



Protect Our Critical Infrastructure Sectors From Cyber Threat Actors

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The Mission



- Protect Our Critical Infrastructure Sectors From Cyber Threat Actors
- Engage Across Multiple Entities

- AFCEA Las Vegas
- Deeds Enterprises LLC
- DEF CON – DC702, ICS Village
- InfraGard Nevada
- SANS
- StartUpNV
- UNLV
- ...and more



Collaborate Across Multiple Organizations



Critical Infrastructure Sectors

- Cybersecurity and Infrastructure Security Agency (CISA)
- CISA Supports 16 Critical Infrastructure Sectors
 - <https://www.cisa.gov/topics/critical-infrastructure-security-and-resilience/critical-infrastructure-sectors>
- Of Keen Interest Here
 - Communications – including satellite
 - Energy – electricity, oil and gas
 - Nuclear – certainly relevant here
 - Water – our Colorado River Basin, etc.



Share Information Among Our Respective Sectors

Cyber Threat Actors

- State-Sponsored Advanced Persistent Threat (APT) Groups

- China
- Russia
- Iran
- North Korea

- Ransomware Actors

- Example: RansomHub
 - 29 August 2024 Advisory
 - Double-extortion model
 - Encrypts systems
 - Exfiltrates data



Both Cyber Threat Types Highly Motivated Adversaries



Why Do They Do This?

- Aim to Disrupt Essential Services
- For Societal Damage and Monetary Gain
- Often Leading to Safety Consequences
- Example: HatMan/TRITON/TRISIS
 - Affects Triconex Tricon safety controllers
 - Modifies in-memory firmware to add programming
 - Allows an attacker to read/modify memory contents
 - Allows an attacker to execute arbitrary code on demand
- Consider Cyber Another Warfighting Domain



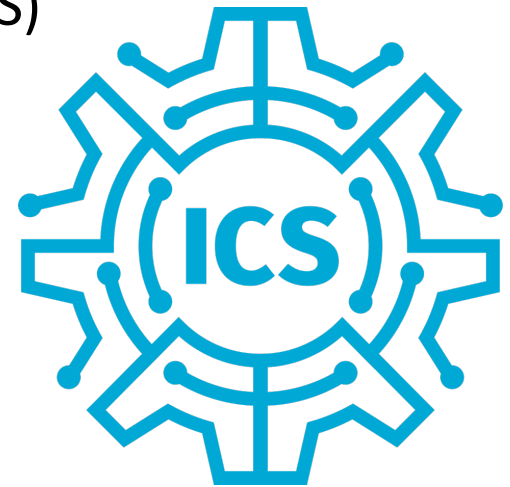
Cyber: A New Warfighting Domain



Where Are We Engaging?



- Traditional Cyber Focus: Informational Technology (IT)
- My Emerging Focus: Industrial Control Systems (ICS)
- Also Known As: Operational Technology (OT)
- Some Key Distinctions Between ICS/OT and IT
 - Industrial facilities, extreme weather, etc.
 - Safety is top priority for control systems
 - IT: 2-3 year upgrade cycles
 - ICS/OT: 5-10+ year upgrade cycles
- Sectors, Technologies, and Systems Closely Linked
 - Example: Satellite communications supporting oil platforms, wind farms, etc.



Safety Top Priority In ICS/OT Threat Mitigation: Do No Harm!



My Own Wake Up Call – Communications

- Space Systems Now Face Well-Documented Hacking Risks

How Hackers Can Hijack a Satellite

We rely on them for communications, military activity, and everyday tasks. How long before attackers really start to look up at the stars?



Nate Nelson, Contributing Writer
July 14, 2023

THREATS

Satellite hack on eve of Ukraine war was a coordinated, multi-pronged assault

The satellite hack that took the world by storm was more complex than initially thought, according to a Viasat executive.

BY CHRISTIAN VASQUEZ AND ELIAS GROLL • AUGUST 10, 2023

Satellites easier to hack than a Windows device

Updated on: 15 November 2023



Vilnius Petkauskas, Deputy Editor

These Risks Degrade Global Commerce and National Readiness



Learn to Defend and Respond

- Cyber Enthusiasts Exercising...*In Controlled Environments*



Build a Cadre of Defenders and Incident Responders



Capture the Flag (CTF) Exercises



- DOE NNSS North Las Vegas CTF Workshop
 - 17 October 2025 – this Friday
 - DOE NNSS North Las Vegas Facility
 - Nevada Support Facility (NSF) Great Basin Ballroom
 - Let us know!



- Dragos Capture the Flag 2025
 - 29-31 October 2025
 - Sharpen your OT cybersecurity skills
 - Compete to solve defensive and forensic challenges
 - <https://hub.dragos.com/ctf-registration-25>

Come Train With Us!



Stay Aware



- AFCEA International's Las Vegas Chapter

- Armed Forces Communications and Electronics Association
- Nonprofit association for professional development, etc.
- Engaging locally, nationally, internationally, and online
- You can join AFCEA now!



- InfraGard Nevada

- Partnership between FBI and private sector
- Protects U.S. Critical Infrastructure
- Believe significant mutual benefit with NNSS
- Application/screening process

Multiple Resources To Stay Aware



Thank You!



- Thank You For Attending Today's Presentation!
 - Please do not hesitate to contact me at any time with any questions!



Mobile User Objective System (MUOS)-2 Launch
Logo Inspiration for Deeds Enterprises LLC
19 July 2013



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