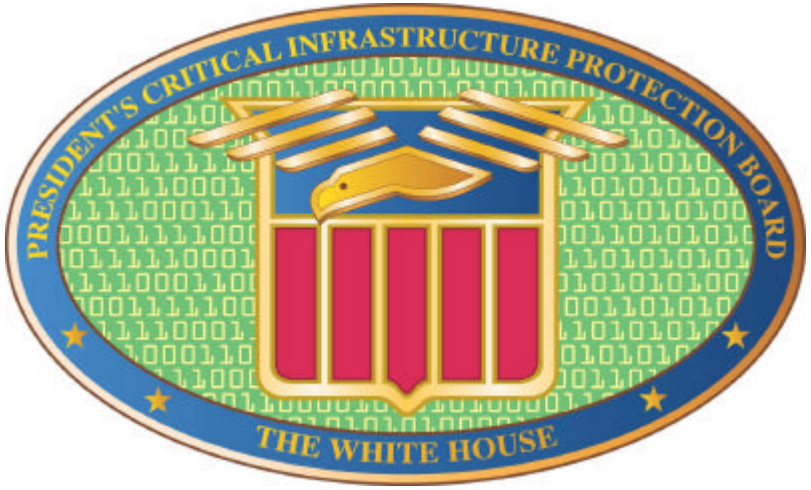
Boundaryless Information Flow: Keeping IT Secure

The National Strategy to Secure Cyberspace



February 3, 2003

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Deputy to the Vice Chair
Senior Advisor, IT Security and Privacy
The President's Critical Infrastructure Protection Board
The White House

Overview

- **Information technology revolution has changed the way --**
  - **business is transacted,**
  - **government functions, and**
  - **national defense is conducted.**
- **Those three functions now depend on an interdependent network of information technology infrastructures**

The Case for Action

- **Protection of our information systems is essential to our critical infrastructures: telecommunications, energy, financial services, manufacturing, water, transportation, health care, and emergency services**

Overview

- **Cybersecurity is essential to ---**
  - **Our national security;**
  - **Our nation's economic well-being;**
  - **Law enforcement/public safety; and**
  - **Privacy.**
- **Our overall strategic goal is to empower all Americans to secure their portions of cyberspace.**

The Case for Action

- It is the policy of the United States to protect against disruptions of information systems for critical infrastructures
- Ensure disruptions are infrequent, minimal duration, manageable, cause least damage

Dangers
A Spectrum

- **Low end: teenage joyriders**
- **Up the spectrum: individuals engaged in ID theft, fraud, extortion, and industrial espionage**
- **Nations engaged in espionage against U.S. companies and U.S. government**
- **Far end: nations building information warfare units**

A New Paradigm

- **Stop focusing on specific threats**
- **Focus on vulnerabilities**

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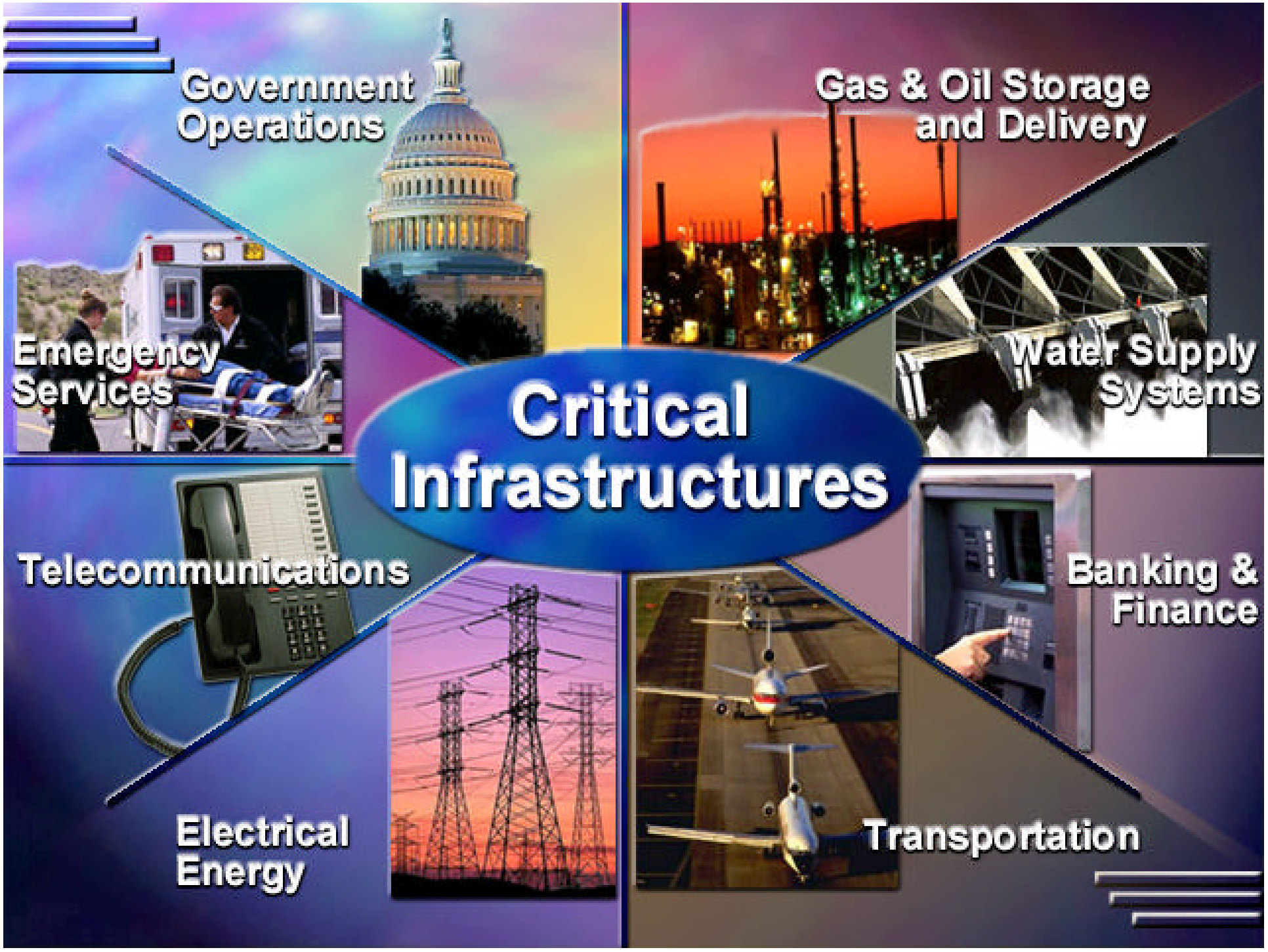
Scope is directed by Executive Order 13231:

