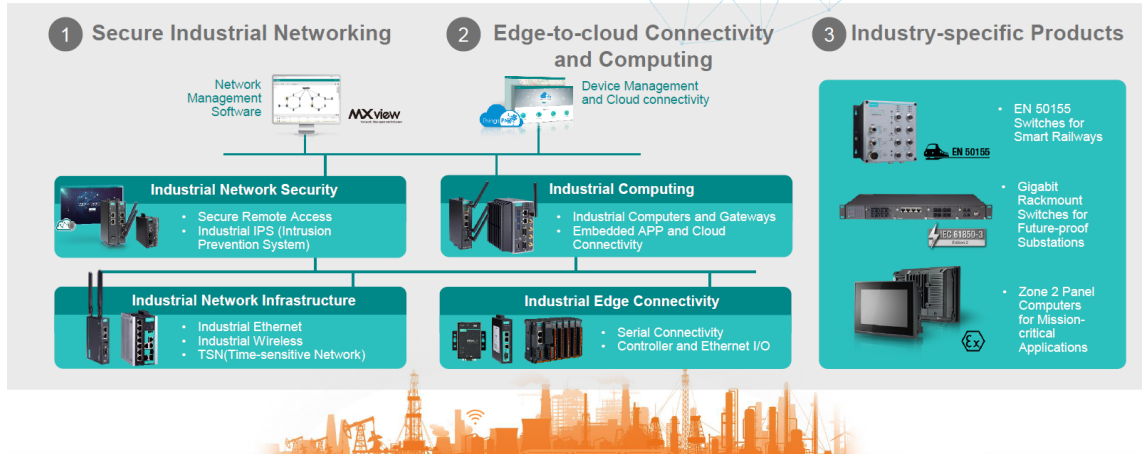


MOXA®

NEXT



Moxa: Enabling Connectivity for Industrial Transformation



Global Presence and Reach



MOXA[®]
Reliable Networks ▲ Sincere Service

Industry Specific Solutions

For Industries' Unique Connectivity Challenges and Mission Critical Industrial Applications



MOXA[®]

“We have a unique program for new engineers called **MOXA NEXT**. For you, it’s the **NEXT** step in your career as an engineer. For Moxa, it’s how we develop our **NEXT** generation of engineers and leaders. Once you complete the training program you will once again take your **NEXT** step toward a career in roles like Field Applications Engineering, Technical Sales, or Product Marketing. Come learn more about what’s **NEXT!**”

Chad Chesney
President and General Manager
MOXA Americas



MOXA[®]

**Careers &
Case Studies**



High Roller, Las Vegas

Setting New Heights for World's Tallest Observation Wheel

Setting a new Guinness World Record for observation wheel height, the High Roller provides passengers with a silky-smooth 30-minute ride with unimpeded 360-degree views of the Las Vegas skyline. The IP-based communications infrastructure makes every aspect of the control and emergency systems accessible to operators at the central control room, enabling the High Roller to meet the highest standards for operational reliability and passenger safety.

Building a Complex Industrial Control Network in Tough Conditions

Within each cabin were a number of control and safety systems that communicated with the central control room on the ground. There were also emergency communication systems with video capability in each cabin that needed to be available at a moment's notice at all times. Finally, in-cabin entertainment, position tracking, and wireless networking were essential towards delivering a quality passenger experience during the 30-minute duration of the ride. Due to the critical nature of these systems, wireless communications from each cabin to the main wheel and from the wheel to the ground needed to perform with the utmost reliability.

One of the biggest challenges was designing and deploying the network. "According to one of the field engineers, the network that we were putting in place was the most complex industrial control network they had ever seen," said Randy Printz, the project manager overseeing design and deployment of the High Roller. In addition, this was to be installed outdoors in Las Vegas, a very difficult environment. Sixty wireless networks needed to function simultaneously and seamlessly up to 18 hours a day without fail in a difficult environment, with temperatures ranging from 12 to 120°F (-11 to 49°C), high winds, large quantities of dust, and a lot of radio traffic. The equipment would be 200 to 500 feet in the air, and would be in constant motion and constantly changing orientation. No one had done this kind of thing before—that was the technical challenge.



Mike Werning
Field Application Engineer

Challenges

- Requires a high level of communications redundancy and reliability to ensure passenger safety
- Highly complex network topology that relies heavily on wireless communication
- Difficult to install and troubleshoot
- Unexpected communication issues





International Space Station

Capturing the Beauty of the Universe

The International Space Station (ISS) is the largest and most complex science and engineering project in history. The ISS has adopted industrial networking technology in its External Wireless Communication (EWC) system to transmit high-quality images and videos captured in outer space back to Earth.



