MINNESOTA STATE COLLEGES AND UNIVERSITIES
BOARD OF TRUSTEES
Agenda Item Summary Sheet

Name: Chris McCoy **Date:** October 22, 2013

Title: Study Session on IT Security

Purpose (check one):

- [ ] Proposed New Policy or Amendment to Existing Policy
- [ ] Approvals Required by Policy
- [ ] Other Approvals
- [ ] Monitoring / Compliance
- [x] Information

Brief Description:

This presentation will provide an overview of the IT security program at Minnesota State Colleges and Universities. Global threats continue to grow and evolve and place our colleges and universities at risk. By implementing a comprehensive security program based upon national standards, the system provides layers of protection to reduce that risk and protect key assets. Included is an examination of the challenges for the present and the future.

Scheduled Presenter(s): Chris McCoy, Interim Vice Chancellor – Chief Information Officer
Walt Swanson, Information Systems Manager

Board of Trustees
Study Session on IT Security

October 22, 2013

Chris A. McCoy
Interim Vice Chancellor for Information Technology

Walt Swanson
Information Security Officer

Outline

- Global and MnSCU Security Facts
- The MnSCU Security Program
- Continuous Assessment of Protection
- A Challenging Future
- Questions for Discussion

Global Security Facts

- Worldwide, estimated 1 billion cyber attacks annually
- Estimated that 1 out of every 3 computers in the U.S. is infected with malware
  - 556 million victims per year, 1.5+ million per day, 18 per second
  - More than 232.4 million identities exposed annually
  - 99+% are preventable
- More than 600,000 Facebook accounts compromised DAILY
- Kaspersky Labs reports the detection of 200,000 unique malicious programs DAILY
- McAfee to date has archived 147 million unique samples of malware, growing at a rate of over 18.5 million per year

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Global Security Facts

- Nationally, 315 database breaches reported in 2012
  - An average of 604,826 identities exposed PER BREACH
- Top five database breaches among Higher Ed in 2012
  - University of Nebraska: 654,000 (identities exposed)
  - Indiana University: 650,000
  - University of North Carolina: 350,000
  - Arizona State University: 300,000
  - Northwest Florida State College: 279,000
- Average cost per record breached (Higher Ed) is $142

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Global Security Facts

- Nationally, 59% of ex-employees admit to stealing company data from previous employer
- Among network threats nationally in 2012, 73% are browser-related
- 3.5 million web pages worldwide are estimated to contain malware
- Motivation for malicious activity:
  - 40% Cyber crime
  - 50% Hactivisim
  - 3% Cyber Warfare
  - 7% Cyber espionage
- In 2009, President Obama estimated that the annual cost of cyber security may be as high as $1 trillion

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MnSCU Security Facts

- 1.2 million business transactions processed MONTHLY
- 4.3 billion records in ISRS; 1.5 billion records in D2L
  - Peak load is 59,000 statements PER SECOND
- ~45,000 desktops, laptops, and servers systemwide
- The system collects log data from network and server activity enough to fill 13 million pages of a typical novel DAILY
- Out of 100 emails, 15 are delivered and 85 are rejected as SPAM
- Network firewalls reject 35 million connections DAILY
- 80,000 security conditions checked per system MONTHLY
- More than 25 million security updates applied ANNUALLY
- Across the system, we are spending over $3 million ANNUALLY

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What is at risk for our Colleges and Universities?

- Privacy of student transcripts as required by FERPA
- Privacy of our student and employee identities
- Privacy of health records as required by HIPAA
- Confidentiality of our communications (phone and email)
- Safe operation of building services – HVAC, security cameras, parking systems, secure building access, etc.
- Financial transactions, bank accounts, wire transfers
- Reputation

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Focus on Protecting Key Assets

- Private data on students and employees
- Financial transactions
- Intellectual property
- Continuity of operations
  - Disruption of service
  - Harm to building systems

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The MnSCU Security Model

- Mission
  - Support Minnesota State Colleges and Universities strategic directions by protecting information resources against unauthorized use, disclosure, modification, damage or loss.
- Goals
  - Protect the confidentiality, integrity and availability of information resources through leadership, strategies, and services.
  - Identify information security risks, the appropriate safeguards to address them, and intervene to manage risk.
  - Promote information security practices through education, training, testing and assessment.

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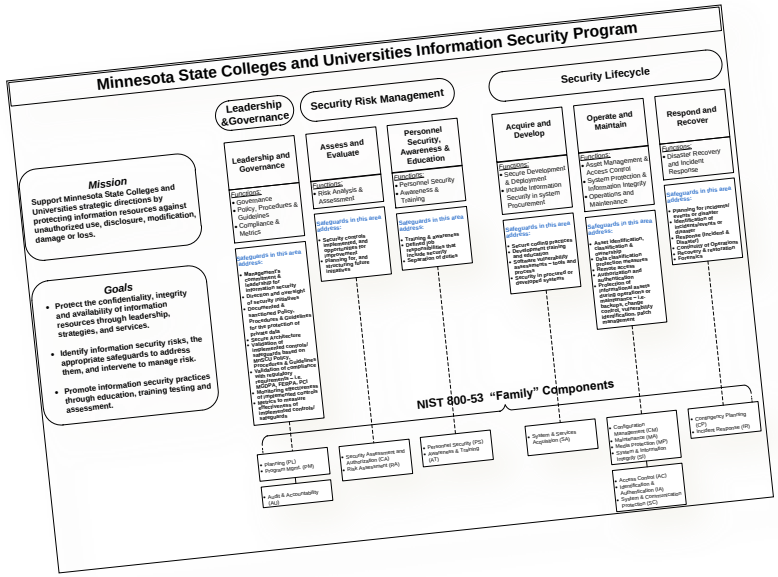
The MnSCU Security Model



