Cyber Security For Public Services Critical Infrastructure - Best Practices

January 13th 2023

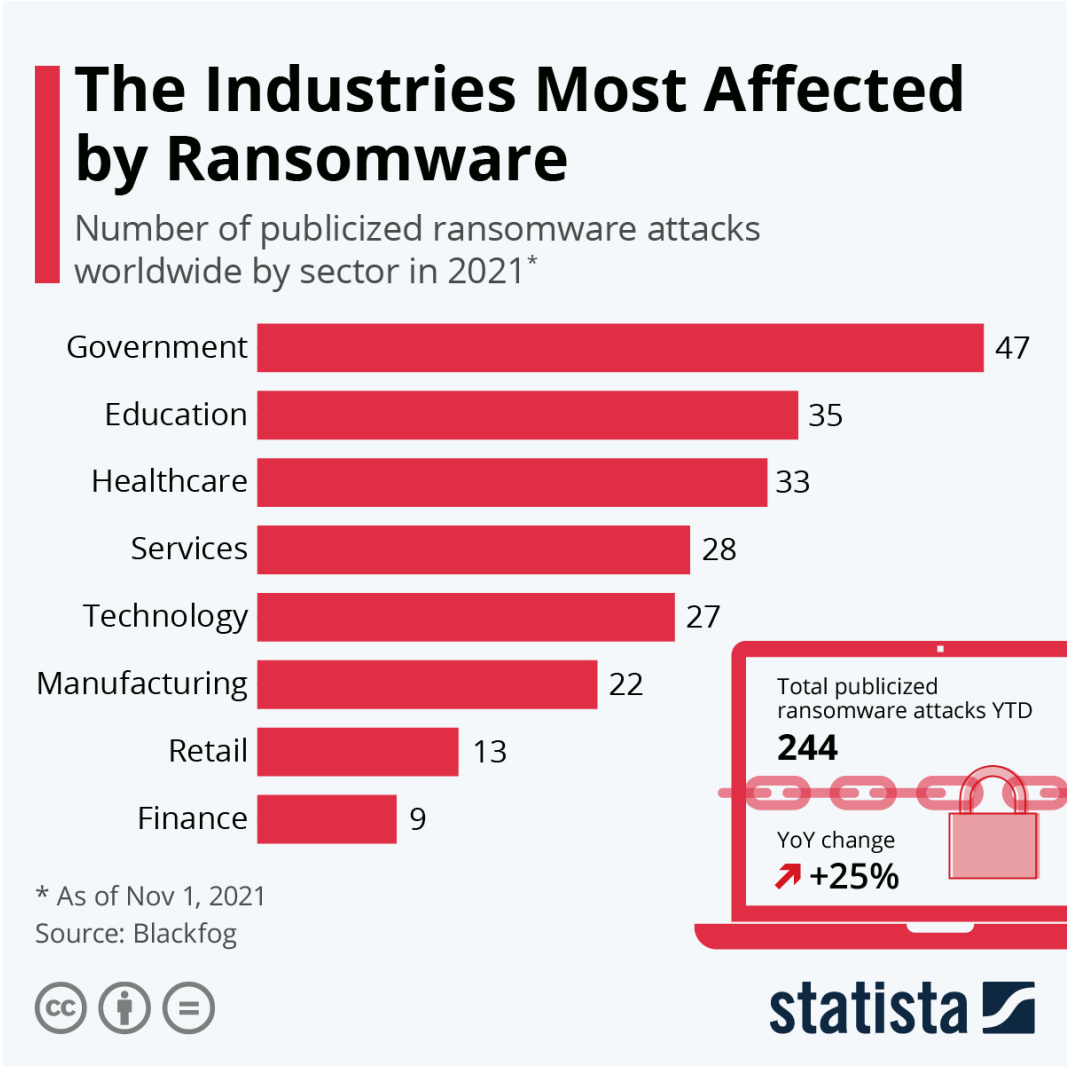


Agenda

- Why cyber security is important?
- Our lessons learnt
- Industry Affiliations
- What are Industrial Control Systems (ICS)?
- Challenges with ICS cyber security
- Best Practices for ICS
- Q&A

Why Is Cyber Security Important?





