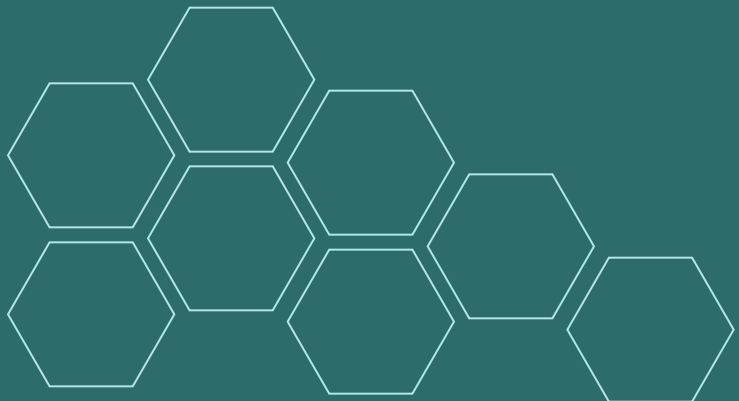


Critical Infrastructure Cybersecurity

Preston Stinson
Mississippi State University
IEEE



Target Attacks



Critical Infrastructure Examples

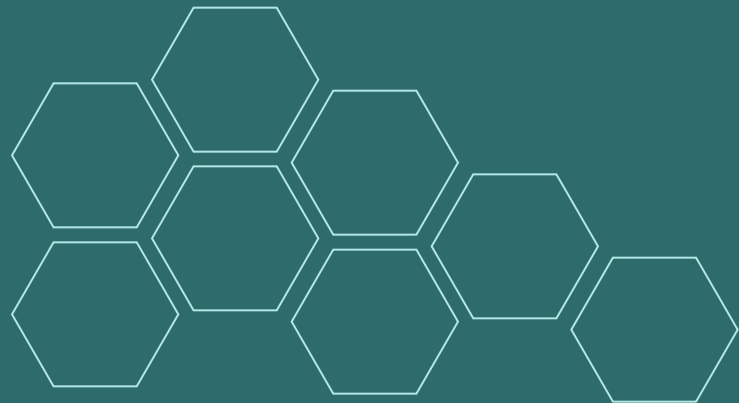
- Hospitals
- Power grid
- Emergency services



GWU Hospital Emergency Services

What is cybersecurity?

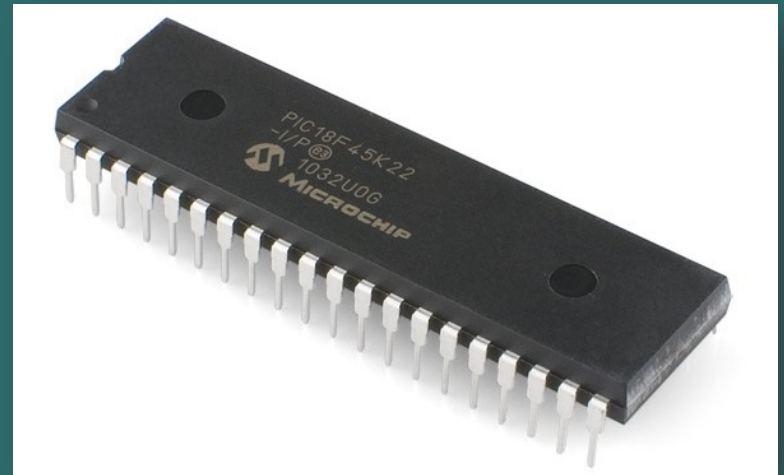
- Security for information technology systems
 - Computers
 - Phones
 - Industrial control systems



Major cyber-attacks

- Stuxnet

- Advanced attack specifically targeting PLCs in Siemens centrifuges used by Iran for uranium enrichment
- First major malware targeting ICS



PLC

Major cyber-attacks





- **Dragonfly/Energetic Bear**
 - Group instigating attacks against western energy companies
 - Also targets ICS



