

Information/Cyber Security Overview

Date: 29 January 2025

What Is Information?

“Information is an asset which, like other important business assets, has value to an organization and consequently needs to be suitably protected”

- BS ISO 17799-1-2000

Information Comes in Many Forms

- Programs
- E-mails
- FAX messages
- Voice Mails
- NDAs / Contracts / Letters / memos / reports
- Printed documents
- Word processing documents
- Spreadsheets
- Graphics / Drawings
- Presentations
- Web Pages
- Databases

Where Does This Information Reside?

- On the hard disks of
 - Servers
 - Desktops
 - Notebooks
- In back up media
 - Tapes
 - DATs
 - CDs
 - Floppies/Flash Memory
- Documents
 - Reports
 - Forms

What Is Information Security?

Protection of **information**, **systems** and **services** against disruption and degradation due to **disasters**, **mistakes** or **manipulation** so that the likelihood and impact of security incidents are **minimized**.

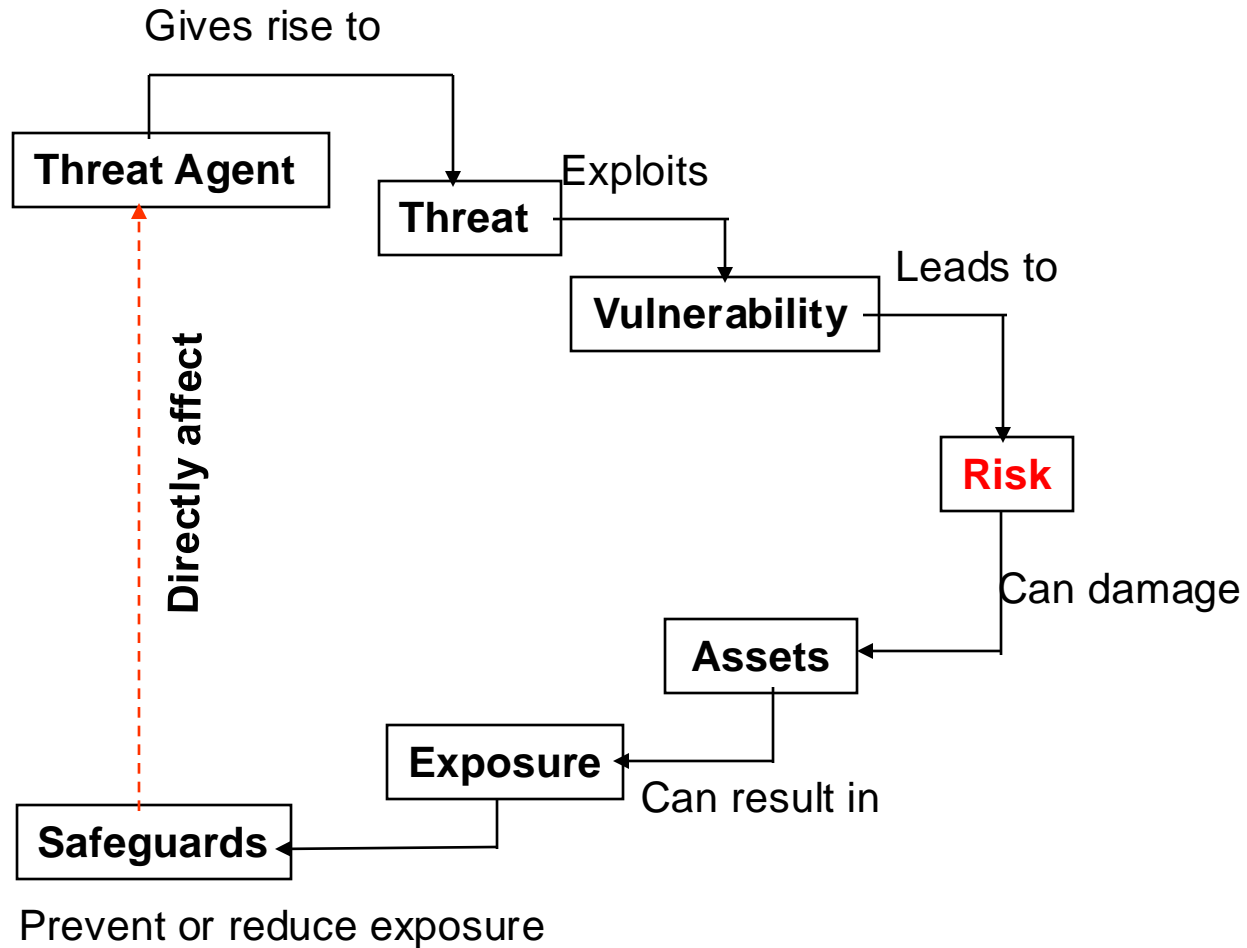


Attributes of Information Security

Information security is the preservation of:

