

## The Growing Dependence on Secure Information Systems and Networks



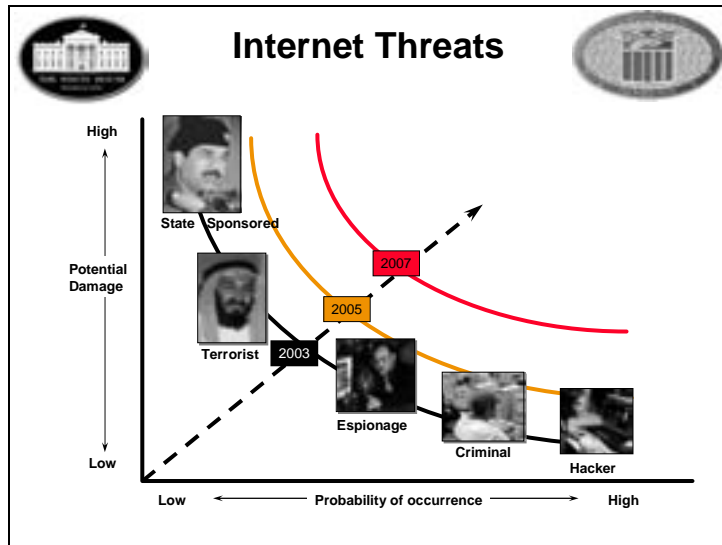
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## Dependence on the Internet



- The Internet was created as a way to connect academia, the military, and governments
  - *but was not designed to protect information from malicious users*
- Since the early 1990s, the Internet has evolved to become a global infrastructure used for commerce and communication
- Until recently, security has not been a part of this revolution



## Example Audit

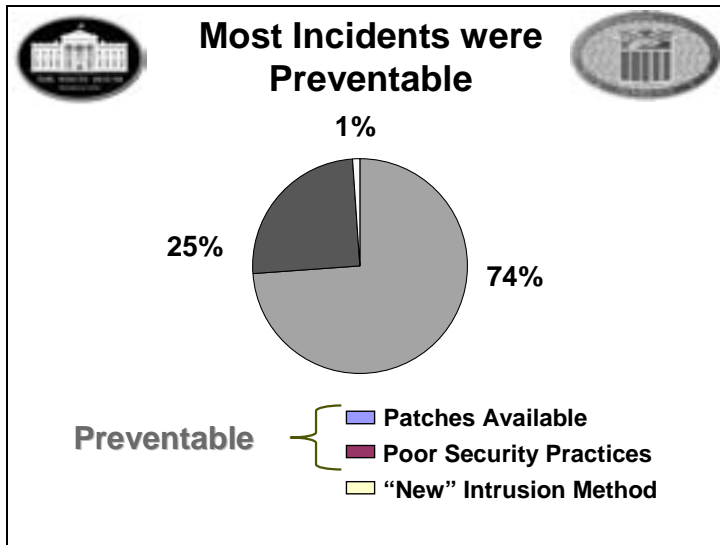
Access gained to several systems:




- Routers and Printers
- Web, FTP and Mail Servers
- Workstations

*Most were test systems or systems recently put on-line*

Most common vulnerabilities that were exploited:

- Common problems with web servers
- Default passwords on routers and printers
- Weak passwords on servers and workstations



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- ### A "Secure" Internet
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- To enable a "secure" Internet, we need:
- Accountable addressing (like IPv6)
  - Dependable network services (routing, naming)
  - Trusted (or trustworthy) software
  - Authenticated user services (web, email)
  - A working public key infrastructure
  - Educated users
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## A “Secure” Internet



We also need:

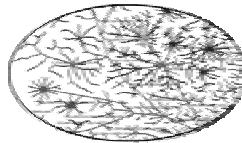
- Networks to be built “secure” from the ground up
- Adoption of Best Practices
- Protection from, and for, inexperienced users
- Certification of network engineers
- A mechanism for information sharing



## But What is “Security”?



- Measures and controls taken to protect
  - Authenticity
  - Integrity
  - Confidentiality
- Protection against, or prevention of, the unauthorized disclosure, manipulation, or deletion of information
- Or is it something else?





## A Case for Action



- Most countries are dependent on cyberspace
- Range of threats: hackers to nation states
- Fix vulnerabilities, don't orient on threats
- New vulnerabilities require constant vigilance
- Individual vs. national risk management
- Governments alone cannot secure cyberspace



## The Challenge



- Security responsibility starts with individuals
- We must seek to instill a global “culture of security”
- What we are building now is the foundation for the future
- International cooperation plays a key role in securing cyberspace

