I Touch the Future, I Teach.

Crista McAuliffe

Computer Security

A Program for Federal Government *Executives*

Objectives

- Seven Basic Computer Security Facts
- Applicable Laws, Policy, Procedures, ETC.
- Current Computer Security Issues
- Risk Management Processes
- Accreditation Process
- Action Items

Schou 2001

7 Effective Tool

2 Define Threat

Seven Basic Facts

6 Awareness And Training

5 Risk Management

4 Protect Information

3 Vulnerability

1 Agency Mission

FACT 1

COMPUTERS ARE CRITICAL TO FULFILL YOUR AGENCY MISSION!

FACT 2

THERE ARE DEFINED THREATS TO YOUR COMPUTER SYSTEM!

FACT 3

COMPUTER SYSTEMS ARE VULNERABLE!

FACT 4

COMPUTER SECURITY IS ESSENTIAL TO PROTECT YOUR SENSITIVE AND CLASSIFIED INFORMATION!

FACT 5

RISK MANAGEMENT IS AN EXECUTIVE RESPONSIBILITY!

FACT 6

COMPUTER SECURITY AWARENESS AND TRAINING PROGRAMS REDUCE RISK!

FACT 7

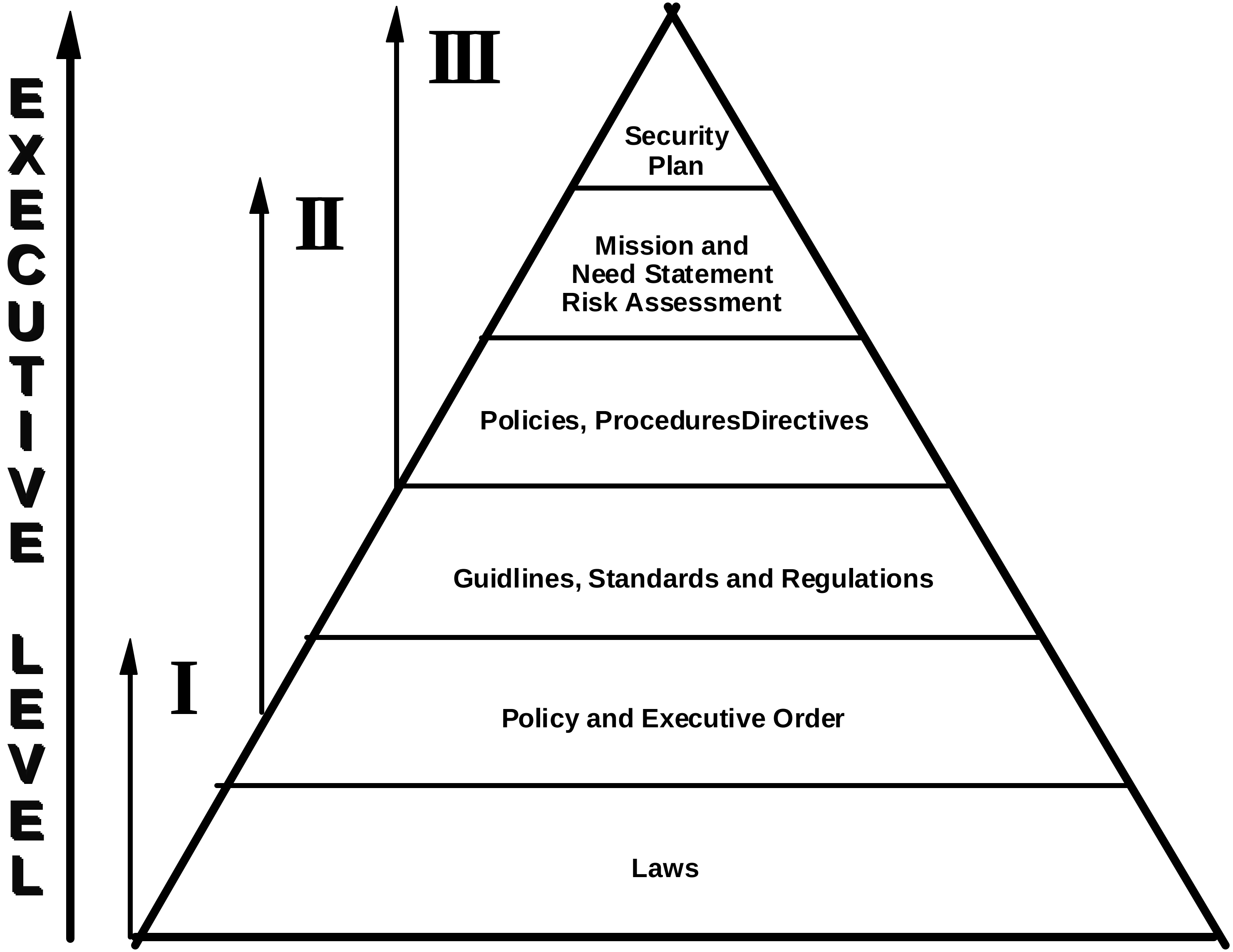
A COMPUTER SECURITY PLAN IS AN EFFECTIVE EXECUTIVE TOOL

YOUR ROLE?

Role of the Executive

- Establish Computer Security Policy
- Assign Responsibility
- Accept Risk
- Provide Resources
- Evaluate Results

Where Do You Fit?


EXECUTIVE LEVEL
III
II
I
Security Plan
Mission and Need Statement Risk Assessment
Policies, ProceduresDirectives
Guidlines, Standards and Regulations
Policy and Executive Order
Laws

Level 1 Executive

- Responsibility
  - Interpret Law and Establish Policy
  - Evaluate Mission
  - Assign Organizational Responsibility
  - Evaluate Certification System and Accept Risk
  - Justify, Defend and Provide Resources
- Rank: SES Mid-Level or Higher
- Reports To Board of Governors/ Directors or Head of Federal Agency

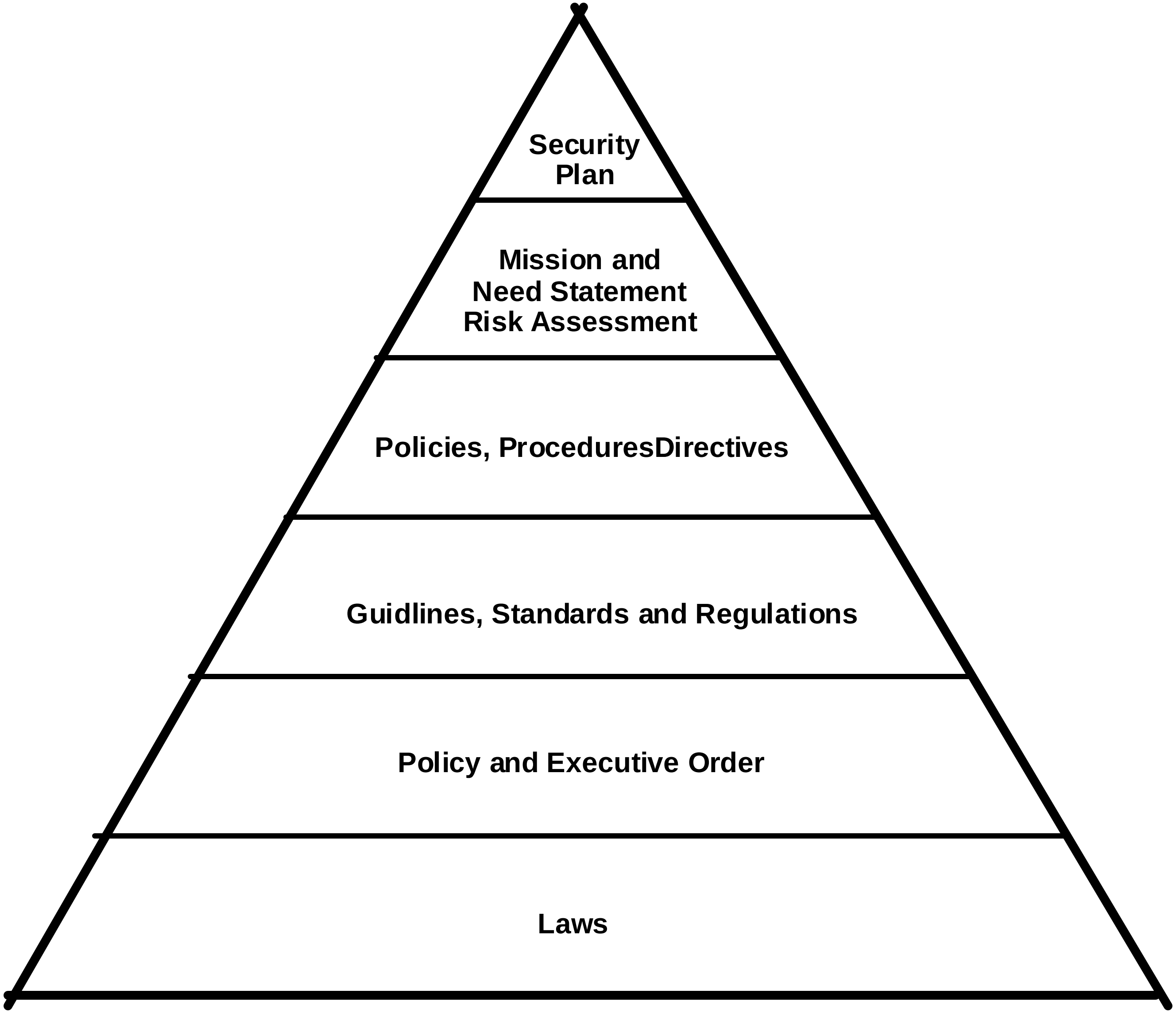
Level 2 Executive

- Responsibility
  - Translate Policy to Operational Need
  - Assign Unit Responsibility
  - Evaluate Risk Assessment Statement
  - Recommend Security Safeguards
  - Dispense and Evaluate Resource Allocations
- Rank: Lower to Mid-Level SES
- Reports to Executive Level 1

