CPR E 431

BASICS OF INFORMATION SYSTEM SECURITY

User Authentication, Access Control, and Operating System

Operating System Security

Video Summary

- Operating System Strategy
- System Security Planning
- System Security Planning Process
- Operating System Hardening

Strategies

- The 2010 Australian Signals Directorate (ASD) lists the "Top 35 Mitigation Strategies"
- Over 85% of the targeted cyber intrusions investigated by ASD in 2009 could have been prevented
- The top four strategies for prevention are:
  - White-list approved applications
  - Patch third-party applications and operating system vulnerabilities
  - Restrict administrative privileges
  - Create a defense-in-depth system (layered defense mechanisms which increases the security of a system as a whole)

Strategies

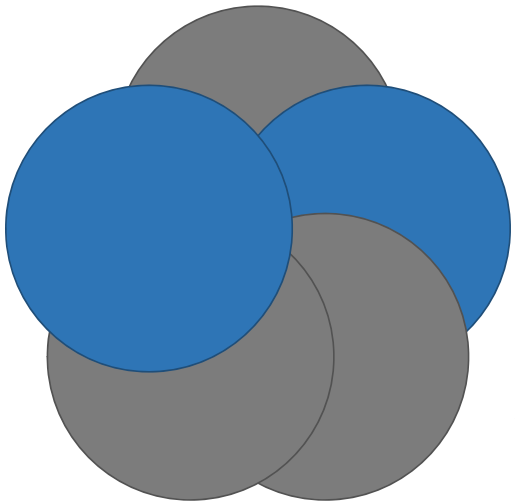
- Since 2013 these top four strategies are mandatory for all Australian government agencies.

- These strategies largely align with those in the “20 Critical Controls” developed by DHS, NSA, the Department of Energy, SANS, and others in the United States

System Security Planning

The first step in deploying a new system is planning

Plan needs to identify appropriate personnel and training to install and manage the system

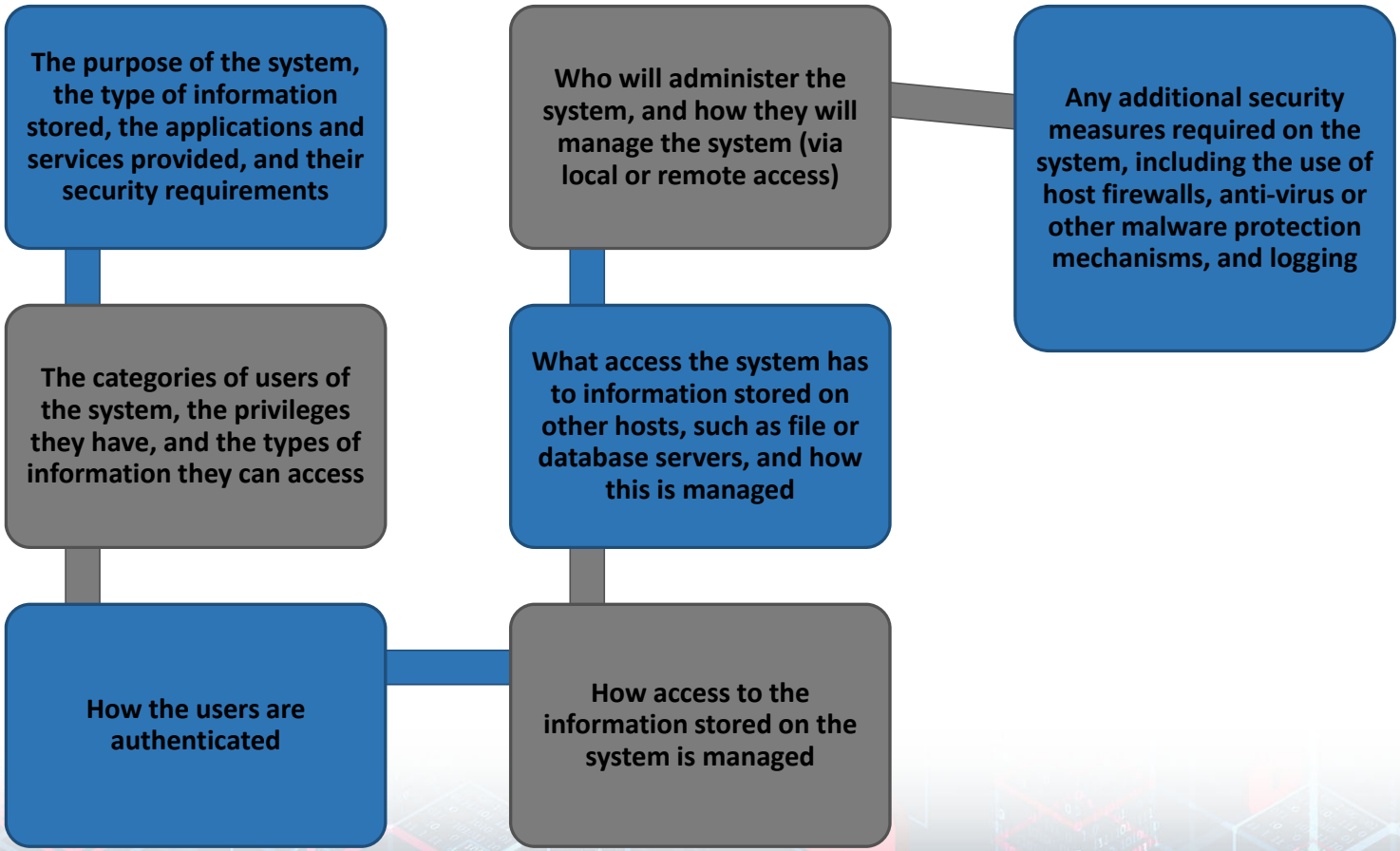


Planning should include a wide security assessment of the organization

Planning process needs to determine security requirements for the system, applications, data, and users

Aim is to maximize security while minimizing costs

System Security Planning Process



Operating Systems Hardening

- While the details of how to secure each specific operating system differ, the broad approach is similar.

- Appropriate security configuration guides and checklists exist for most common operating systems, and these should be consulted by the specific needs of each organization and their systems.

Operating Systems Hardening

- First critical step in securing a system is to secure the base operating system
- Basic steps
  - Install and patch the operating system
  - Harden and configure the operating system to adequately address the indentified security needs of the system by:
    - Removing unnecessary services, applications, and protocols
    - Configuring users, groups, and permissions
    - Configuring resource controls

Operating Systems Hardening

- Install and configure additional security controls, such as anti-virus, host-based firewalls, and intrusion detection system (IDS)

- Test the security of the basic operating system to ensure that the steps taken adequately address its security needs

Video Summary

- Operating System Strategy
- System Security Planning
- System Security Planning Process
- Operating System Hardening