- a) Confidentiality: ensuring that information is accessible only to those authorized to have access
- b) Integrity: safeguarding the accuracy and completeness of information and processing methods;
- c) Availability: ensuring that authorized users have access to information and associated assets when required.

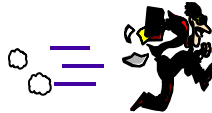
Risk Vs Vulnerability & Threat



Threats & Risks to Information



High User
knowledge
of IT sys.



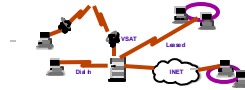
Theft , Sabotage,
Misuse, Hacking



Version
Control
Problems



Unrestricted
Access



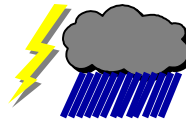
Systems /
Network
Failure



Lack of
documentation



Virus



☐Cyclone



Fire

Threats to Information

- Physical Theft

- Theft of devices
- Theft of media
- Social Engineering
- Dumpster diving

- Logical Theft

- Illegal copying
- Stealing password
- Hacking
- Trojan

- Data Corruption

- Virus attack
- Information modification
- Forgery
- Sabotage
- Fraud

Challenges

- Provision and demonstration of secure environment to clients/users/stakeholders
- Preventing loss of product knowledge to external attacks, internal thefts
- Leak of confidential information to competitor
- Meeting Parent company/parent body requirements
- Introduce new technologies and tools
- Managing costs vs. risk

Business Risks

- Law suits / loss of customer confidence
- Corruption / loss of integrity (e.g. s/w code)
- Loss of business
 - due to leakage/ theft of company IPR
 - Unanticipated disruption in work due to break down of communication links
- Leakage of confidential information
 - e.g. financial information, business strategy
- Physical damage / theft

