NECA • BICSI **SUMMIT 2023**

The Intersection of Cybersecurity in OT/IoT/IT

And Why It Matters

NECA • BICSI **SUMMIT 2023**

Agenda

- Who is CompTIA?
- Networking Overview
- What is OT/IoT/IT?
- OT & Cybersecurity
- OT Threats Examples
- OT Product Origination
- Who is Responsible?
- Practical next steps

CompTIA.

The IT Industry Trade Association



Jeff Parker **Global Business Development** jparker@comptia.org



317 385 8599

Ron Culler VP, Cyber Learning Officer

NECA · BICSI SUMMIT 2023

CompTIA. The IT Industry Trade Association

Who We Are

CompTIA is a global not-for-profit IT Trade Association and the voice of the industry.

Our Mission Advance the IT Industry

Who We Serve

Tech Professionals, Tech Adjacent Workers, Tech Businesses, Tech Educators, and anyone interested in Tech Careers or a vibrant Tech industry

NECA · BICSI SUMMIT 2023

- Research
- Philanthropy
- Education & Certification

FOR REFERENCE OF 2023 NECA-BICSI SUMMIT ATTENDEES ONLY



Networking – The Digital Handshake

- Secure connection between a computer or a network and a device.
 - Required for a device and a computer or network to send secure protocols or information back and forth.
 - Ensures both "participants" know the rules on working together.
 - Various types of handshakes: some are very simple others are complex (i.e. three-way handshake).
 - Types: TLS & SSL

Networking – Common Vulnerabilities

- Improperly Installed Hardware or Software
- Operating systems or firmware that have not been updated
- Misused hardware or software
- Poor or a complete lack of physical security
- Insecure passwords

NECA · BICSI SUMMIT 2023

• Design flaws in a device's operating system or in the network



This Photo by Unknown Author is licensed under CC BY-SA

NECA • BICSI SUMMIT 2023



The Where and What of OT

Where can I encounter OT?

- Manufacturing
- Energy Distribution
- Transportation
- Building Management Systems
- Process Plants

NECA · BICSI SUMMIT 2023

- Warehouse Management Systems
- Physical Security Systems







The Where and What of OT

What are typical OT Components?

- Control Systems and Devices
- Human Machine Interfaces (HMIs) and Engineering Workstations
- · Sensors, Motors/Drives, and Actuators
- Batch Managers, Data Historians

What's in a name?

OT can be referred to as SCADA, Distributed Control Systems, Industrial Control Systems, Manufacturing Network, and Process Control

NECA • BICSI SUMMIT 2023

What are the Differences Between OT and IT?

	Information Technology (IT)	Operational Technology (OT)
Equipment Lifecycle	Three (3) to Five (5) Years	Five (5) to Thirty (30) Plus
Reboot Ability	Easy to reboot with backups for critical systems	Complex, requiring significant planning to reboot
Updates/Maintenance	Regular updates with a defined process	Complicated, requires special maintenance times, often with a vendor
Hardware	Standard, Plug & Play	Proprietary, can require custom integration
Location	Corporate/Business Offices	Industrial locations (mixed environments)
Primary Focus	Security, Reliability, Integrity	Safety, Availability
NECA • BICSI SUMMIT 2023		

Specific OT Device Examples

- PoE Lighting
- Fire Control Systems
- Wind Turbines
- Solar Arrays
- Any Building Automation and Control
- Air Systems
 Control Panels
- Thermostats
- Sensors

NECA • BICSI SUMMIT 2023







Attack Vulnerabilities – OT Network Switching

- · Ethernet OT networks are ubiquitous today
- · Older OT networks are like serial-based networks
- · Ethernet switch is the linchpin of an OT network
- Two types: Unmanaged and Managed Switches

NECA · BICSI SUMMIT 2023

- Unmanaged Switches are a risk:
 Open ports = security risk
 - Cannot manage data traffic
- Unmanaged Switches are a risk
 - High Security
 - Manages Traffic
 - Managed Services Opportunity



FOR REFERENCE OF 2023 NECA-BICSI SUMMIT ATTENDEES ONLY



Threat Example – Wind Turbine

- \$20 Handheld Computer Raspberry Pi
- Intercepted Control Messages Remote
- Turbine Stopped Turning
- Potentially Damaged or Destroyed Components
- Man in the Middle Attack

NECA • BICSI SUMMIT 2023





FOR REFERENCE OF 2023 NECA-BICSI SUMMIT ATTENDEES ONLY