A Rugged Solution Tough Enough for Space



Finding a robust solution that qualified for EHDC was critical for the success of this project. Boeing provided a solution based on Moxa's AWK-4131. It was selected due to its ruggedized design. It can withstand the harsh environment in outer space, from the intense radiation to the temperatures that fluctuate between -100 and 100°C. It can accommodate the demand for faster data transmission speeds by supporting 802.11n technology and allowing 2x2 MIMO communication with a net data rate of 300 Mbps.

In addition, Moxa also provided customized firmware to increase the power output over the standard model, along with a circular polarized, wide beam, small 5.3 GHz antenna. The Moxa AWK-4131 devices will function as an access point, bridge, and client, enabling communication around the station.

Moxa Partner

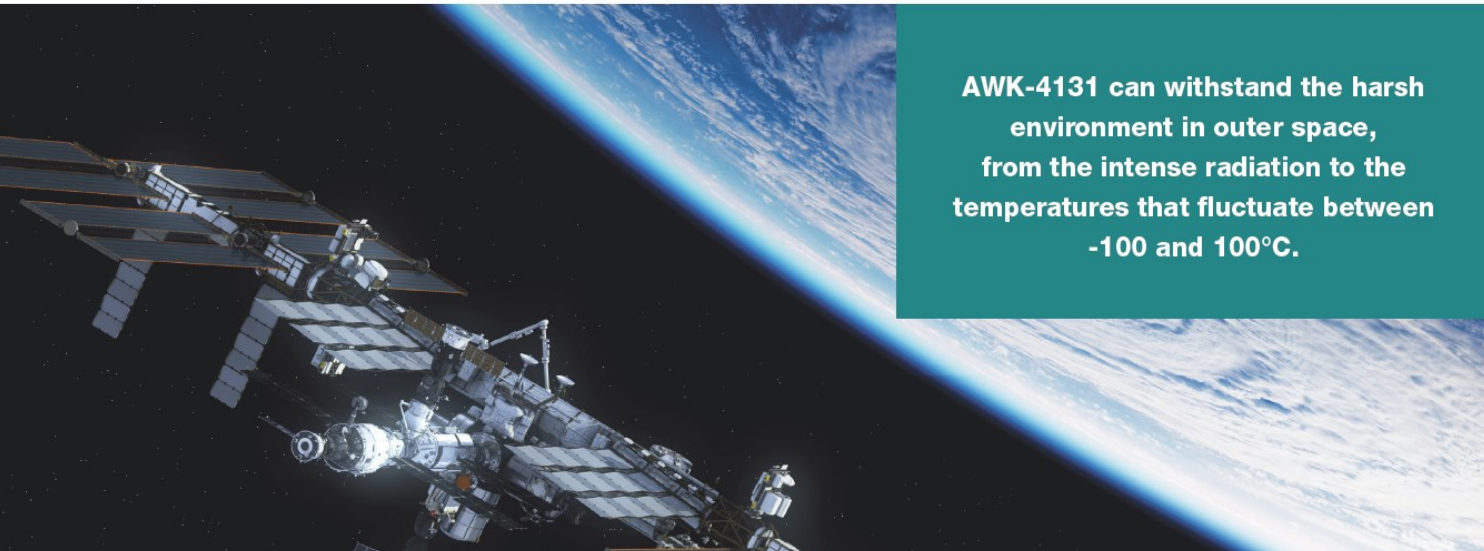
Industrial Networking Solutions

Moxa Solutions

- AWK-4131, 2x2 MIMO 802.11 a/b/g/n AP/bridge/client
- Rugged industrial design with integrated antenna and power isolation
- IP68-rated weatherproof housing designed to withstand -40 to 75°C operating temperatures
- 5 GHz DFS channel support

AWK-4131 can withstand the harsh environment in outer space, from the intense radiation to the temperatures that fluctuate between -100 and 100°C.