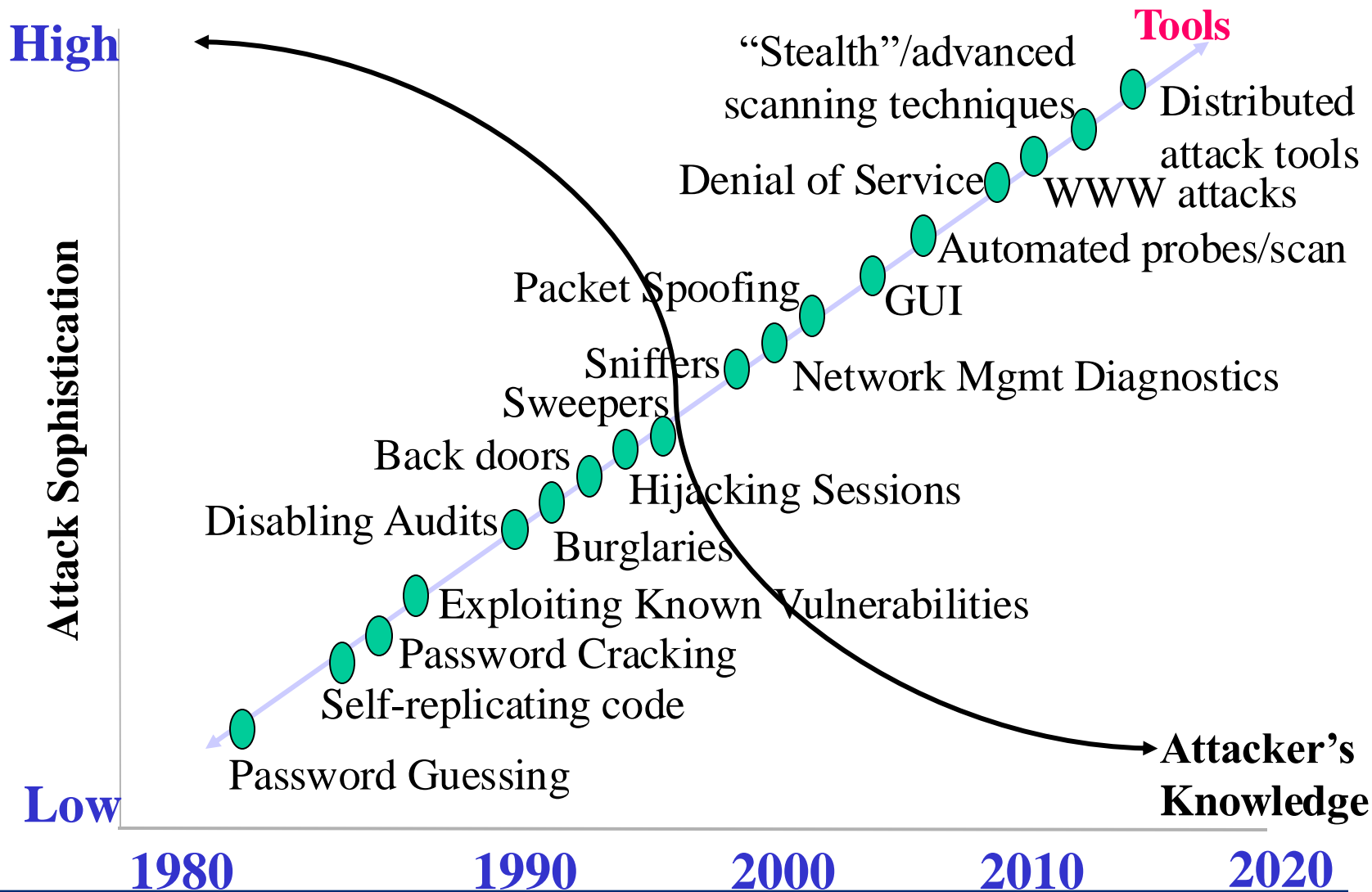


Factors Necessitating IT Security

- Policy Vulnerabilities
- Configuration Vulnerabilities
- Technology Vulnerabilities

And People are Eager to Take
Advantage of the Vulnerabilities.....

