



### Network 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 vulnerable to internal interferences and external threats.



### Network Complications

OT and IT applications use different types of networks, including local area networks (LANs), wireless local area networks (WLANs), and wide-area networks (WANs). Since the IIoT requires more device-to-cloud and sensor-to-cloud integration, adopting new communication technologies to achieve interconnectivity will actually complicate network integration.



### Your Trusted Partner in Automation

Moxa is a leading provider of edge connectivity, industrial computing, and network infrastructure solutions for enabling connectivity for the Industrial Internet of Things (IIoT). With over 30 years of industry experience, Moxa has connected more than 65 million devices worldwide and has a distribution and service network that reaches customers in more than 80 countries. Moxa delivers lasting business value by empowering industries with reliable networks and sincere service. Information about Moxa's solutions is available at [www.moxa.com](http://www.moxa.com).

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## Simplify Connecting to Smarter Manufacturing

Adopting IIoT connectivity technologies to take your business to the next level



## The Industrial IoT Brings Challenges

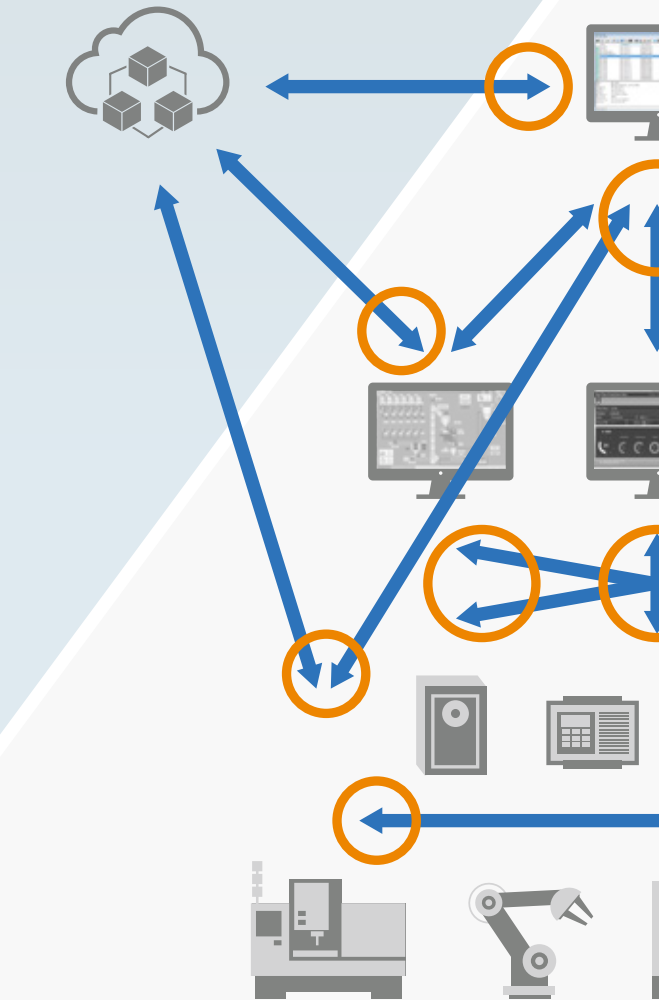
### Network Protocols

OT and IT applications use multiple communication protocols, including fieldbus, proprietary, and open protocols for machine-to-machine communication, and RESTful API and MQTT for IT and cloud applications. Since the IIoT involves integrating OT and IT, engineers face a number of protocol conversion challenges.



### Network Interfaces

Both OT and IT make use of a variety of wired interface conversions, including serial-to-serial, serial-to-fiber, fieldbus-to-fiber, and Ethernet-to-fiber. The IIoT is even more complicated, since it uses hyper-agile architectures with wired-to-wireless conversions.



#### Industrial Reliability

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



#### Cybersecurity

- Industrial IPS tailor-made for OT
- Device security based on IEC 62443
- Network security management



#### Easy to Use

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

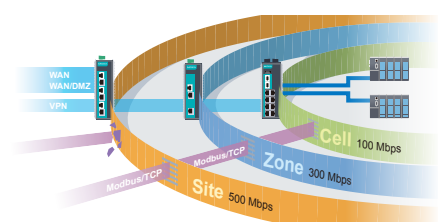


#### Interoperability

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

# Technology Highlights

## Secure Network Infrastructure



**Defense-in-depth architecture for enhanced network security**  
Moxa's security-hardened networking devices, which include secure routers and Ethernet switches, help ensure the security of your industrial network infrastructure by routing authorized traffic to the intended destinations.