The protection of information systems for critical infrastructure, including emergency preparedness communications, and the physical assets that support such systems.


Government Operations
Gas & Oil Storage and Delivery
Emergency Services
Water Supply Systems
Critical Infrastructures
Telecommunications
Banking & Finance
Electrical Energy
Transportation

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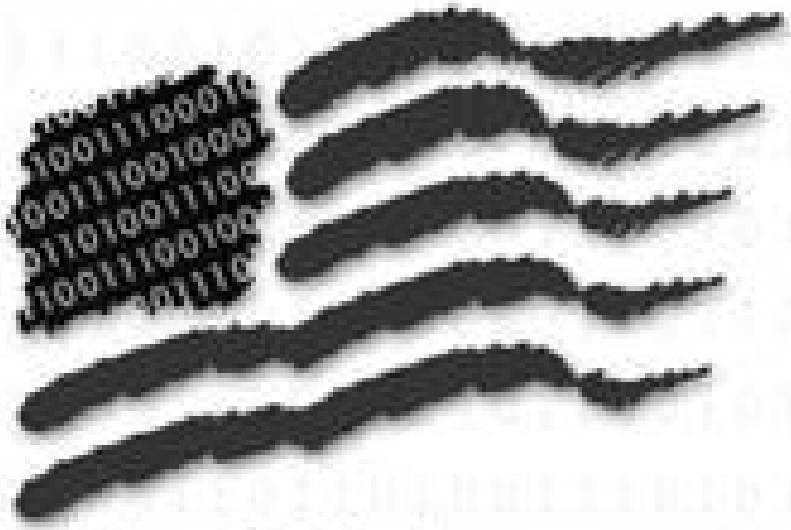

THE NATIONAL STRATEGY TO SECURE CYBERSPACE

For Comment

SEPTEMBER 2002

DRAFT

A Strategy, Not a Plan

- Everyone is responsible for their portion of Cyberspace
- The Strategy provides a roadmap by
  - Removing barriers,
  - Empowering people and organizations to do their part, and
  - Fostering a national partnership between government, industry and individuals.

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What are the guiding principles of the Strategy?

- Encourage market forces to improve security, rather than using a regulatory approach
- Share information among and between companies, departments and agencies, and state/local govts.

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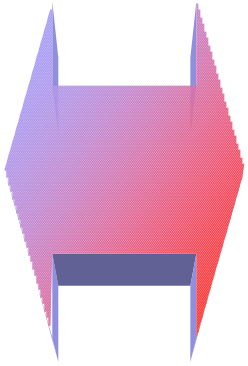
Guiding principles - continued

- Create public/private partnership solutions to IT security
- Clean up the Federal Government's own IT security problems as a model
- Foster public/ corporate awareness of importance of IT security

Strategy as Process

Government

- 53 Questions
  - Posted on multiple web sites
  - Published in media
- Town Halls in 4 cities
- Numerous interviews, speeches, media events



Non-Government

- Infrastructure sector plans
- 100's of pages of answers to questions
- Higher Education Strategy input

For sector strategies: www.pcis.org

National Strategy to Secure Cyberspace

- Home Users and Small Business
- Large Enterprises
- Sectors
  - Federal
  - State and Local
  - Higher Education
  - Private Industry
- National Priorities
- Global