Its Easier to Hack now

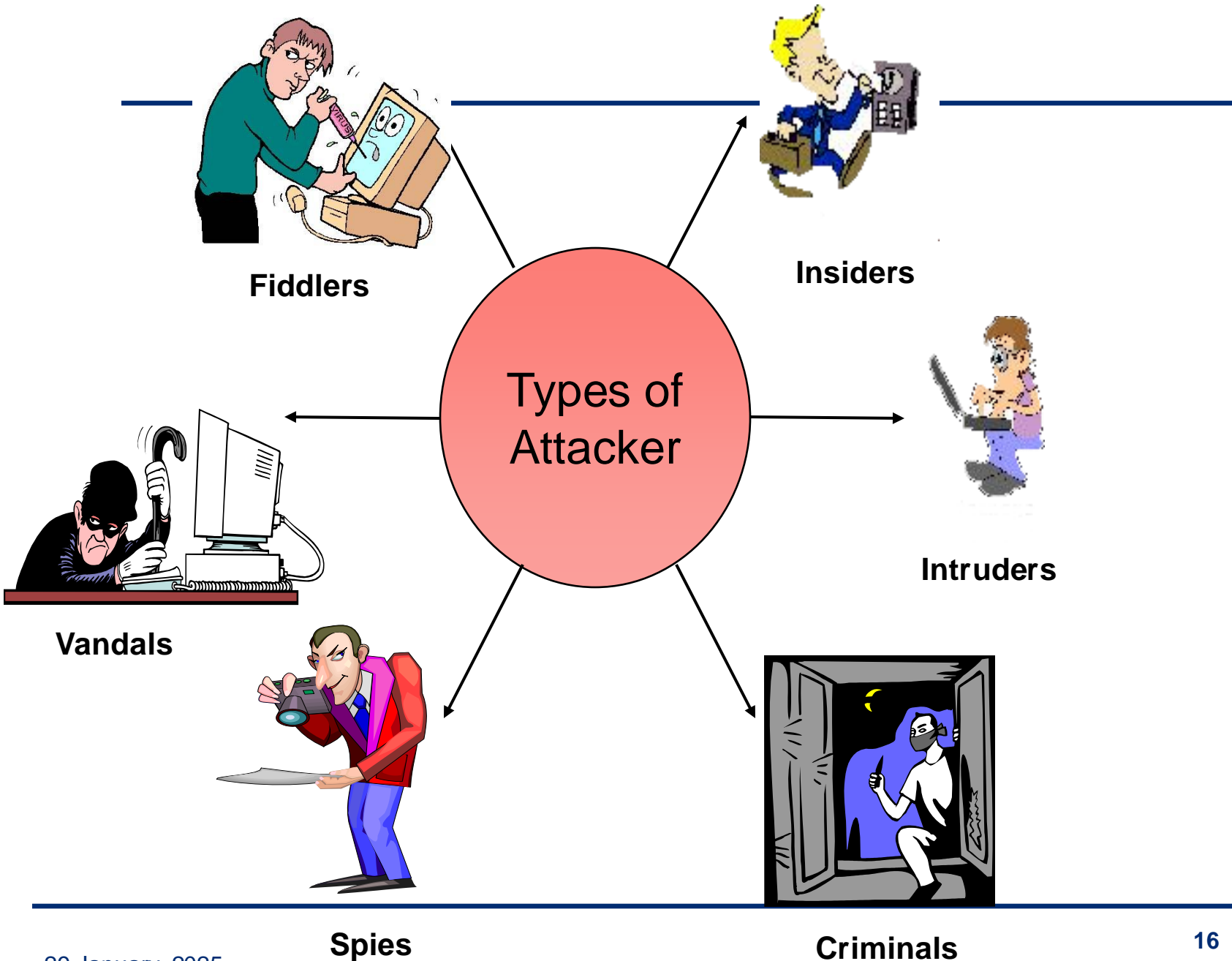


Opportunities for Attacks

- Internet attacks are easy, low risk, and hard to trace
- Attack tools are sophisticated, easy to use even by novice attackers
- the complexity of the Internet, protocols, and applications are all increasing
- Rapid adoption of computer and network technology

Opportunities for Attacks

- Thousands of exploitable vulnerabilities in technology
- Lack of awareness regarding information security
- Shortage of qualified system and network administrators and information security staff
- Lack of coordinated effort in organizations to protect, detect, analyze, and respond to computer security events