Level 3 Executive

- Responsibility
  - Implement Policy
  - Supervise Unit Responsible for Action
  - Implement Security Safeguards
  - Utilize Allocated Resources
- Rank: Lower Level SES or GS/GM 15
- Reports to Executive Level 2

Statutory and Executive Baseline



Security Plan

Mission and Need Statement Risk Assessment

Policies, ProceduresDirectives

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Applicable Computer Security Statutes

Public Law 97-255

Federal Managers Financial Integrity Act of 1987

Public Law 98-473

Comprehensive Crime Control Act of 1984

Public Law 99-474

Computer Fraud and Abuse Act

Public Law 99-508

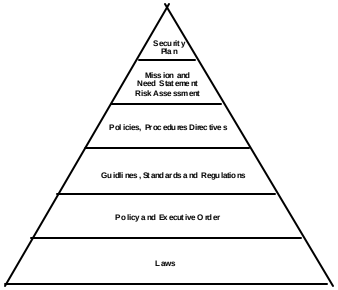
Interception or Disclosure of Wire, Oral or electronic Communications

Public Law 100-235

Computer Security Act of 1987

Public Law 100-503

Computer Matching and Privacy Protection Act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Applicable Policy and Executive Orders

OMB Circular A-130
Management of Federal Information Resources

OMB Circular A-123 & 127
Internal Control/Financial Management Systems

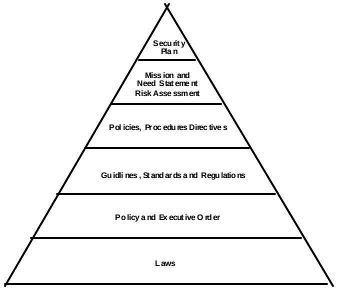
OMB Bulletin 89-22
Computer Matching and Privacy

OMB Bulletin 90-08
Agency Security Plans

Executive Order 12333
United States Intelligence Activities

Executive Order 12356
National Security Information

DCI Directive 1/16
Security Policy for Uniform Protection of Intelligence Processed in AIS's and Networks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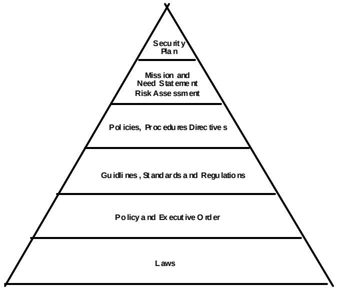
Guidelines, Standards and Regulations

- **National Institute of Standards and Technology (NIST)**
  Technical Publications, Training Assistance and Newsletter
- **National Computer Security Center (NCSC)**
  Rainbow Series, Technical Reports
- **Office of Personnel Management (OPM)**
  Training Requirements for all USG Employees
- **General Accounting Office (GAO)**
  Reports on AIS Deficiencies and Remedies
- **General Services Administration (GSA)**
  Provides Training Services for Users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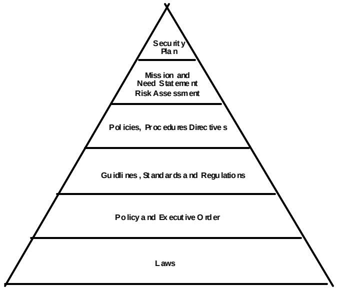
Agency and System Documentation

- **Policies, Procedures, Guidelines and/or Directives**
  - **Obtain These From Your Federal Agency**
  - **These are Agency-wide Computer Documents**
  - **They Will be Specific to Your Organization**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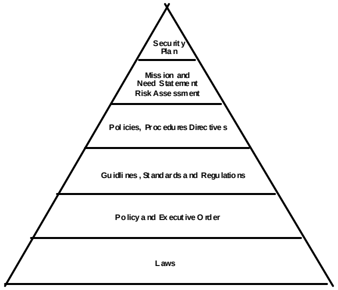
Agency and System Documentation

- **Mission and Risk Assessment Statements**
  - **Baseline Documentation For Operation Of Computer System/Network. This Plan Is System Specific**
  - **“Working/Living” Document**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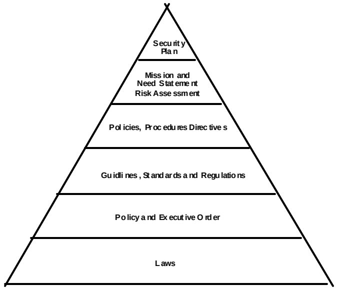
Agency and System Documentation

- **Mission and Risk Assessment Statements**
  - **These are Derived From Agency Policies And Procedures**
  - **These Two Statements Are System Specific**



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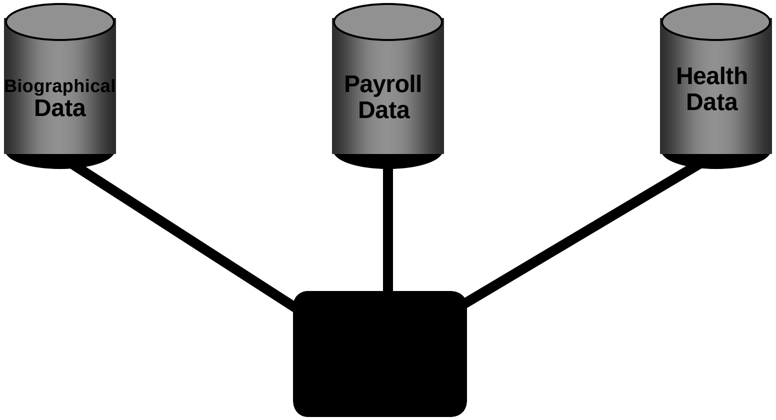
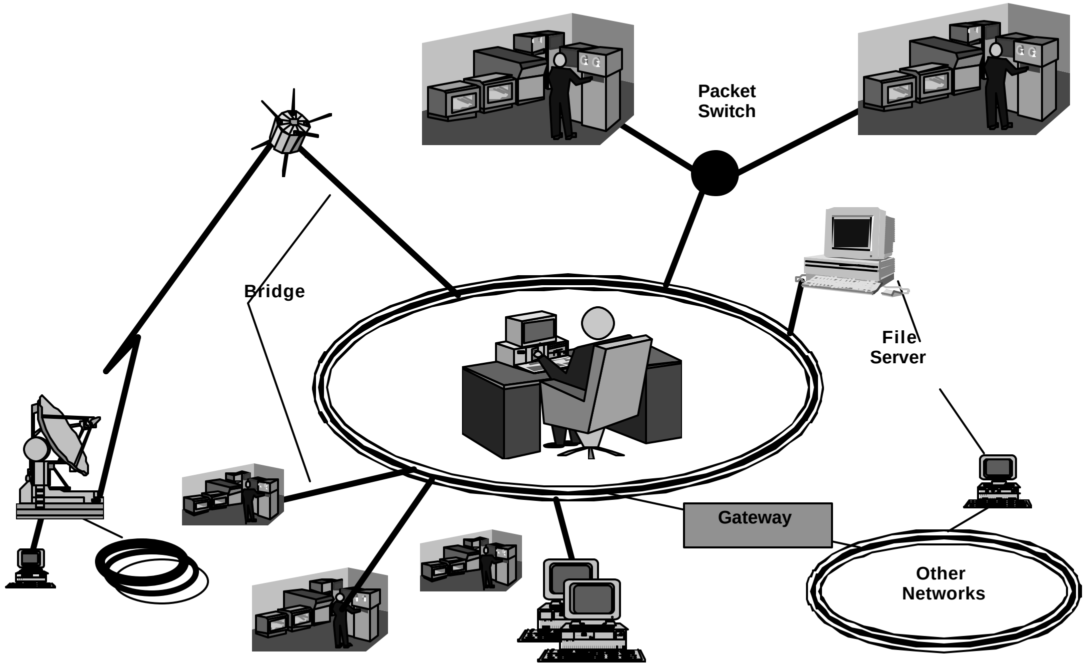
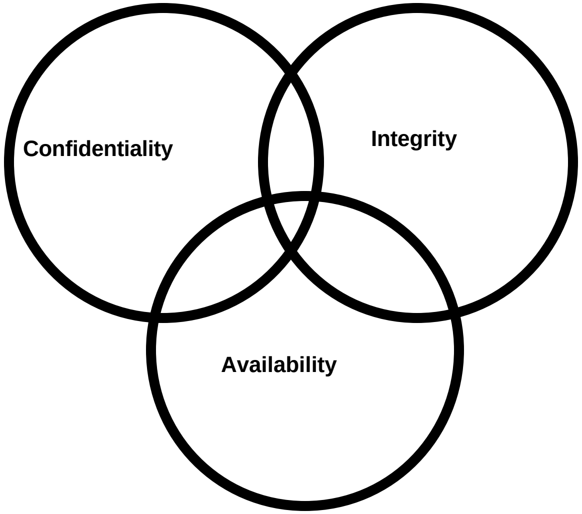
Current Issues

