# Technologies for Cyber Defense and Information Assurance

Detect, deter, and mitigate ***cyber attacks*** while providing ***data integrity*** and ***privacy*** protection to enable secure information sharing.

**Defend a wide array of *networks*, such as**

- Communications networks
- Infrastructure and power grids
- Public health information systems
- Financial networks

**Rapidly adapt to ever-changing *attacks* and *tactics* that might otherwise**

- Influence large-scale public events
- Have broad political impact
- Take down services
- Create diversions and distractions


**Maintain data *integrity* and *privacy***

- Policy impact
- Evidence handling
- Technology evolution
- Adaptation and prevention

## Capabilities

- Infrastructure risk assessments
- Operations
  - Classified networks
  - Command and control system defenses
  - Agile/ad hoc networks and communications
- Training, simulation, and test beds
- Cyber security and defense
  - attacks, malware, data integrity
  - command/control hardening
  - component-based security
- Cyber forensics



## National Laboratory Contributions

- State-of-the-art attack detection and mitigation techniques
- Command, control, and communications standards
- Nation-wide sensors, analysis center, and decision tools
- Rapid response experiential network and training environment
- Anonymizer filter to analyze real data while protecting privacy
- Fusion centers
- Combine technology and domain expertise
- Next generation research to predict and adaptively respond to future attack

## Collaborations

- DOE National Laboratories
- Industry (e.g., BPA Schweitzer, Western Area Power Administration, CISCO, Microsoft, HP, IBM)
- Regional and local law enforcement
- Universities (e.g., University of Washington Cyber Incident Analysis Center, Washington State University, University of Nebraska-Omaha, University of Michigan)
- Government agencies

**For more information, contact:**
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***Science-Based Solutions for Homeland Security***