## IT-OT Integrated Security

### Industrial Cybersecurity Solution



**Industrial IPS tailor-made for OT environments**  
Moxa's industrial IPS (Intrusion Prevention System) features our OT-centric Deep Packet Inspection technology, enhances IT network security visibility, and ultimately helps mitigate risks and protect industrial networks from security threats.

**Whitelisting control to only allow authorized network activity**  
Whitelisting allows OT engineers to define a whitelist of devices and IP ports that are allowed to access all or part of the network. In addition, an authorized protocol format can be added to the whitelist to prevent unauthorized commands from passing through the industrial IPS or firewalls.

## 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

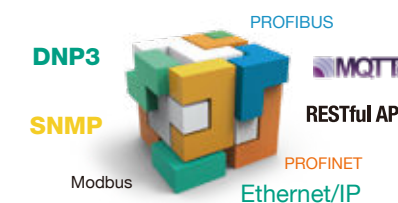
**Turbo Chain**  
**Increases redundant network topology flexibility**  
■ Self-healing redundancy under 20 ms\* at a full load of 250 switches  
■ Live node expansion without network interruptions  
■ Tremendous saving on cabling costs

**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

\*10G/1G Ethernet recovery time < 50 ms

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## Efficient OT/IT/IoT Protocol Interoperability