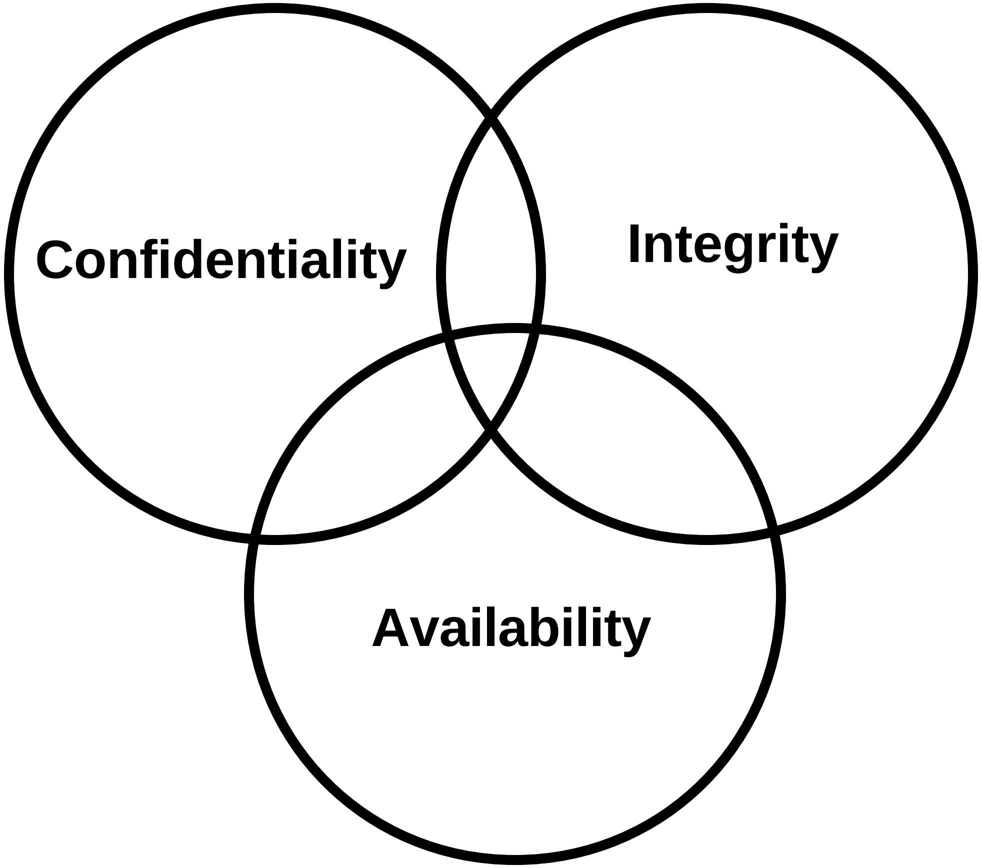






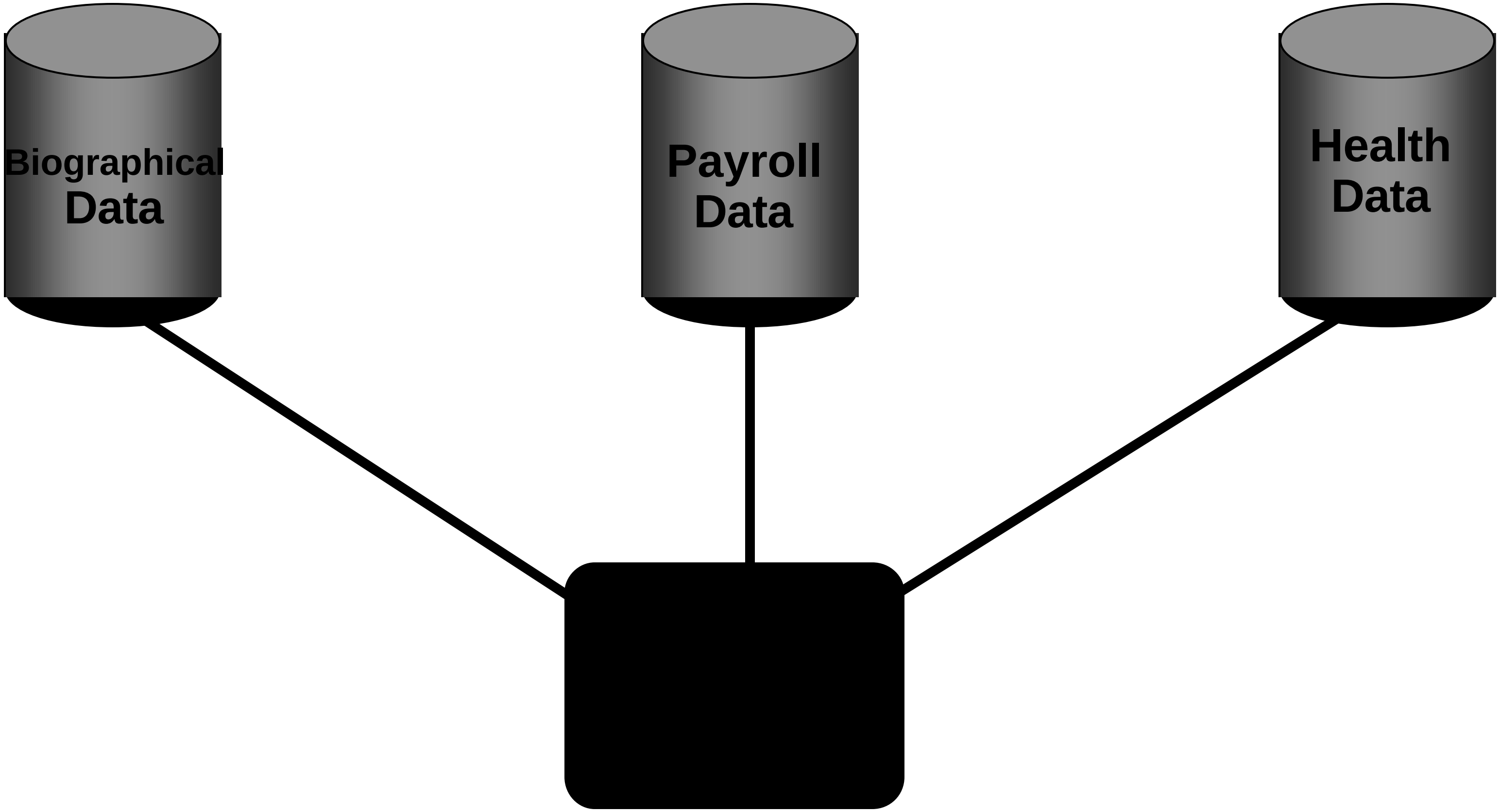
Current Issues

Confidentiality, Integrity, Availability



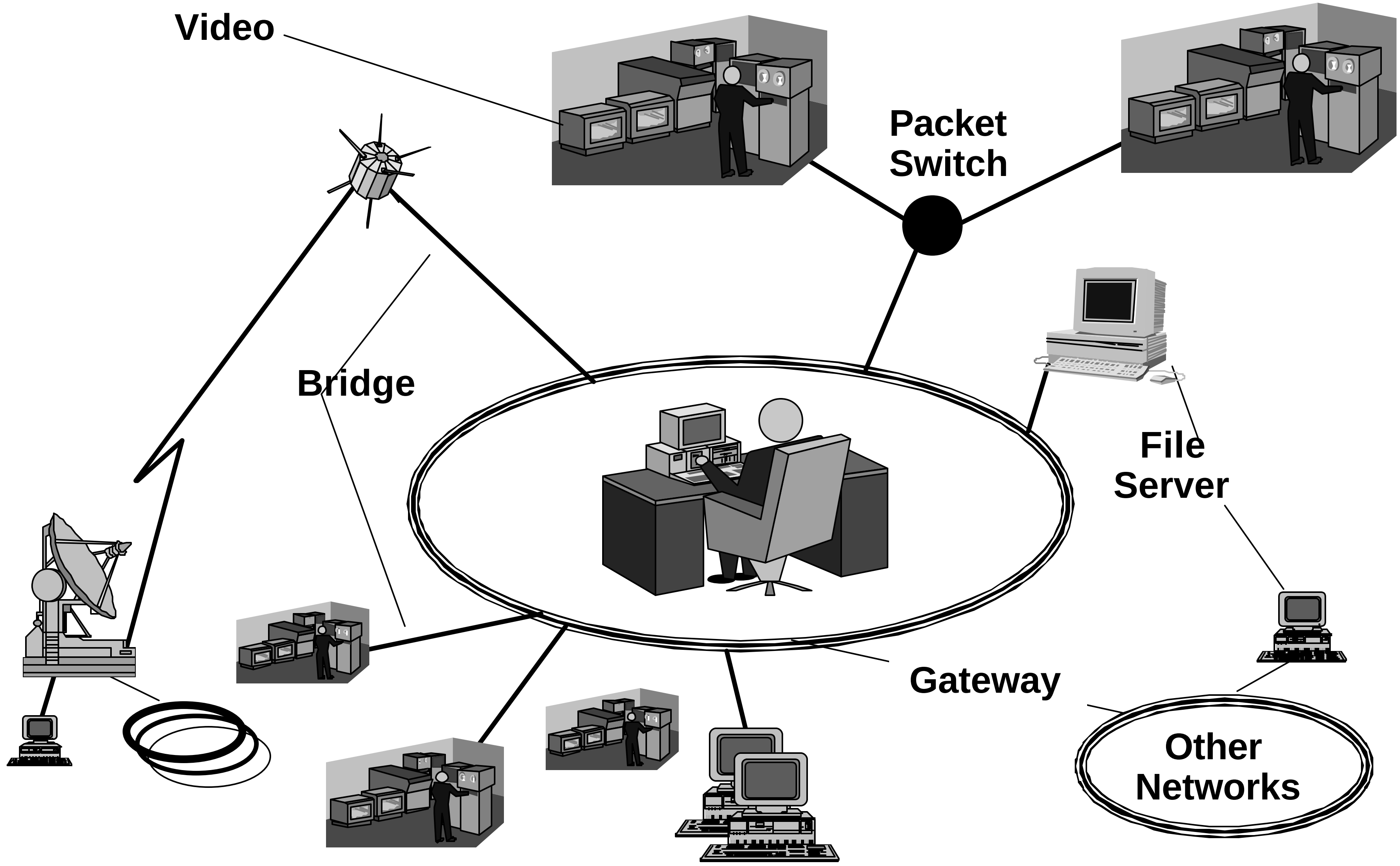
Current Issues

Data Aggregation and Sensitivity



Current Issues

Inter-connectivity

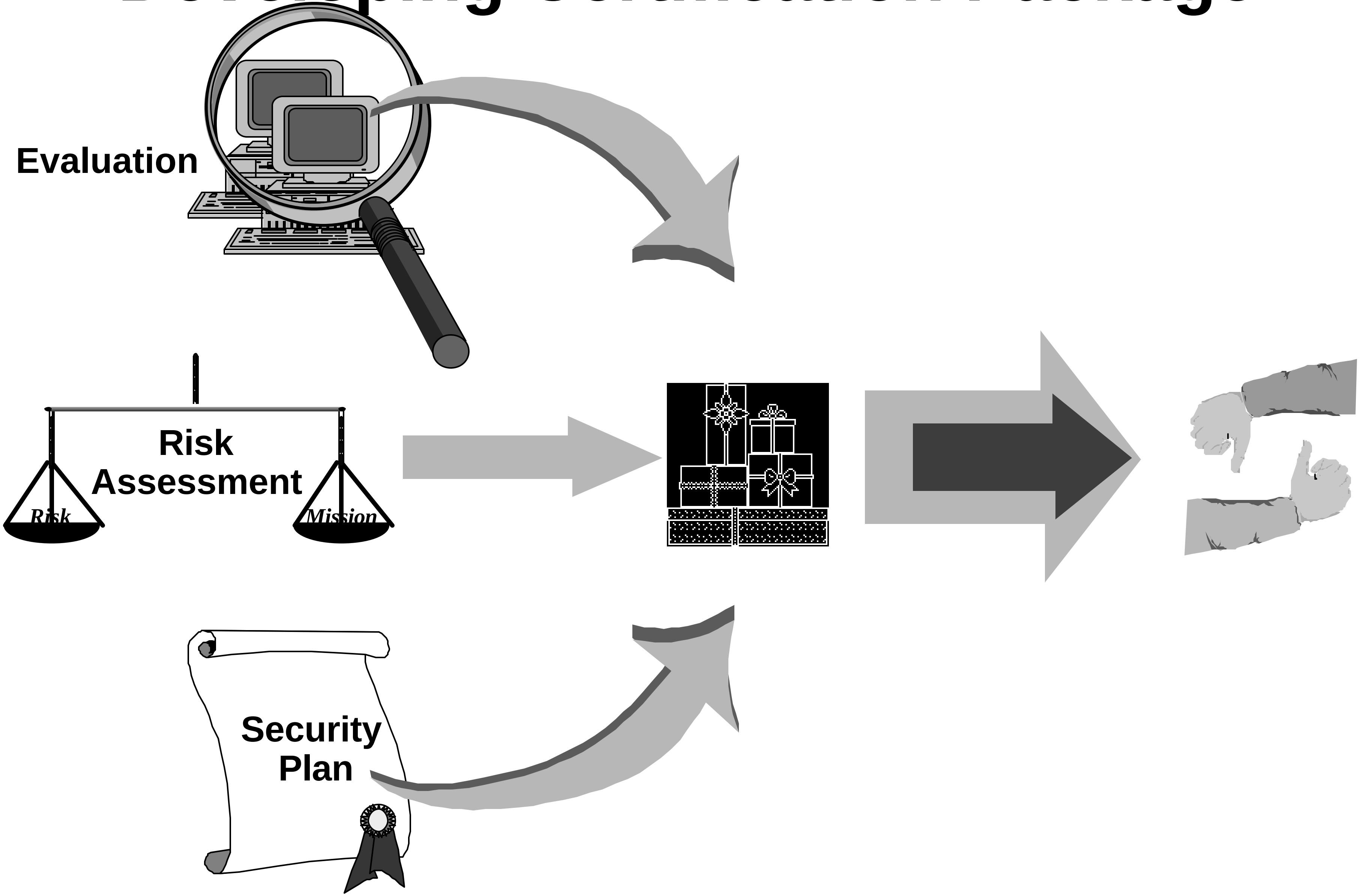


Current Issues

Common Misconceptions

- Computer Security Deters Only Criminals
- Implementation and Costs are Prohibitive
- Applies Only to Classified Systems
- Virus Protection is the Only Reason
- Once Secure — Always Secure
- Encryption Is The Solution
- “The Great Computer Chip”