{Refer to handout}

Based on National Institute of Standards and Technology Special Publication 800-53, "Recommended Security Controls for Federal Information Systems"

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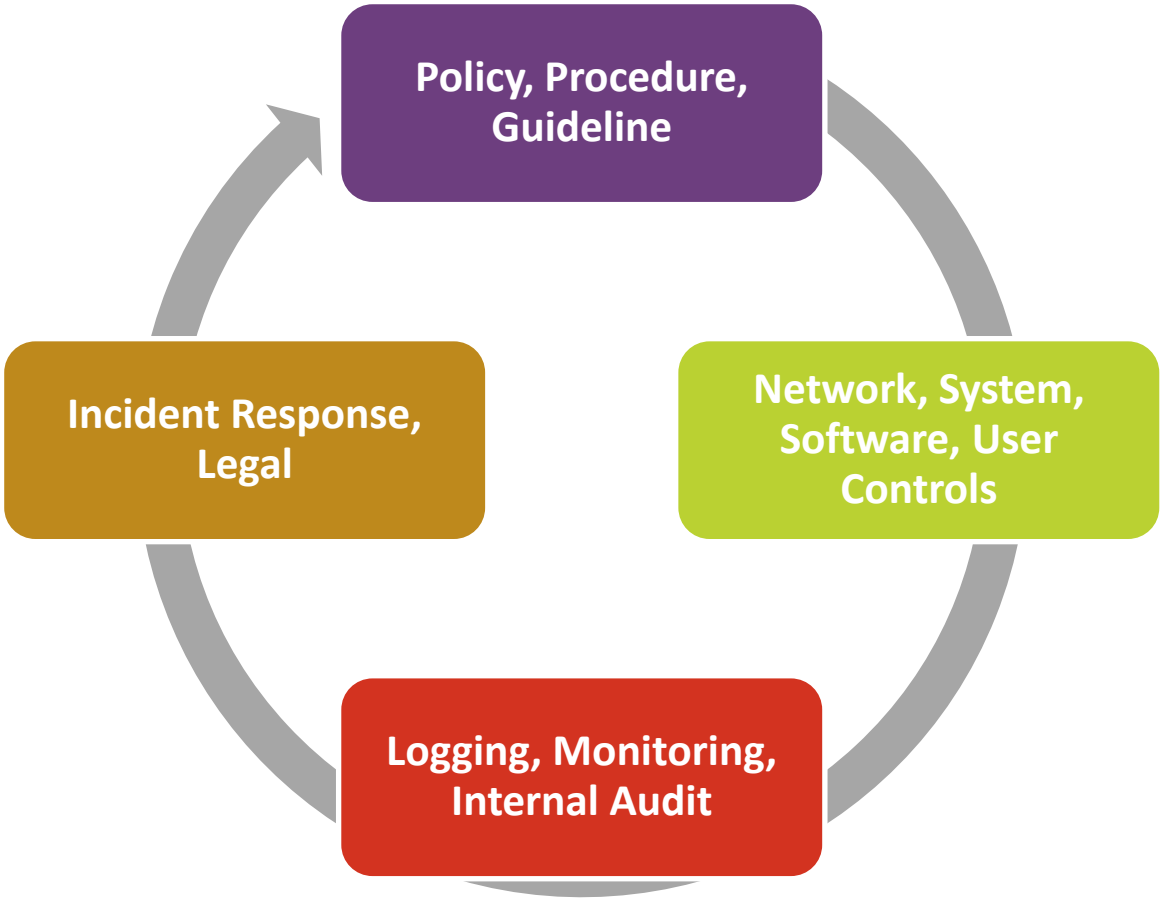
Continuous Assessment of Protection



Continual testing of systems and intervention throughout all layers of security

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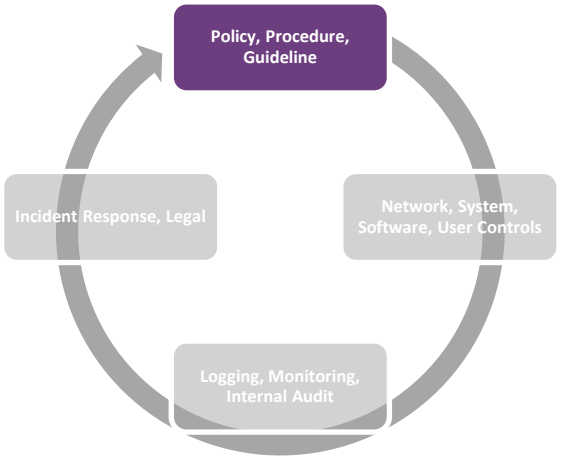

