrial control systems
- Segments network into logical zones to prevent breaches from crashing the whole systems
 - White-lists and filters data or communication between different zones or devices
 - Establishes secure communication tunnels to access remote sites for maintenance

Device Security

- Hardened devices with embedded security functions
- User authentication
 - Data integrity and confidentiality
 - Network access control and authentication
 - Vulnerability management

Reliable Wired and Wireless Networks



Turbo Ring

- Enables ring and media redundancy
- Supports flexible ring topology; ring coupling, dual-ring, and dual homing
 - Self-healing redundancy under 20 ms* at a full load of 250 switches
 - Reduced cabling and planning costs

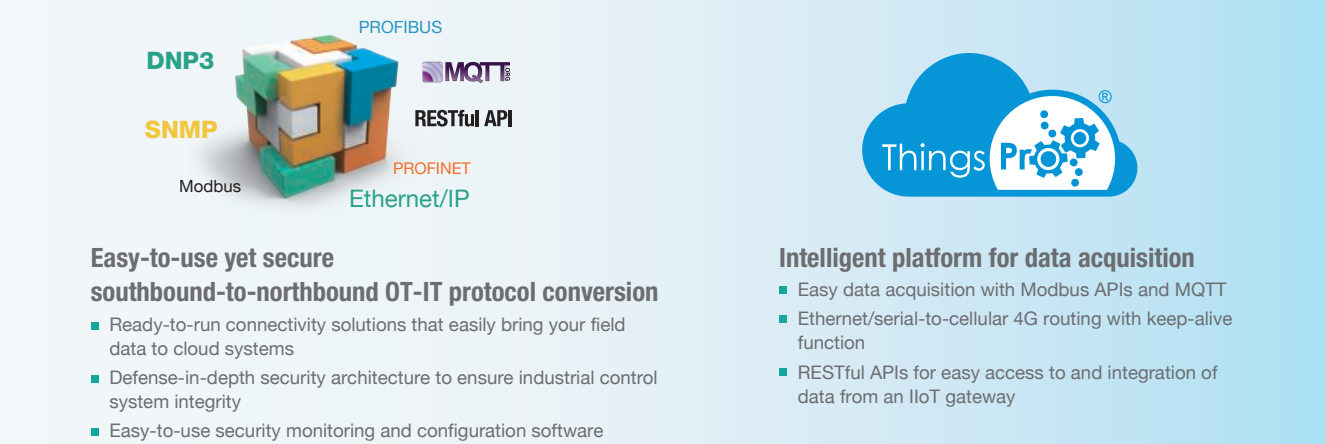
Turbo Chain

- Increases redundant network topology for flexibility
- Self-healing redundancy under 20 ms* at a full load of 250 switches
 - Live node expansion without network interruptions
 - Tremendous saving on cabling costs
 - *10G/1G Ethernet recovery time < 50 ms

AeroMag

- Error-free WLAN configuration for machines
- Automatic configuration for fast and easy WLAN setup
 - WLAN spectrum optimization for radio coverage in noisy spots
 - Secure remote setup protocol to prevent system intrusion

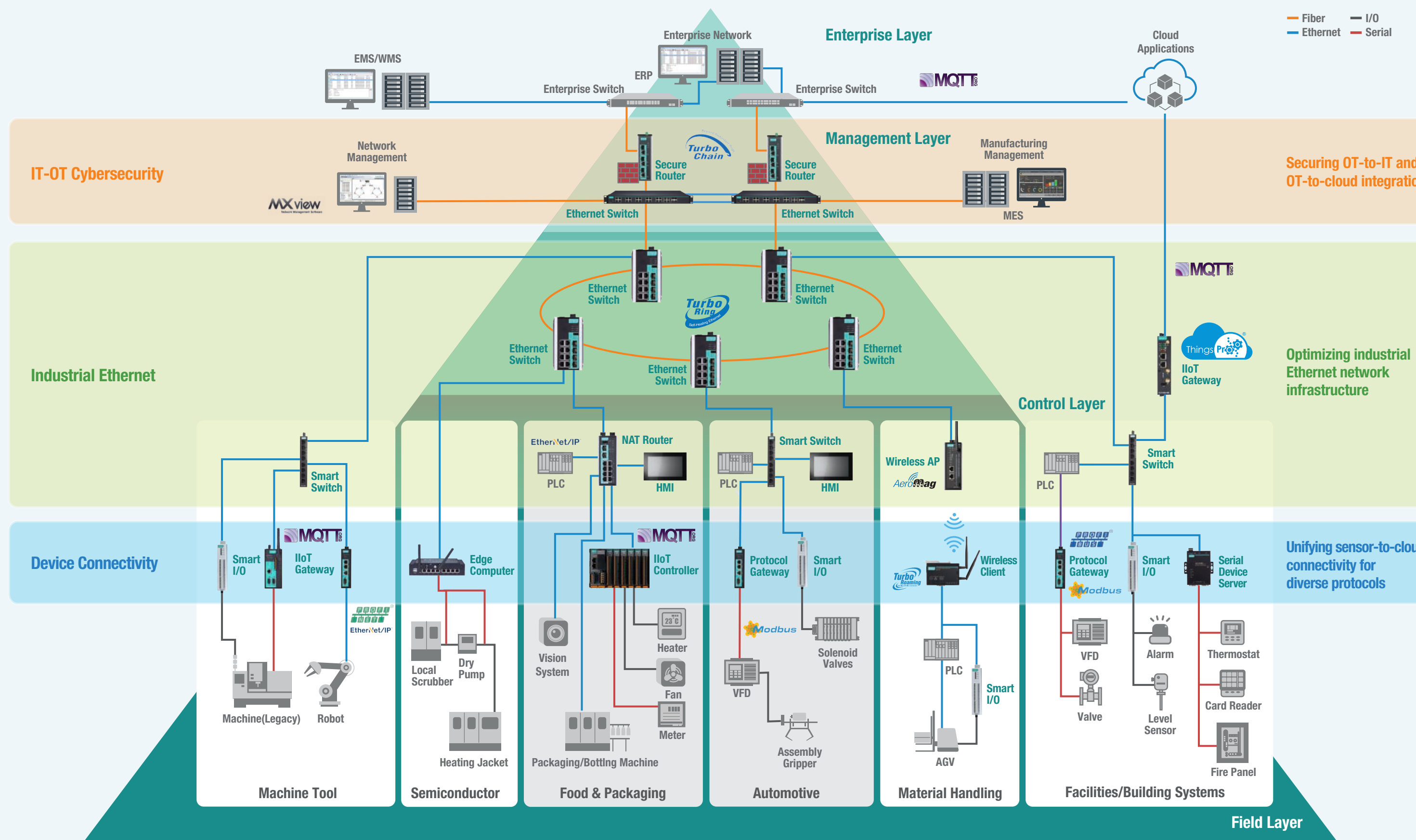
Efficient OT/IT/IIoT Protocol Interoperability