Developing Certification Package



Evaluation

Risk Assessment

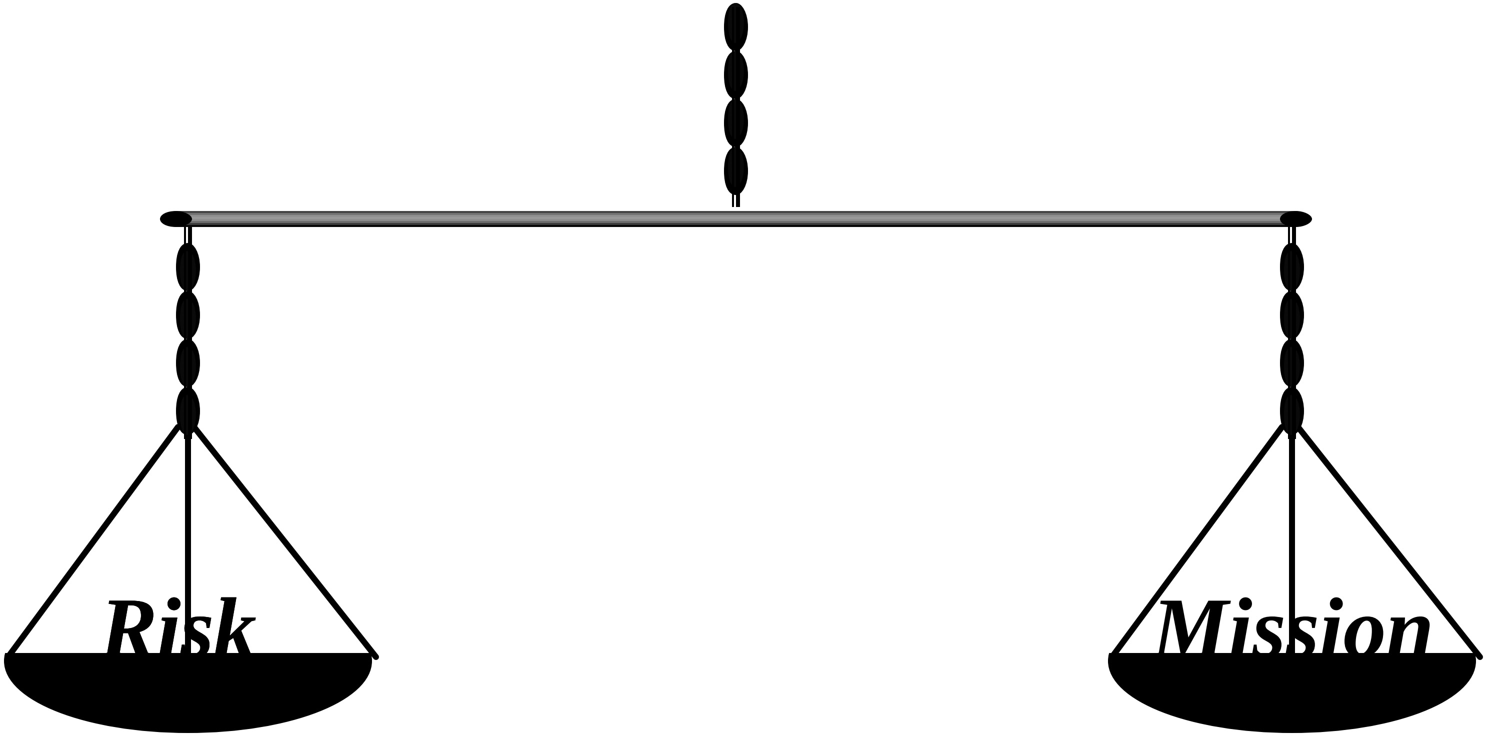
Security Plan

EVALUATION

Evaluation Involves Technical Assessment Of:

- **The Hardware,**
- **The Software and**
- **The Procedures Which Meet A Specific Policy.**

Risk Management

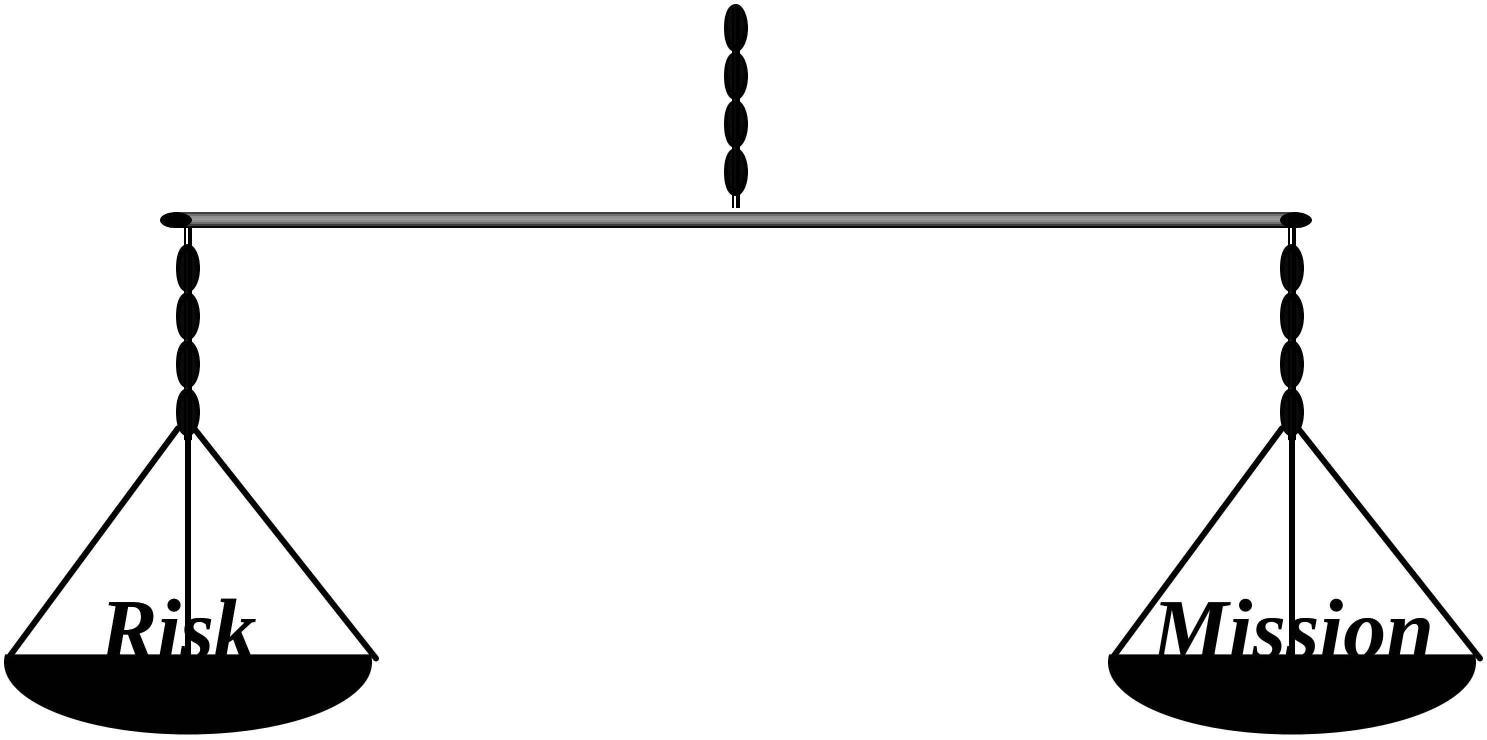


Risk = Threat* x *Vulnerability — Security

LIST OF POSSIBLE ASSETS

- **Hardware**
  - **Physical Items**
  - **Firmware Updates**
- **Software**
  - **Operating System**
  - **Application**
- **Personnel**
  - **Operators & System Maintainers**
  - **Users - Direct/Indirect**
- **Data & Information**
  - **Collection**
  - **Storage**
  - **Stages of Process**
  - **Replacement Value**
  - **Current Worth**
    - **Short Term**
    - **Long Term**

Risk Management

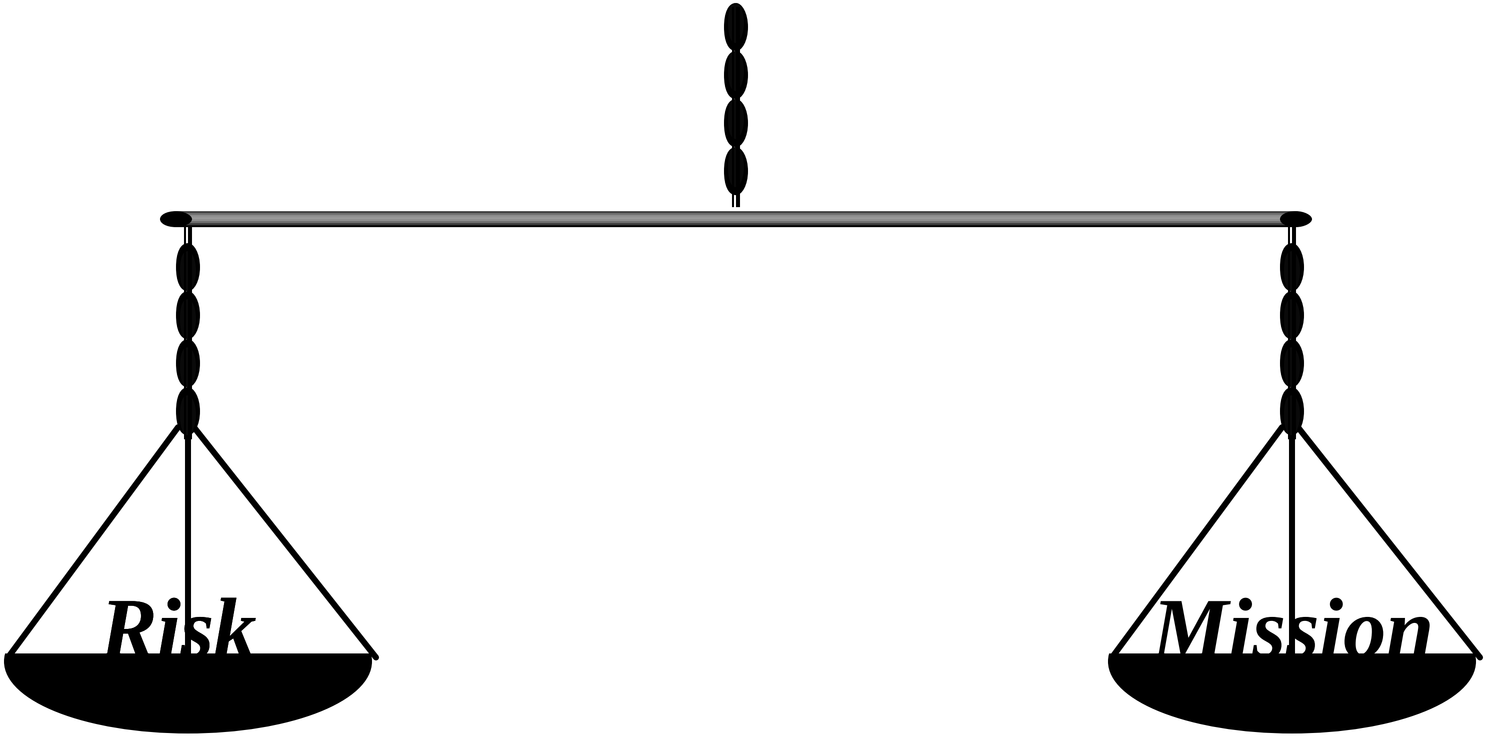


Risk = Threat* x *Vulnerability — Security Safeguard

THREATS TO COMPUTER SYSTEMS

• **Threats By People**	
– Unintentional Employee Action	50-60%
– Intentional Employee Action	15-20%
– Outside Actions	1- 3%
• **Physical & Environmental Threats**	
– Fire Damage	10-15%
– Water Damage	5-10%
– Electrical Fluctuations	1- 5%
– Natural Disaster	1%
• **Other**	**5-10%**