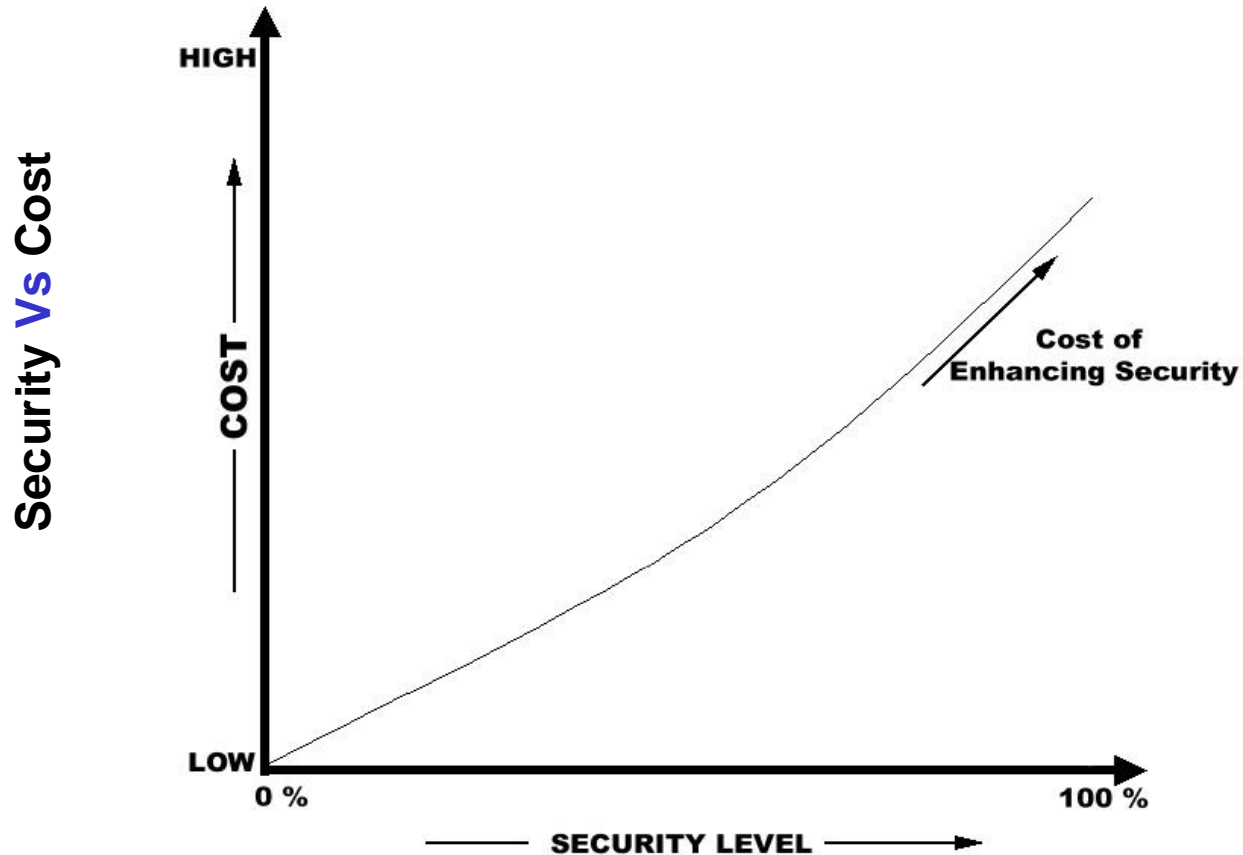


Cost of Security

- Combination of many factors
 - Cost for decreased system performance
 - Cost for increased system complexity
 - Cost for decreased system usability
 - Increased operation and maintenance cost.
- Increased security increases the cost of the system