- Easy-to-use yet secure southbound-to-northbound OT-IT protocol conversion
- Ready-to-run connectivity solutions that easily bring your field data to cloud systems
 - Defense-in-depth security architecture to ensure industrial control system integrity
 - Easy-to-use security monitoring and configuration software

- Intelligent platform for data acquisition
- Easy data acquisition with Modbus APIs and MQTT
 - Ethernet/serial-to-cellular 4G routing with keep-alive function
 - RESTful APIs for easy access to and integration of data from an IIoT gateway

Smart Factory Connectivity



Product Highlights

MXview

Industrial network management software designed for converged automation networks

- Device security status at a glance with Security View
- Monitors up to 20,000 network nodes
- OPC Protocol, RESTful API, and a web widget for IT management systems or SCADA integration

Moxa Remote Connect Suite

Remote connection management platform for secure remote access

- End-to-end and fully integrated security
- Ease-of-use, cloud-based flexibility
- Proven reliability in harsh factory conditions

UC-8100A Series

Multiple I/O Edge Computing Platform

- 5-year warranty for hardware
- 10-year long-term support for Moxa Industrial Linux
- Collects data from field devices and is configurable through Modbus GUI with ThingsPro
- ThingsPro supports RESTful APIs for application development
- Certified by a third-party cloud agent for edge computing with Azure IIoT Edge

NPort 1AW5000A-I/O and NPort 1A5000A-I/O Series

Ethernet/wireless serial device server with digital I/Os

- Connects serial and I/O data to the cloud through generic MQTT
- Supports MQTT connections with built-in device SDKs to Azure/Alibaba Cloud
- Supports MQTT connections with TLS and certificate in JSON and Raw data format
- microSD card for configuration backup or duplication and event logs, and data buffering when the cloud connection is lost
- Supports repackaging the serial data size (up to 4K) to save the packet numbers that need to be sent to the cloud platform

EDR-810 Series

Industrial secure routers

- 8+2G all-in-one firewall/NAT/VPN/router/switch
- Transparent firewall for bump-in-the-wire protection and integration
- Deep packet inspection (DPI) for controlling the behavior of industrial protocols

NPort 6000 Series

Secure terminal servers

- Secure operation modes for Real COM, TCP, Server, TCP Client, Pair Connection, Terminal, and Reverse Terminal
- Enhanced remote configuration with HTTPS and SSH
- Port buffers for storing serial data when the Ethernet is offline

EDS-G516E Series

Industrial Ethernet switch

- Up to 12 10/100/1000BaseT(X) ports and 4 100/1000BaseSFP ports
- Turbo Ring and Turbo Chain (recovery time < 50 ms @ 250 switches) for network redundancy
- Enhanced security features based on the IEC 62443 standard
- V-ON technology for systemwide optimization

iOthinX 4500 Series

Advanced controller & I/Os

- High-performance industrial controller for machine condition monitoring and predictive maintenance
- Controller, remote I/O, and a variety of expendable interfaces
- Supports a rich variety of IIoT connecting information for easy troubleshooting, and cloud data transmission for cost evaluation and analysis
- microSD card for configuration backup or duplication and event logs, and data buffering when the cloud connection is lost
- Security features based on IEC 62443

IT/OT Cybersecurity

Industrial Ethernet

Device Connectivity

IT/OT Cybersecurity

Industrial Ethernet

Device Connectivity