Risk Management

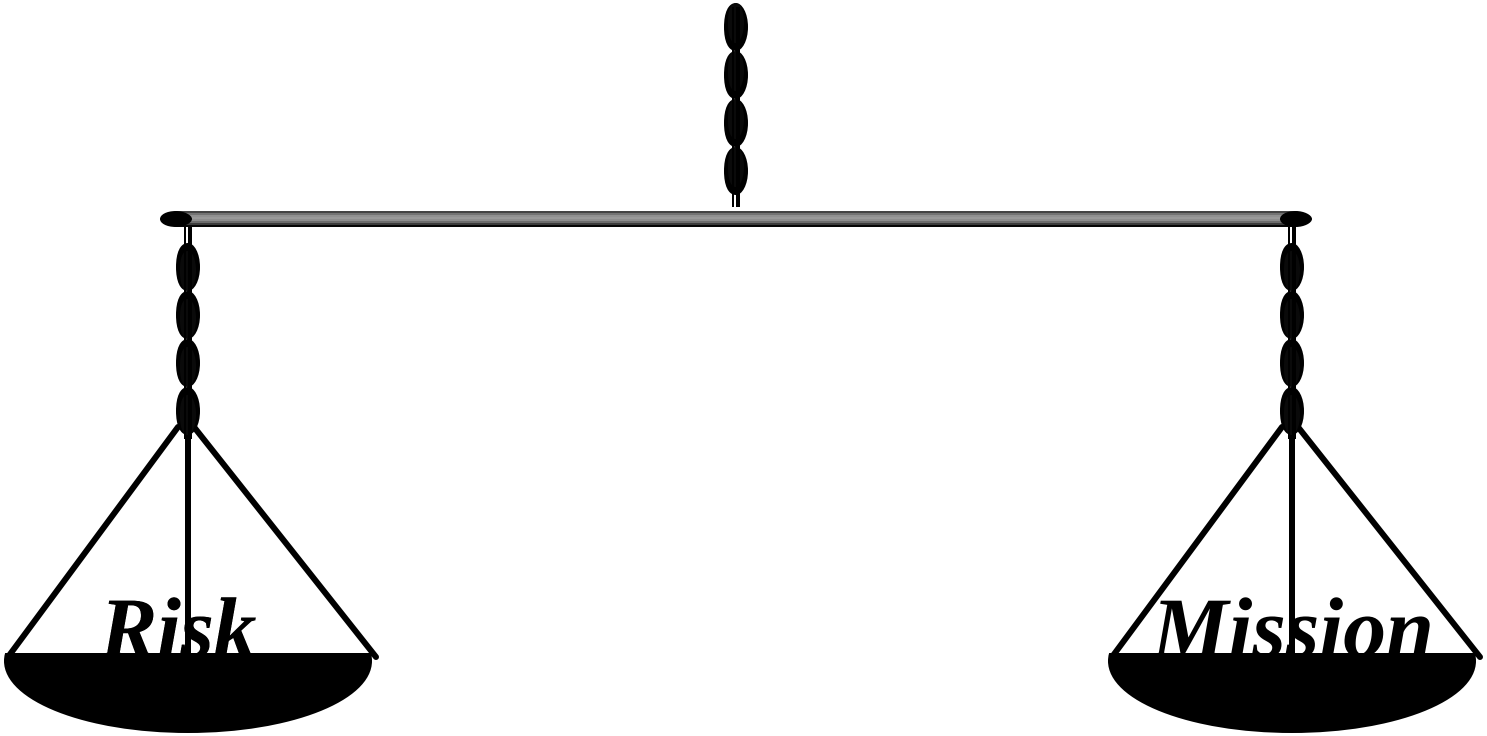


Risk = Threat x ***Vulnerability — Security Safeguard***

PC VULNERABILITIES

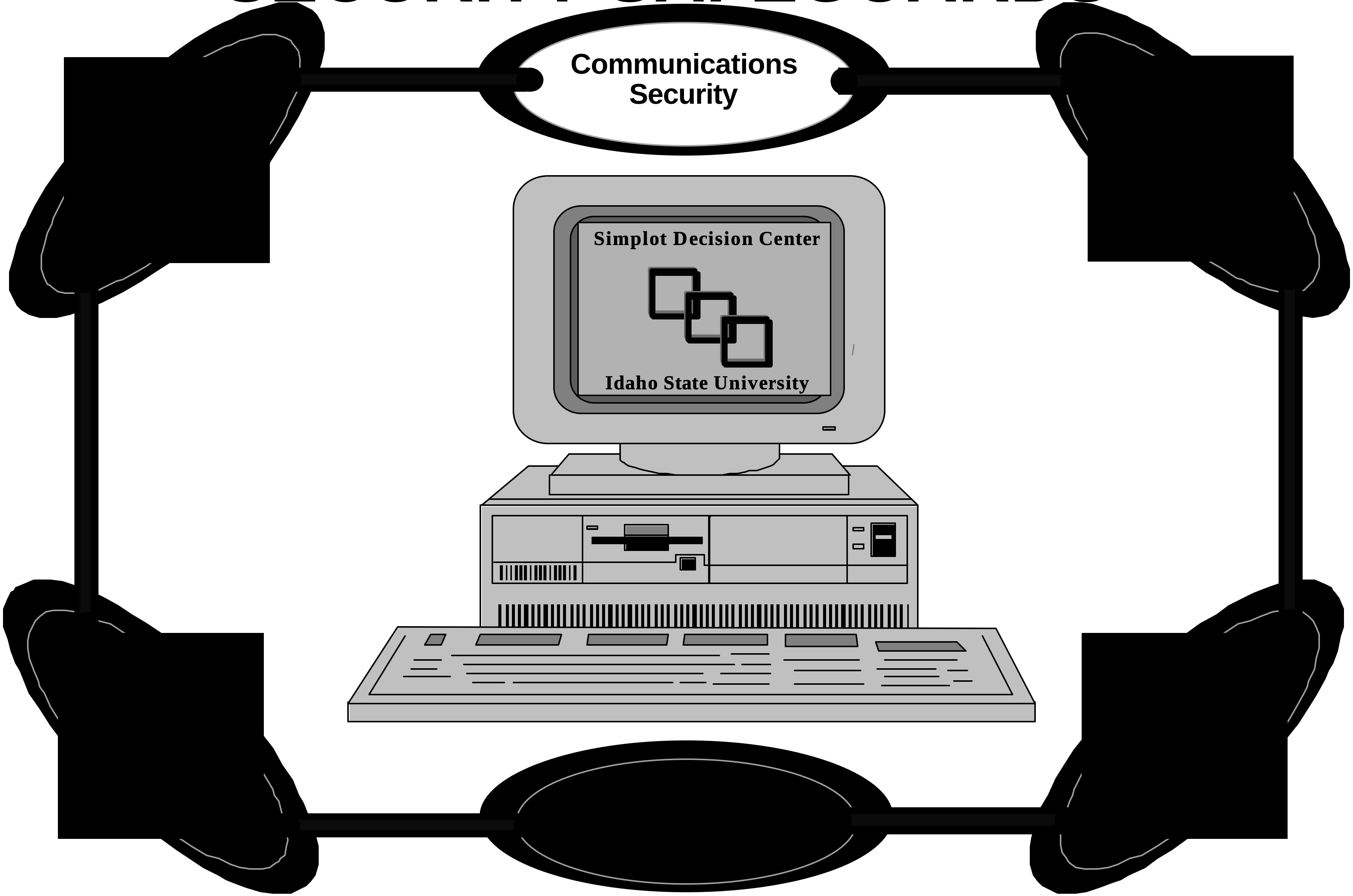
- Increasing Number Of Systems
- Physical Awareness
- Lack of Built-in Security Mechanisms
  (Access Control)
- Available Operating System Code
- Easily Transportable
- Lack of User Training and Awareness
- Local Area Network Accessibility

Risk Management



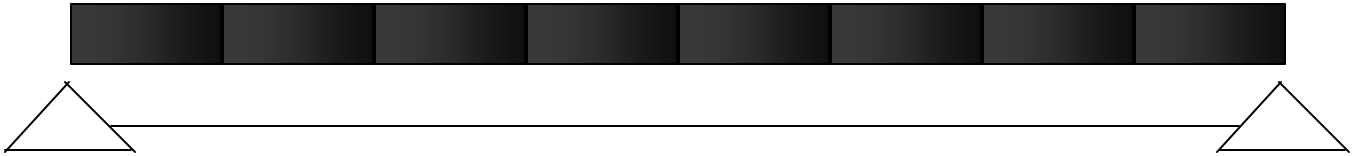
Risk = Threat **x** ***Vulnerability — Security Safeguard***

SECURITY SAFEGUARDS



When Is Risk Management Important?

