

Cybersecurity Best Practices for Critical Infrastructure Workshop

Hosted By: Secure Micro Technologies, LLC

Location: PhoenixNAP Conference Center, Phoenix, Arizona

Duration: 8:30AM – 1:30PM (Half-Day)

Date: Wednesday, October 29, 2025



As critical infrastructure systems, such as power grids, water treatment facilities, and industrial control networks, become increasingly connected, they face growing cybersecurity risks. The convergence of Information Technology (IT) and Operational Technology (OT) introduces new vulnerabilities that traditional software-based defenses alone cannot address.

This half-day workshop, held in Phoenix, Arizona, is designed to equip infrastructure professionals with **actionable best practices** for securing their systems using **hardware-based cybersecurity techniques**. The focus is on practical, field-tested strategies that enhance resilience, protect legacy systems, and support modernization efforts.

Participants will explore key topics such as:

- Understanding the unique cybersecurity risks facing critical infrastructure
- Best practices for integrating IT and OT systems securely
- Transitioning OT systems to post-quantum cryptography (PQC) with minimal operational disruptions
- Crypto-agile strategies for OT/IT lifecycle alignment and resilient operations during cryptographic transitions
- Hardware-based security techniques including secure boot, e-fuses, and Physical Unclonable Functions (PUFs)
- Strategies for hardening legacy systems using hardware guards and data diodes
- Real-time monitoring and traffic classification to detect and respond to threats
- Network segmentation to contain and mitigate cyber incidents

Featured real-world case studies:

- Power grid substations using secure boot and traffic monitoring to prevent firmware tampering
- Water treatment facilities implementing data diode isolation to protect control systems
- Industrial control systems retrofitted with hardware authentication for legacy programmable logic controllers (PLCs)

Hands-on technical labs, including:

- Setting up and verifying secure boot on embedded devices
- Implementing PUF-based authentication protocols
- Simulating data diode configurations for unidirectional communication
- Classifying network traffic and designing segmentation policies
- Kyber-AES Bridge system for hybrid cryptography demonstration

Ideal Participants:

- Power utility engineers and technicians
- Water and wastewater system operators
- Industrial control system professionals
- Cybersecurity and IT staff working in OT environments
- Facility managers and modernization teams
- Government and regulatory personnel
- Technology vendors and integrators

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