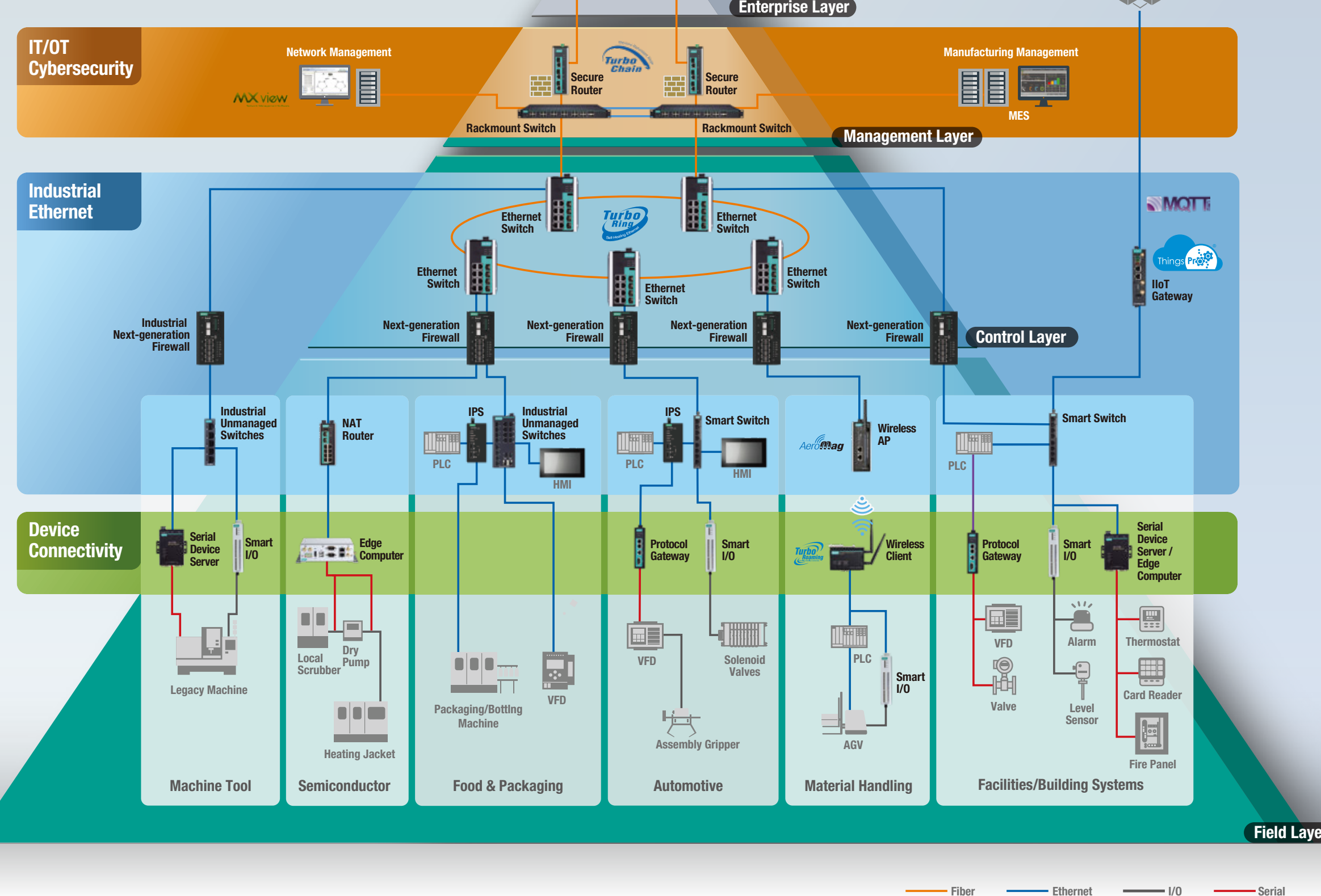


**Easy-to-use yet secure southbound-to-northbound OT-IT protocol conversion**  
■ Ready-to-run connectivity solutions that easily bring your field data to cloud systems  
■ Defense-in-depth security architecture to ensure industrial control system integrity  
■ Easy-to-use security monitoring and configuration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

# Making Smart Manufacturing a Reality

## Moxa Automation Ecosystem



— Fiber — Ethernet — I/O — Serial

# 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

## IEC-G102-BP Series

**Industrial intrusion prevention system**  
■ Tiny industrial security devices with IPS/IDS  
■ Fine-grained policy enforcement with whitelisting control  
■ Bump-in-the-wire installation without impacting the network

## IKS-G6824A Series

**24G-port Layer 3 full Gigabit managed Ethernet switches**  
■ Layer 3 routing interconnects multiple LAN segments  
■ 24 Gigabit Ethernet ports  
■ Up to 24 optical fiber connections (SFP slots)

## EDS-2000 Series

**5 to 18-port industrial unmanaged switches**  
■ Extra-small form factors  
■ QoS and BSP functions for traffic efficiency  
■ Instant relay alarm for power and port failure\*  
■ Gigabit combo ports for versatile uplinks\*\*

\* Only available in the EDS-2000-ML Series  
\*\* Only available in the EDS-2010-ML and EDS-2018-ML Series

## UC-8100A Series

**Arm-based IIoT edge gateways**  
■ 5-year hardware warranty  
■ 10-year long-term support for Moxa Industrial Linux  
■ Easy Modbus data polling with supplementary ThingsPro software  
■ ThingsPro supports RESTful APIs for application development  
■ Azure IIoT Edge certified

## NPort IAW5000A-I/O and NPort IA5000A-I/O Series

**Ethernet/wireless serial device servers 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 reducing the size of serial data (up to 4K) to minimize the number of packets needed to send the data to a cloud platform

## EDR-810 Series

**Industrial secure routers and firewalls**  
■ 8+2G all-in-one firewall/NAT/VPN/router/switch protection and integration  
■ Deep packet inspection (DPI) for filtering industrial protocols

## Security Dashboard Console

**Security management software**  
■ Centralized cybersecurity management with real-time dashboards  
■ OT visibility that includes device identification and a network  
■ Automatically deploy virtual patches without disrupting operations

## EDS-G516E Series

**Industrial Ethernet switch**  
■ Up to 12 10/100/1000BaseT(X) ports  
■ 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

## AWK-3131A and AWK-4131A

**Industrial wireless AP**  
■ Supports 802.11n with data rate up to 300 Mbps  
■ Supports AeroMag for easy and error-free wireless deployment  
■ The AWK-4131A has a rugged IP68 rating, well suited for outdoor use  
■ The AWK-3131A is compliant with C1D2 and ATEX Zone 2 certifications

## ioThinX 4500 Series

**Advanced controller and I/Os**  
■ High-performance industrial controller for machine condition monitoring and predictive maintenance  
■ Controller, remote I/O, and a variety of expandable interfaces  
■ Supports a rich variety of IT/OT interconnection features, including Azure, AWS, Alibaba Cloud, OPC UA, MQTT, Restful API, SNMP, and Modbus TCP/RTU protocols

## MGate 5105-MB-EIP Series

**MQTT-supported Modbus RTU/ASCII/TCP-to-EtherNet/IP gateways**  
■ Supports MQTT connections with built-in device SDKs to Azure/Alibaba Cloud  
■ Supports MQTT connection with TLS and certificate in JSON and raw data format  
■ Embedded traffic monitoring and diagnostic 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