Oliver Wang
Product Marketing Manager





Smart Network Infrastructure Paves the Road to Centralized Traffic Management

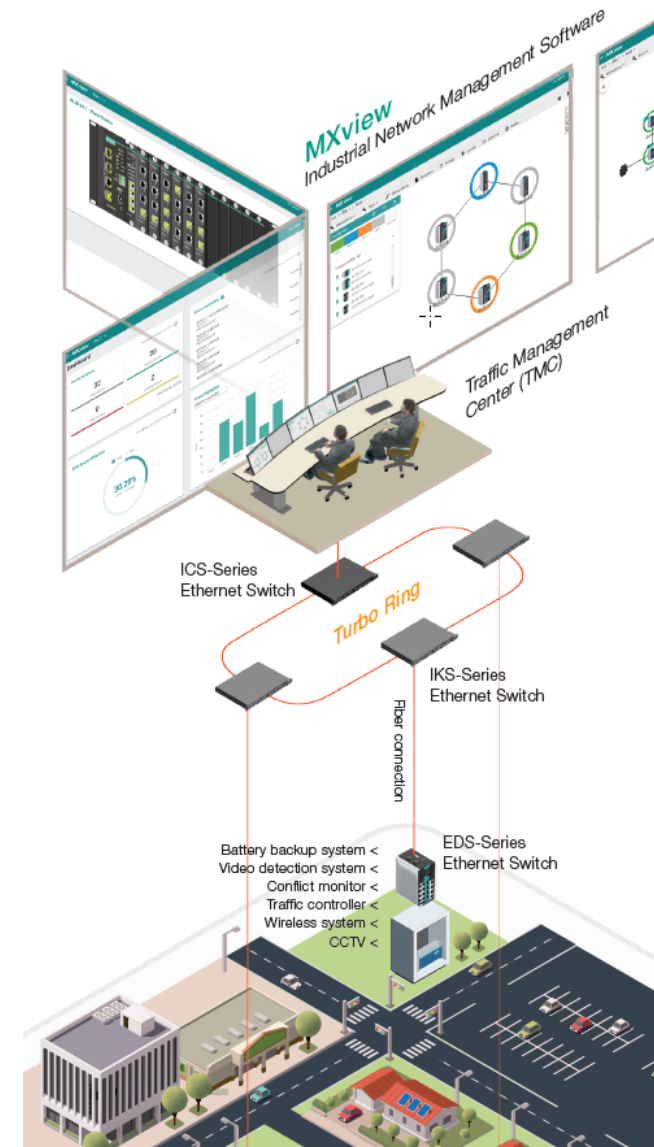
The City of Lancaster consulted with engineering design firm ADVANTEC Consulting Engineers Inc. to provide ITS services that included the design of a citywide traffic network and implementation of a modern ATMS. A total of 146 traffic cabinets needed to be connected to the fiber network and ATMS, so all traffic cabinets and remote assets could be managed from one central location. Since the entire system was designed from the ground up, a company with reliable, sustainable products and ample experience were top concerns when ADVANTEC Consulting Engineers Inc. chose their partner. Moxa's product performance, long-term value, and local support made them stand out during the evaluation process.

With a Moxa hardware and software solution, the city could now take full advantage of many modern Intelligent Transportation System (ITS) technologies, such as high-definition (HD) CCTV surveillance cameras and Advanced Transportation Controller (ATC) units. By creating a centralized operations center, staff can monitor and make changes to the system in real time.

The Moxa hardware solution brought full Gigabit speed all the way out to the edge—reaching every cabinet connected to the fiber infrastructure—future-proofing the network and providing the bandwidth necessary to support the data and video needs of today and tomorrow. Moxa high-performance EDS- Series, IKS- Series, and ICS- Series switches connect the fiber network, capable of quickly and reliably transferring large amounts of video, voice, and data across the network. The core switch's two 10G uplink capabilities also provide future expansion possibilities for the city. As the City of Lancaster implements more CCTV applications alongside the expected increase of connected and automated vehicles (CAV), more devices will need to be connected to the network, adding to the total amount of data that is processed over the network. Having a high-speed fiber optic communications network ensures they are ready to handle any increase of device connections in the future.

"We were happy to select Moxa hardware and monitoring software based on their extensive offering of full-Gigabit hardened edge switches, 24-port aggregation switches, and full Layer 3 core switch technologies. These hardened-grade products are perfect for ITS deployments and bring value to the City of Lancaster's advanced traffic management network." John Cox, Systems Engineer of ADVANTEC Consulting Engineers

Furthermore, product reliability was an essential factor, especially for traffic cabinets placed in harsh outdoor environments.



Michael Cochran
Sales Engineer

Enhance Cybersecurity for a Data Center

Introduction

- A data center service provider located in the U.S.A. wants to increase their cybersecurity because data centers are frequently attacked, which has resulted in data loss and significant penalties over the past five years.
- It is now a corporate-level initiative because in addition to the server room being attacked, the power sources that supply the server rooms have communication interfaces that have also been identified as vulnerable to cyberattacks.