Watts Bar Nuclear Power Plant

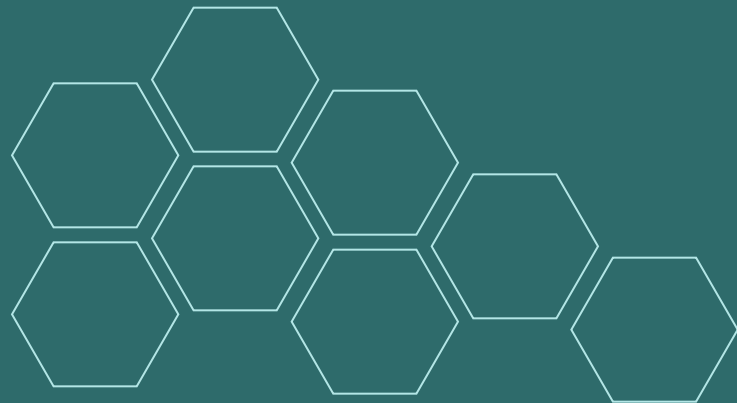
Attacks targeting: United States



#	Country
1923	 United States
1416	 Canada
174	 Hong Kong
156	 Australia

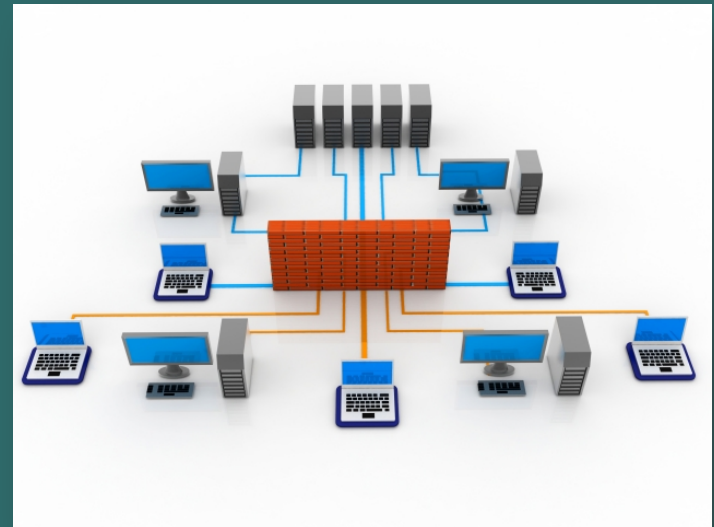
Who's attacking

- Nation states
- Criminal organizations
- Hacktivist
- Individuals



Current state of critical infrastructure

- Cybersecurity is lacking
 - Expensive to implement
 - Attacks are cheap
 - Landscape changes rapidly



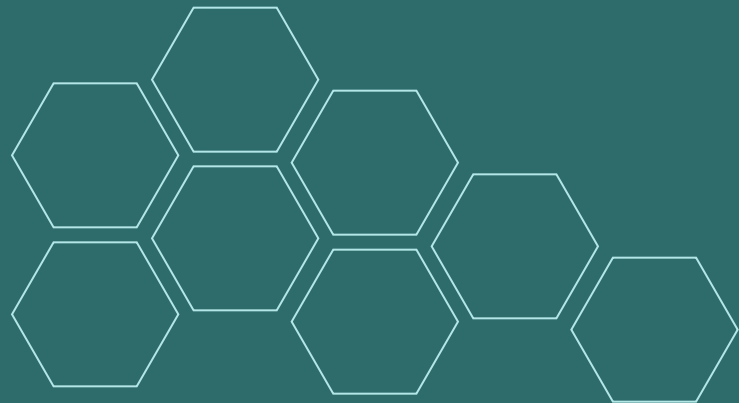
Public policy

- Executive Order
 - NIST Cybersecurity Framework
- Computer Emergency Response Team
- Information Sharing and Analysis Centers



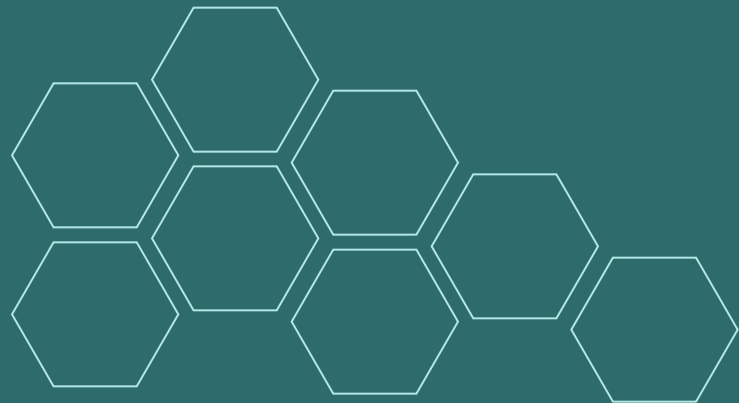
Policy Recommendations

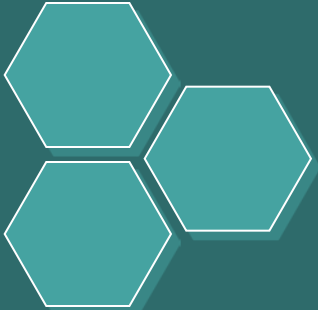
- Improved information sharing
- Clarification liability for damages
- Government technical assistance
- Preferential treatment for federal grants



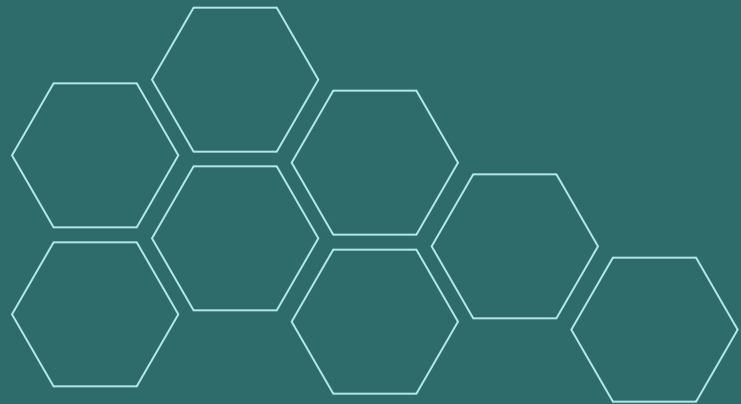
Conclusions

- Critical infrastructure cybersecurity needs to be addressed
 - Attacks will only increase
 - Public policy can be leveraged to improve cybersecurity
 - Action should come before an emergency





Questions?





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