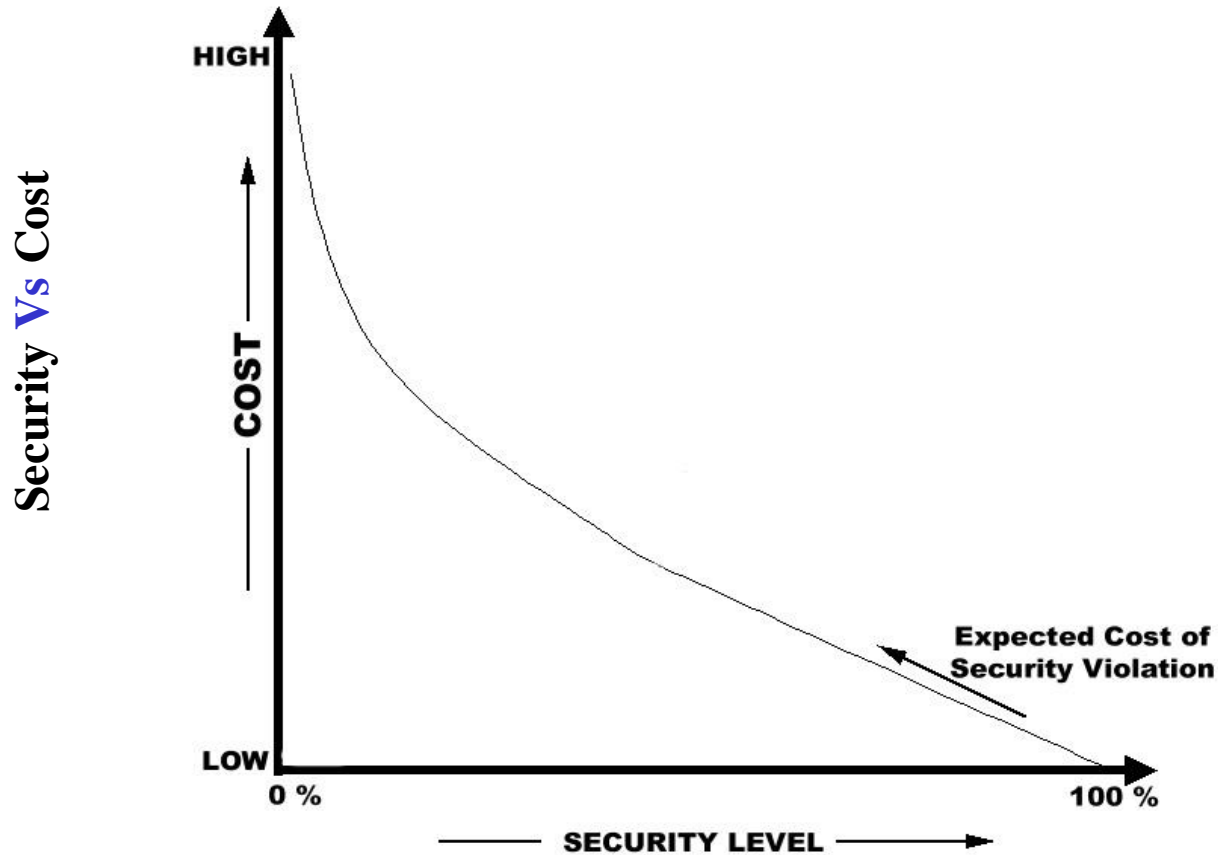


Cost of Security



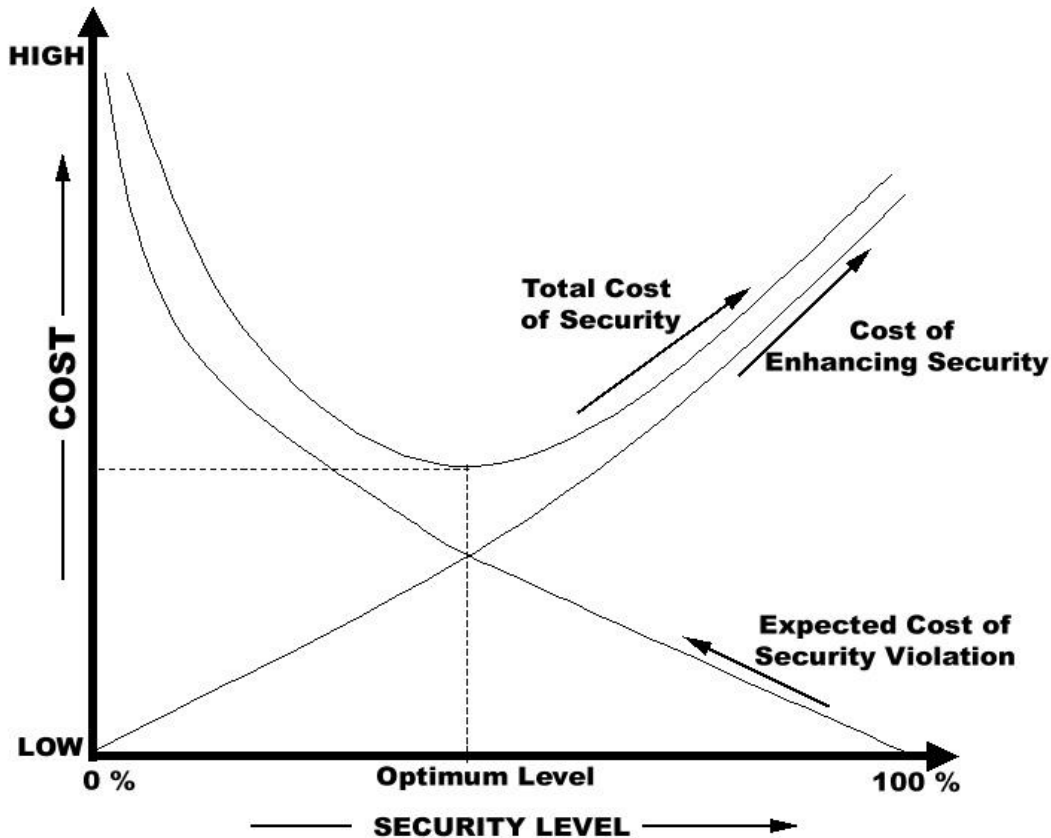
Cost for Enhancing Security increases proportional to the level of security required

Cost of Security



Cost incurred due to Security Violation, increases sharply if the security level is low

Cost of Security



Total Cost of Security

$$\text{Total Cost of Security} = \text{Cost of Enhancing Security} + \text{Expected Cost of Security Violation}$$

The 4 Ps of Security

- People (culture, knowledge),
- Processes (procedures and guidelines),
- Products (hardware, software, n/w), and
- Partners (vendors and outsourcing organisations).