Our Experiences From Recent Projects

1. Pierce County (Vulnerability Assessment and Penetration Testing)
2. San Mateo County (Sheriff's Network Security)
3. 5G Network Security (Tier 1 Telecom Service Provider)
4. 5G Smart City Video Analytics Use-Case (R&D)

SAC Active Members – Industry Affiliations

Cybertrust AMERICA

Pacific NorthWest Economic Region

APCO International

SAE INTERNATIONAL

ITE A Community of Transportation Professionals

ICIT Institute for Critical Infrastructure Technology
The Cybersecurity Think Tank

NENA THE 9-1-1 ASSOCIATION

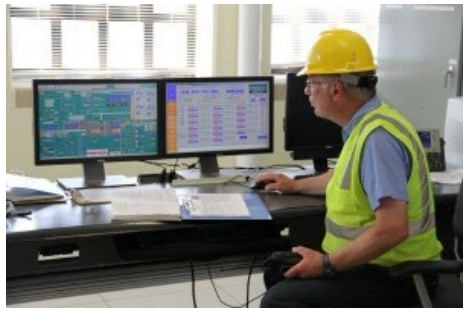
NIST National Institute of Standards and Technology U.S. Department of Commerce
GLOBAL CITY TEAMS CHALLENGE

SSP SMART SECURITY PRIVACY

What Are Industrial Control Systems (ICS)

Industrial Control Systems (ICS) manage how machines and machine processes in Industrial setup work







Water Treatment Plants:

- Control Valves to shut-off/ switch on
- Chemical sensors (potability of water)
- Flow sensors & meters
- chlorine analyzers

and more which make the water safe for us to drink and use

Why Do We Need Industrial Control Systems?

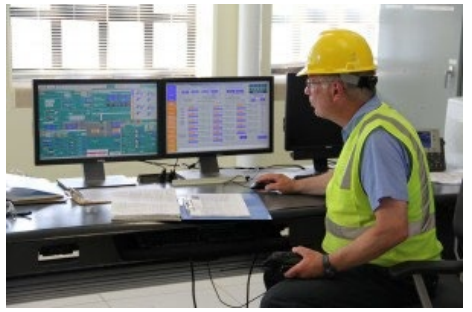
Benefits:

- Provide real-time data and remote management
- Reduces downtime
- Provides operational efficiencies



Water treatment example:

- Ensure clean drinking water
- Ensure consistent delivery of water to communities





Challenges In Securing Industrial Control Systems

- Legacy systems do not comply with modern security requirements
- Lack of security in engineering protocols (because these were never meant to be on the IT network)
- Security updates affect operations and cause down-time
- Need to re-test engineering systems after upgrades
- Lack of standardized technology and equipment
- Critical Infrastructure is no longer air-gapped (IT & OT)

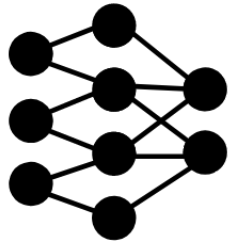
Best Practices For Industrial Control Systems



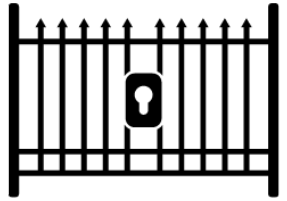
Risk Management & Cybersecurity Governance