Life Cycle Phases



Design and Development

Fabrication and Production

Acquisition and Procurement

Test and Evaluation

Shipping and Delivery

Operations

Maintenance

Obsolescence and Removal

Risk Management

- Why risk management is important should be obvious.
  - The purpose is to keep classified or sensitive information - Confidential, with full Integrity and Availableat all time.

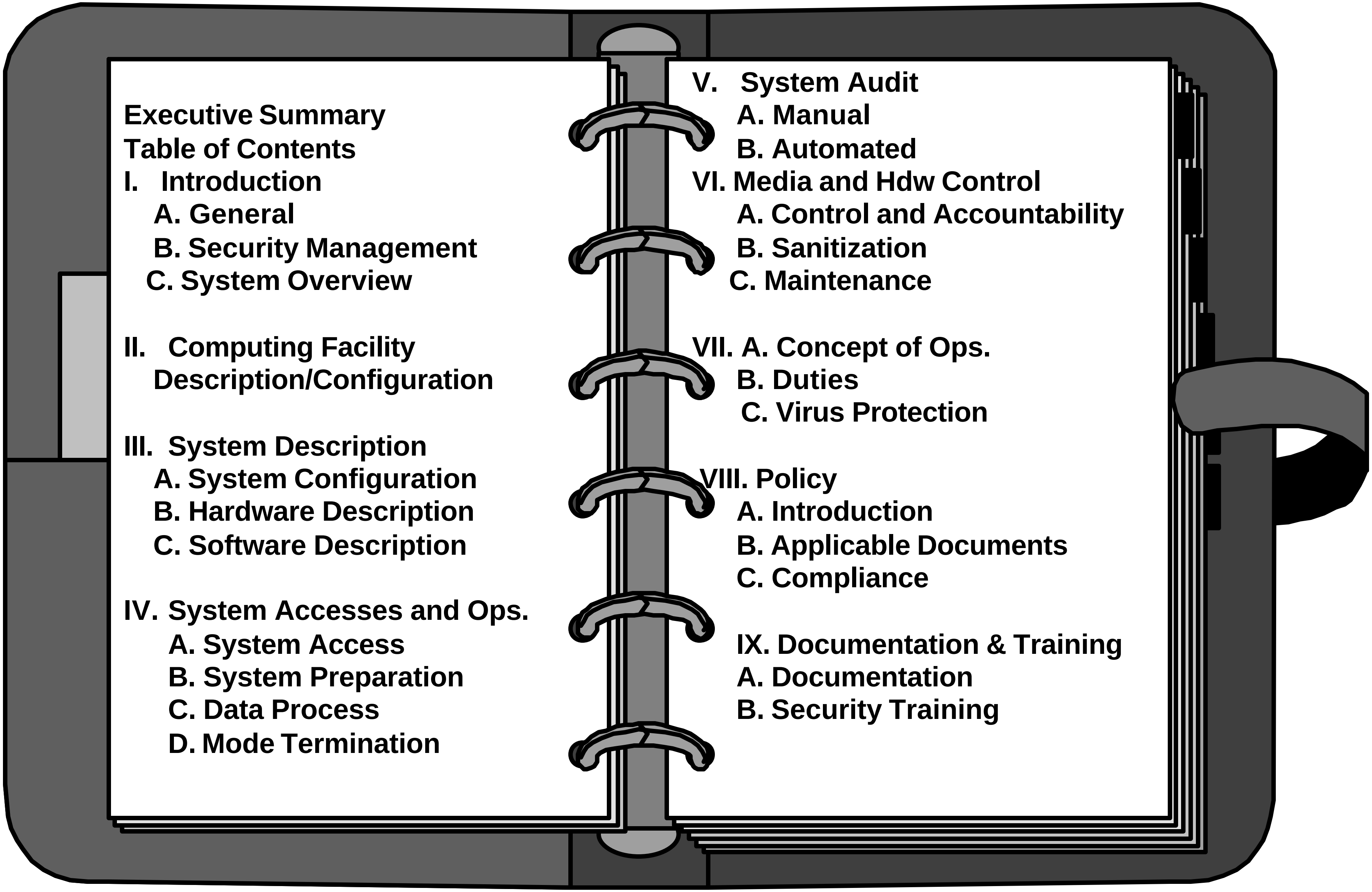
- When does Risk Management occur?
  - From the beginning of the system design (a twinkle in the engineer's eye) to the time the system is thrown out and destroyed.

- Security must be an integral part of the entire Life Cycle
  - You will save money and time if
    SECURITY IS NOT RETRO\-FITTED

Security Plan

- The Plan Must
  - Identify All Actions Needed To Implement Security Safeguards
  - Cite All Applicable Laws, Policies and Regulations
  - Describe Degree of Compliance With Regulations
  - Provide For A Review and Revision Process

Security Plan



Executive Summary
Table of Contents
I. Introduction
A. General
B. Security Management
C. System Overview

II. Computing Facility
Description/Configuration

III. System Description
A. System Configuration
B. Hardware Description
C. Software Description

IV. System Accesses and Ops.
A. System Access
B. System Preparation
C. Data Process
D. Mode Termination

V. System Audit
A. Manual
B. Automated
VI. Media and Hdw Control
A. Control and Accountability
B. Sanitization
C. Maintenance

VII. A. Concept of Ops.
B. Duties
C. Virus Protection

VIII. Policy
A. Introduction
B. Applicable Documents
C. Compliance

IX. Documentation & Training
A. Documentation
B. Security Training

Certification

- **A Comprehensive Assessment Of The Evaluation, Risk Assessment And Security Plan To Determine If The Computer System/Network Meets A Set Of Specified Security Criteria.**

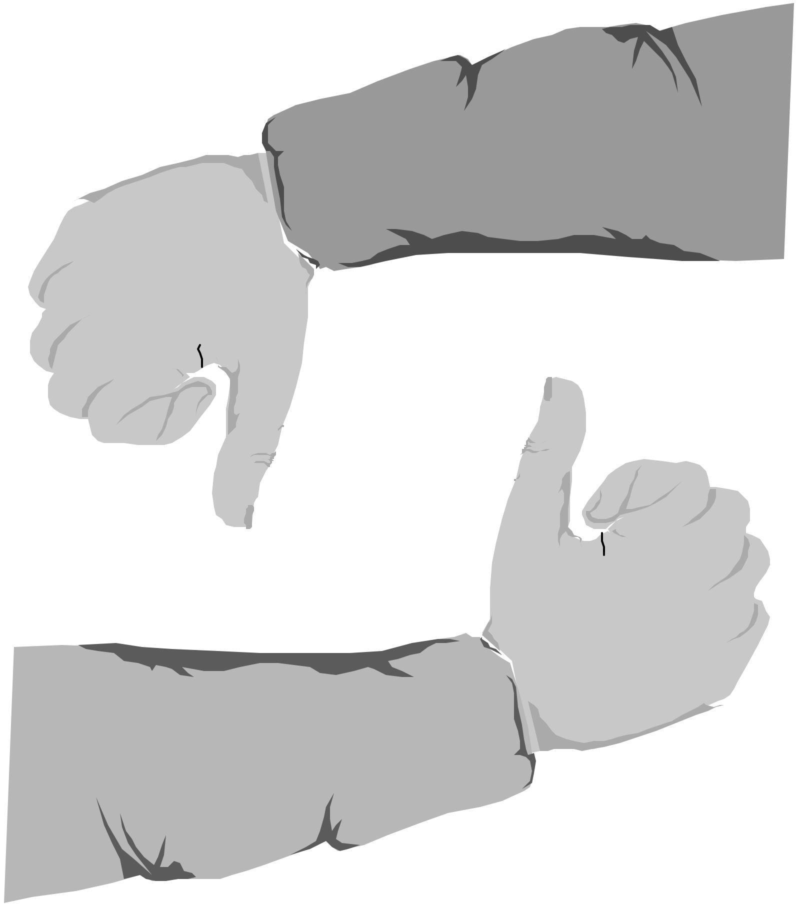
Certification Package

- Certification Memorandum
- Evaluation Report
- Risk Analysis Document
- System and Network Security Plan
  - System Interconnect MOUs
  - Security Certification Documents

    (Physical, Tempest, COMSEC, Personnel)