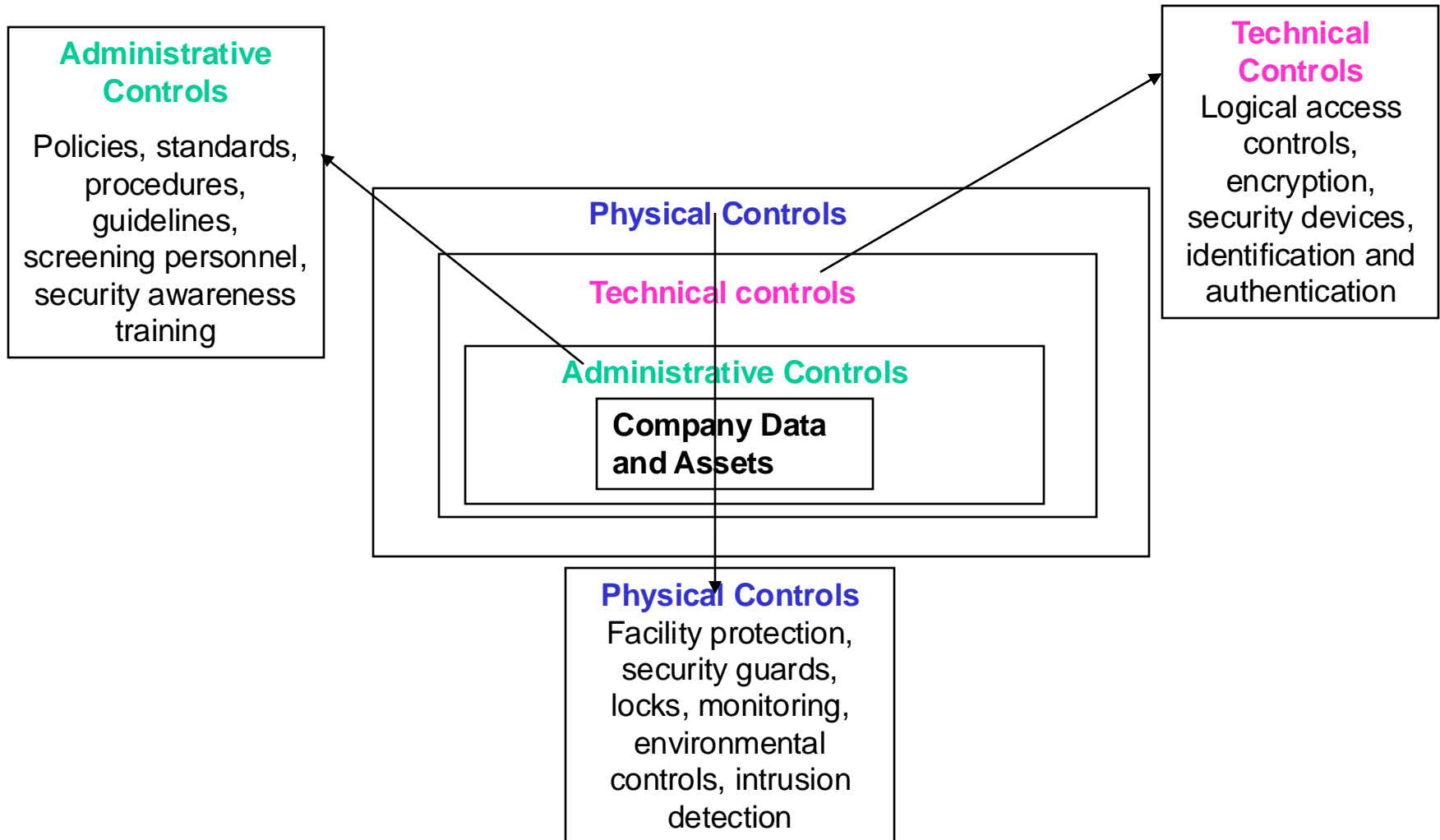
Information Security Controls

Information security is achieved by implementing a suitable set of controls.

A control could be a:

- policy,
- procedure,
- process,
- organizational structure, and
- software or hardware function

Information Security Controls



No Security Policy

Hey ! Who did this mischief ?



Security Policy

- Security policy is an articulation of overall security objectives and provides executive guidelines.
- Ensure the confidentiality, integrity, and availability of data in the organization.
- Policy development must begin with the top management commitment

Security Policy

- The policy defines
 - What behavior is and is not allowed
 - Will often set the stage in terms of what tools and procedures are needed for the organization
 - Consensus among a group of governing people

Why Security Policy?