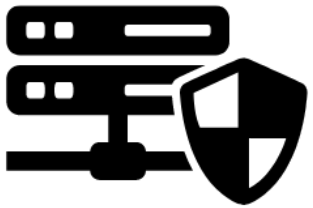
Physical Security



ICS Network Architecture



ICS Network Perimeter Architecture



Host Security



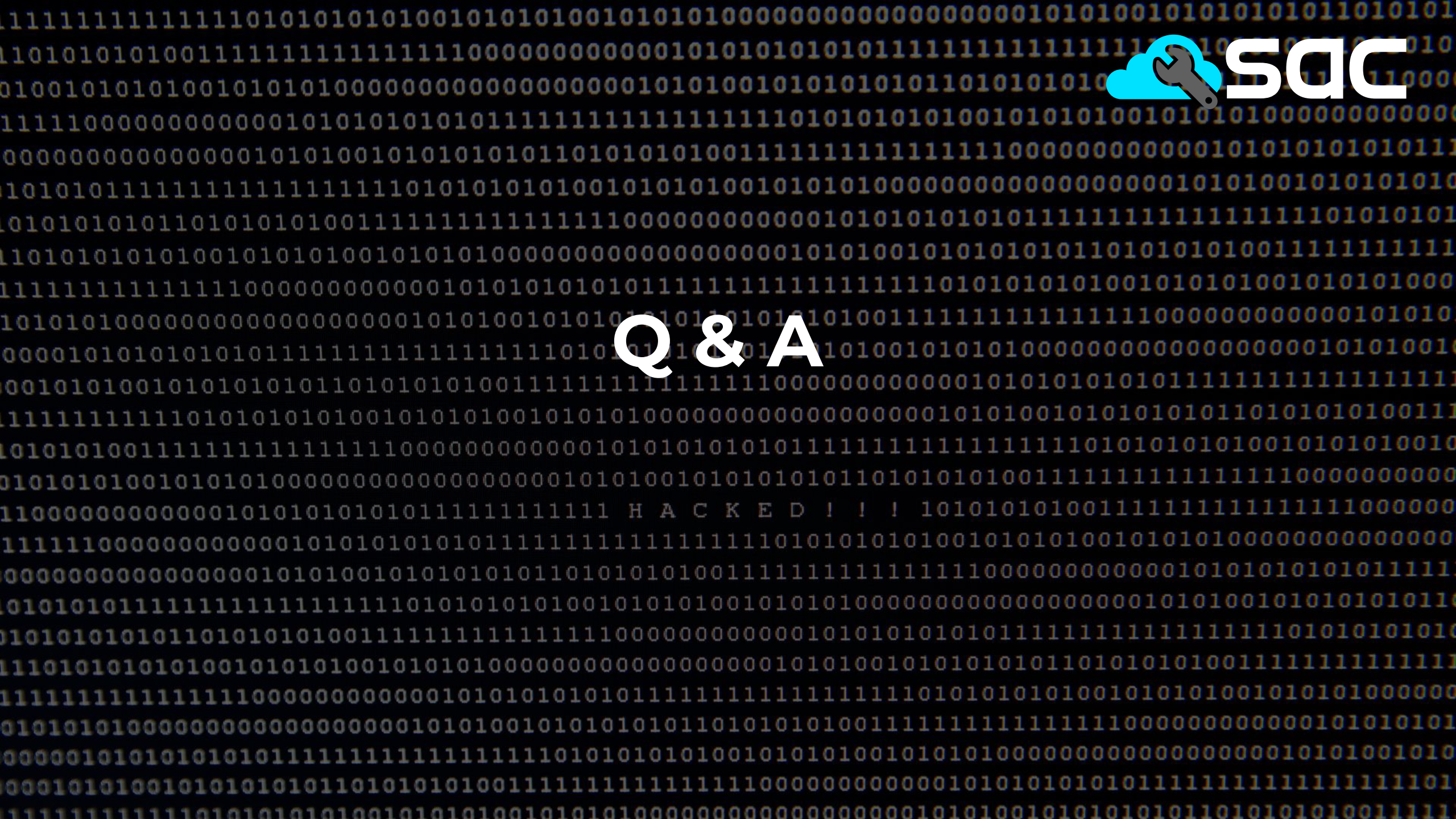
Security Monitoring



Supply Chain Management



Human Element


sac
Q & A