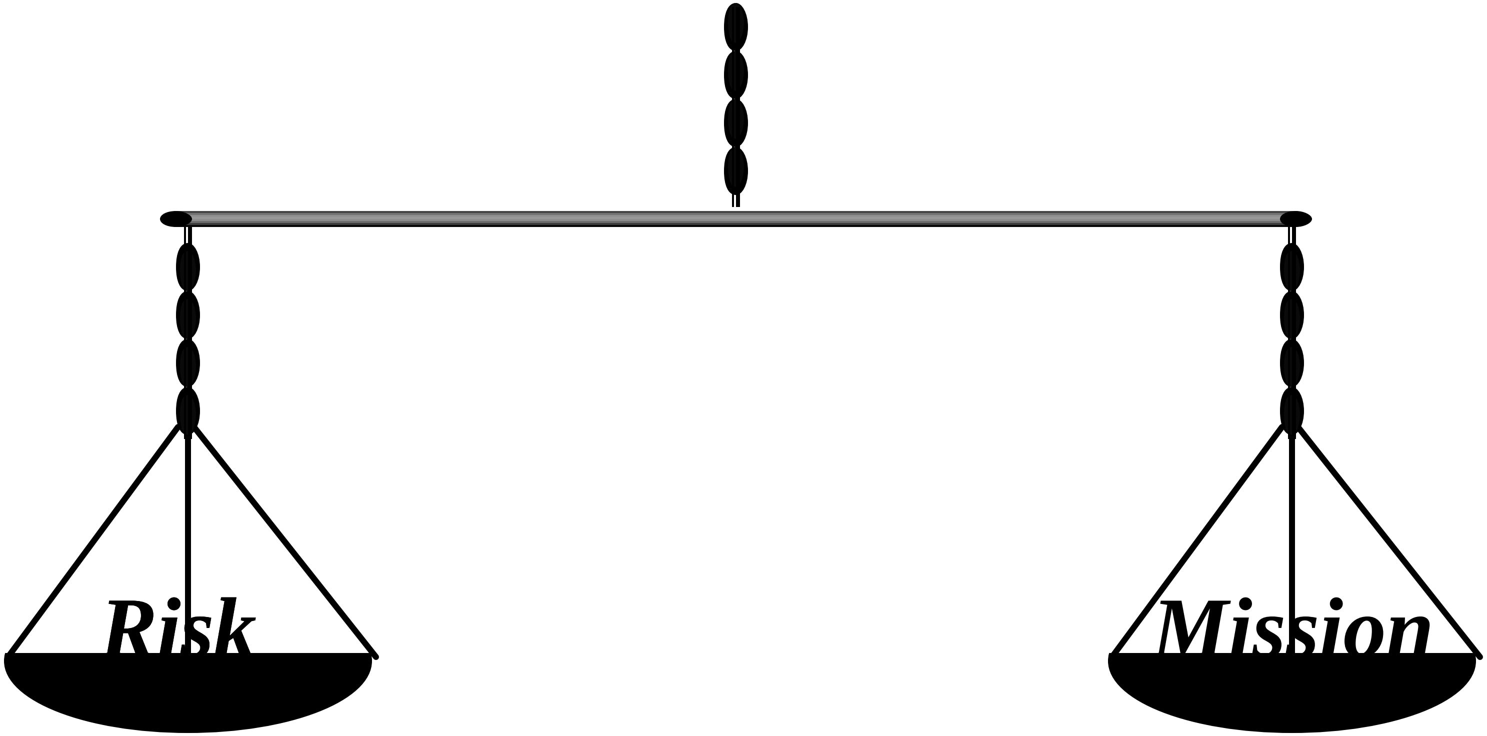
Accreditation

- **The Official Management Decision To Operate A System**



DAA Accreditation Decision

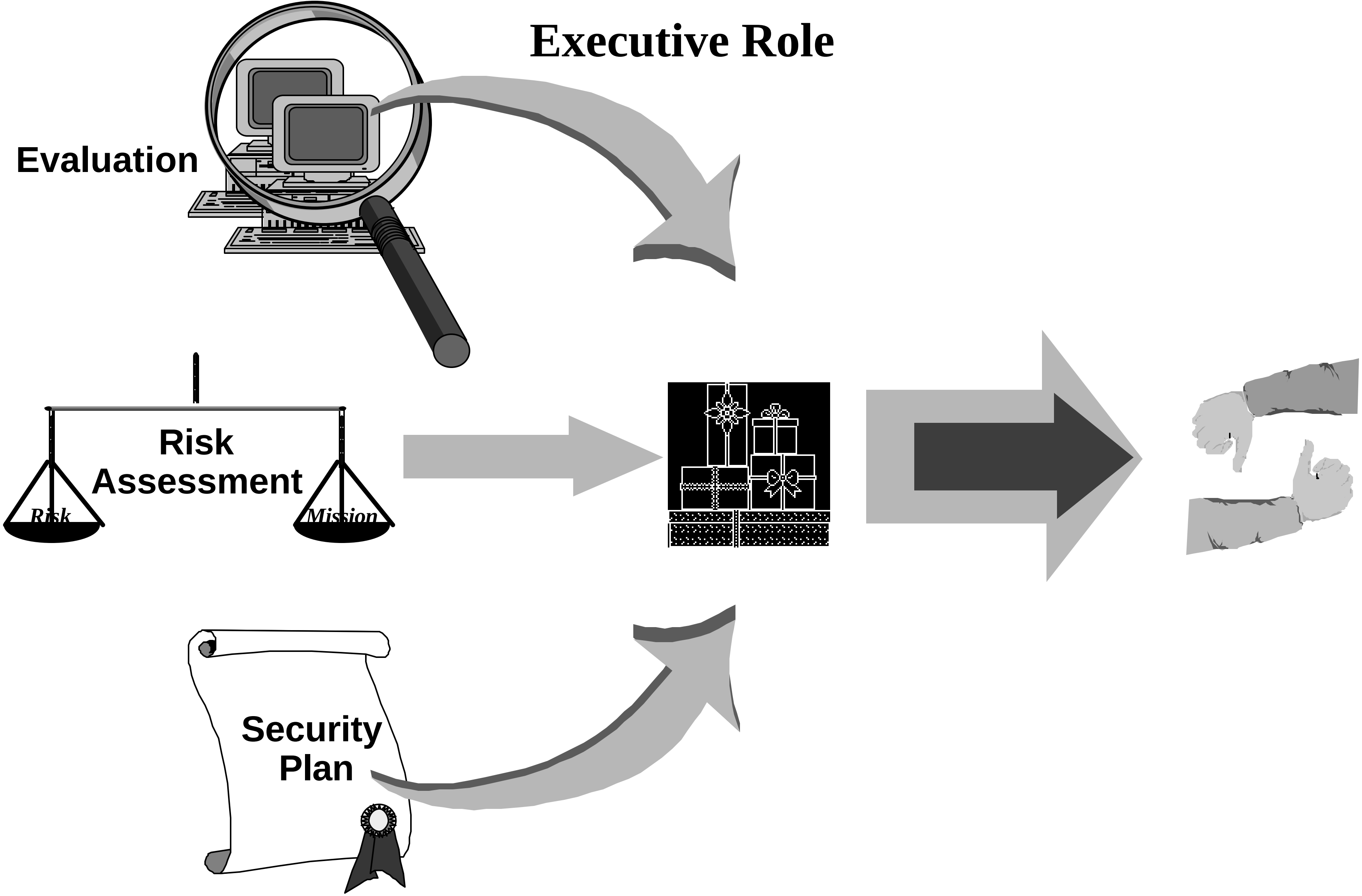
Risk Management



Risk = Threat* x *Vulnerability — Security Safeguard

Accreditation Process

Executive Role



Evaluation

Risk Assessment

Security Plan

Executive Action Items

Level 1 Executive Action Items

- Validate Number and Function of Systems
- Appoint Accreditor To Each System/Network
- Advise Certifier
- Appoint Security Officer To Each System/Network
- Assign Responsibility and Deadline for Certification Package of Each System

Level 2 Executive Action Items

- Appoint Program Manager
- Determine Boundary For Each System/Network
- Assign Responsibility For Evaluation
- Develop Security Policy For Each System/Network
- Assign Organizational Responsibility To:
  - Security Tasking
  - Configuration Management Tasking
  - Mission and Function Tasking

Level 3 Executive Action Items

- **Prepare Program Management Plan**

  (Include Security Plan)
- **Implement Security Policy**
- **Verify And Validate Dates for Certification Package And Assign Personnel**
- **Develop And Implement Risk Analysis**
- **Evaluate and Monitor Resource Expenditures**

Computer Security

A Program for Federal Government *Executives*

I Touch the Future, I Teach.

Crista McAuliffe

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For
The Federal Information Systems Security Association
by
The Center for Decision Support
Idaho State University

For Additional Information Contact
Dr. Corey D. Schou
Chairman, Computer Information Systems
Idaho State University
P.O.Box 4043
Pocatello, Idaho 83205-4042
(208) 236-3040