Challenges

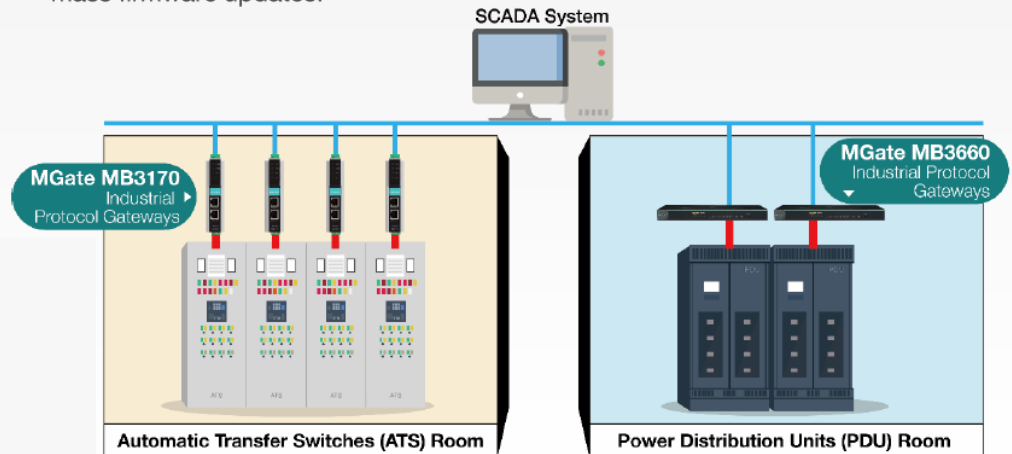
- To manage security risks more efficiently, the corporation must perform a vulnerability scan monthly to prevent possible attacks and urge device manufacturers to take action immediately when a vulnerability is identified.
- Cyberthreats are not the only problem that IT departments face. OT devices in data centers such as switchgear, PDU, UPS etc., also have to be protected as the circuit breaker, relay, and meters all have communication interfaces. There could be thousands of these devices, which makes monitoring and updating firmware troublesome.



Solution and Results

To reduce the chances of being hacked and suffering financial losses, any network node should have embedded security functions to ramp up device security.

- Moxa's MGate MB3170 and MB3660 protocol gateways were designed based on the IEC 62443 standard, ensuring cybersecurity is embedded within the device.
- Frequently perform vulnerability scans to ensure the latest patch can be obtained by users for critical applications that can be subjected to cyberattacks.
- Moxa's MXconfig has an easy-to-use GUI and our MCC, which is a CLI tool that simplifies performing configurations, makes it easier for both OT and IT users to make mass firmware updates.



Felipe Costa
Product Marketing Manager

NEXT

Program Details



- Mentor
- Guide
- Facilitator

“Let your passion take the driver's seat. I'll ride shotgun.”

Jaime Carrasco
Manager, Moxa NEXT
MOXA Americas



A launchpad for recent engineering college graduates to take the NEXT steps towards careers in Industrial Ethernet Networking and Automation through learning and mentorship.

- **Join a team** of recent engineering graduates
- **Foundation Training:** 12-Month Program (Learn by doing)
 - Layer 2 and Layer 3 Networking Foundation
 - Serial Communication Fundamentals
 - Industrial Automation Fundamentals
 - Troubleshooting skills development
 - Various soft skill courses
 - Meaningful collaborative projects
 - Engineer and build product demonstrations
 - Contribute to MOXA events
- **Career Development:** 9-Month Department Rotation
 - Application Engineering, Product Marketing, Sales
- **NEXT Step Opportunities**

Foundation Training

- Core Skills and Knowledge
- Organizational Knowledge
- Soft Skill Development
- Projects and Collaboration

Specialization Tracks

Sales

Product Marketing

Technical Services

Key Roles

Sales Engineer

Product Marketing Engineer

Application Engineer



Heidi Cardenas
Human Resources

Do you qualify?

- Have a Bachelor's degree in: Computer Engineering, Electrical Engineering, Industrial & Manufacturing Engineering, or similar.
- Have a working understanding of wired and wireless Ethernet networking.
- Previous College Project Management and/or Business Planning experience is a plus.
- Fluency in written and verbal English communication.
- Have good interpersonal communication skills and presentation experience.
- Can work in a hybrid work arrangement including time in the local Brea, CA Moxa office.
- Have legal eligibility to work in the United States.

MOXA is an equal opportunity Employer



“Moxa gave me the opportunity to broaden my knowledge in industrial networking and automation, while also gaining practical experience assisting customers and finding solutions to their problems. During my time in the NEXT program, I have made contributions to a range of projects that influence our industry. Moxa is an amazing place to start your career in automation, thanks to both the work and the people.”

Ryan Gregerson
Network Engineer – Moxa Americas
California Polytechnic State University, San Luis Obispo

“Moxa provided me with training, equipment, and all the necessary tools to start learning about serial communication and industrial networking. I continue to learn more about our new technologies and contribute my expertise to the industry. My experience at Moxa has been extraordinary and the big factors are our people, our colleagues, and all Moxians.”

Cesar Flores
Application Engineer – Moxa Americas
California State Polytechnic University, Pomona





Moxa Corporate Plaza
601 Valencia Ave, Suite 100
Brea, CA 92823
U.S.A

Ready to take the **NEXT** Step?



Or Visit: <https://pages.moxa.com/us-moxa-next.html>