- To demonstrate top management support
- To define responsibilities and expectations
- To guide security product selection and Implementation
- To help prevent security incidents
- To provide guidance when incidents occur
- To establish basis for disciplinary actions

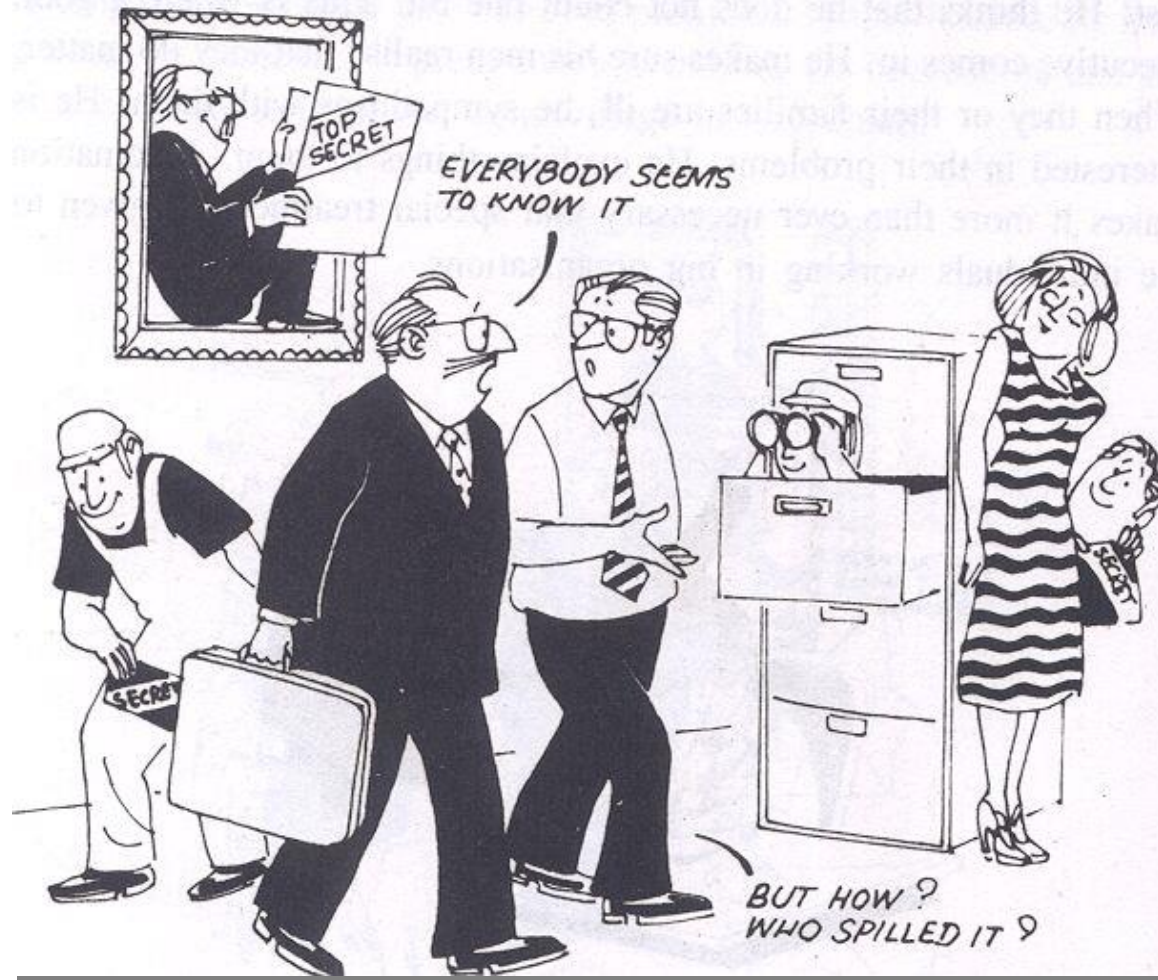
Critical Success Factors

- Full commitment and support from top management.
- Security objectives must be in line with the business objectives
- Good understanding of security risks
- Awareness about Security policies among employees/user community.
- Comprehensive documentation.

What is Required?

- Change in mindset (security is every body's responsibility)
- An Information Security Team
- Information security awareness and education
- A set of suitable Policies, Procedures and Standards supported by appropriate tools
- Ongoing security management

Security....?



Thank you!