Cyber R&D Priorities

Short Term (1-3 yrs)	**Enterprise wide automated security policy enforcement** **- Improvements in software patch management** **- Development and testing of protocols needed to secure the mechanisms of the Internet** **- Development and testing of security mechanisms for Supervisory Control and Data Acquisition (SCADA) Systems**

Cyber R&D Priorities

ShortTerm (1-3 yrs)	**- Development of secure operating Systems Expand the Institute for Information Infrastructure Protection's R&D agenda gap analysis program** **- Develop security enhancements for Ad hoc networks and grid computing**

Cyber R&D Priorities

Medium Term (3-5 yrs)

- Secure routers and switches and protocols
- Development of new protocols for Internet and wireless that maintain security at higher speeds and scales
- Investigation of the security implications of intelligent agent software in networks

Cyber R&D Priorities

Long Term (5-10 yrs)

- Fundamental shifts in technology and the development of novel or unforeseen applications, e.g., nano technology, quantum computing
- Provide a sound theoretical, scientific, and technological basis for assured construction of safe, secure systems
- Ultrasecure communications over optical backbone networks
- Orders of magnitude increases in the speed of algorithms such as for searching unsorted databases

Home Users/Small Business

- **Empower the home user and small business person to protect their cyberspace and prevent it from being used to attack others.**
- **Key Themes**
  - **You have a role in cyberspace security**
  - **You can help yourself**
  - **Promoting more secure Internet access**

Large Enterprise

- Encourage and empower large enterprises to establish secure systems.
- Key themes:
  - Raising the level of responsibility,
  - Creating corporate security councils for cyber security, where appropriate,
  - Implementing ACTIONS and best practices,
  - Addressing the challenges of the borderless network.

Critical Sectors

- **Specific sectors critical to cybersecurity, including:**
  - **Federal Government,**
  - **State/Local Governments,**
  - **Higher Education, and**
  - **Private sector**

Strategy as Process

Sectors Preparing Strategies

Electricity
North American Electrical Reliability Council

Oil & Gas
National Petroleum Council

Water
American Water Works Association

Transportation (Rail)
Association of American Railroads

Banking & Finance
Financial Services Round Table, BITS,

Information & Communications
Information Technology Association of America, Telecommunications Industry Association, United States Telecommunications Association Cellular Telecommunications and Internet Association,

- ***Chemicals*** *(Self-organized)*
- ***Education*** *(self-organized)*

What Has Changed

- Number of Recommendations
- Simplified structure to focus on 5 priorities
- Objectives parallel with NSHS:
  - **prevent cyber attacks;**
  - **reduce national vulnerabilities to cyber attacks; and**
  - **minimize the damage and recovery time from cyber attacks.**
- DHS actions prominent (consistent w/ legislation)
- More concise and decisive language

Strategy Outline

- Executive Summary
- Introduction
- Cyberspace Threats and Vulnerabilities: A Case for Action
- National Policy and Guiding Principles
- National Cyberspace Security Priorities
- Conclusion: The Way forward

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What are some of the Board's Priorities?

1. Awareness: The National Cyber Security Alliance and its StaySafeonLine campaign
2. Education: The CyberCorps Scholarship for Service program
3. Info Sharing: The Cyber Warning & Info Network (CWIN) between Govt and Industry; limited FOIA exemption

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Board's Priorities - Continued

4. Research: The CyberSecurity Research Consortium and a national research agenda

5. Protecting Internet Infrastructure: projects to secure Domain Name Servers and Border Gateway Protocols, blunt Distributed Denial of Service attacks

6. Physical Security of Key Nodes

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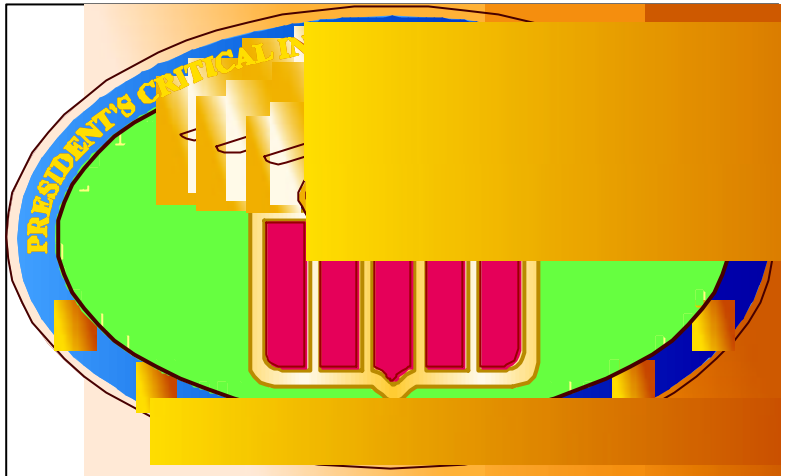
Board's Priorities - Continued

7. **Standard & Best Practices: including relating to Federal procurement**

8. **Digital Control Systems: securing utilities and manufacturing control systems**

9. **Securing Future Systems: beginning with new Wireless web enabled devices**



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