Policy, Procedure, Guideline

- Policy 5.23, *Security and Privacy of Information Resources*
- Nine Supporting Guidelines:
  - Passwords
  - Data Sanitization
  - Patch Management
  - Anti-malware
  - Data Backup
  - Incident Response
  - Encryption for Mobile Computing
  - Vulnerability Scanning
  - Payment Card Industry Technical Requirements

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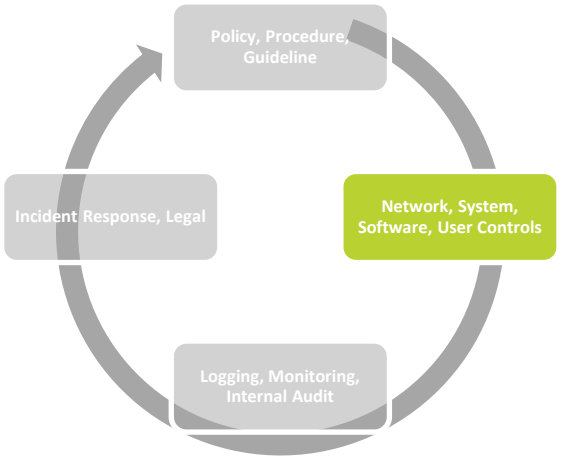

Network, System, Software, User Controls

- Network
  - Firewalls
  - Segmentation
  - Vulnerability Management
- System
  - Data Centers
  - Data Encryption
  - Database segmentation
- Software
  - Patch Management
  - Malware scanning
- User
  - StarID
  - Passwords
  - Roles
  - Training and education

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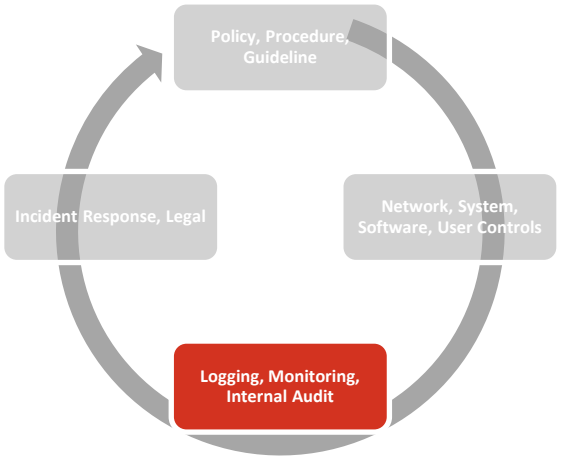
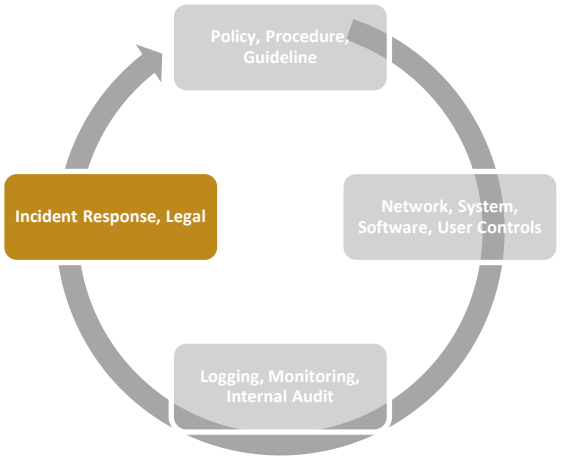


Logging, Monitoring, Internal Audit

- Security Information and Event Management
  - Network activity
  - System/server activity
- Database table auditing
- Oracle Audit Vault (FY2013)
- Internal Audit



Incident Response, Legal

- Data Recovery
- Forensics
- Legal
  - Minnesota Government Data Privacy Act (MGDPA)
  - Family Education Rights and Privacy Act (FERPA)
  - Health Insurance Portability and Accountability Act (HIPAA)
  - Payment Card Industry Data Security Standard (PCI DSS)

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Growing and Evolving Threats

- Growth of cloud for storage and services (data off-site)
- Bring-Your-Own-Devices (BYOD) / Consumerization
  - 35% of adults have lost or had their mobile devices stolen
  - 65% of all mobile devices use NO security solutions
  - “Madware”
- Malicious web
  - 87% of all malicious activity on the internet is via malicious URLs
  - 40% of Americans click on unsafe links
- “Ransomware”
- Advanced persistent threats / weaponized malware
- Social engineering
- Internal

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System Challenges

- Higher education continues to struggle with balance between security and openness, transparency, and collaboration
- Threats continue to evolve at an increasing pace
- Tension between privacy and the use of analytics
- Need to work with CIOs on clarification of responsibilities for ensuring success
- We're **all** interconnected – the weakest link threatens all of us and we must collaborate to ensure the integrity of our system
- A centralized model will not work from St. Paul

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Questions for Discussion

- IT security is integral; it is not an add-on. How do we infuse security into everything we do?
- There are not enough resources in the world to perfectly secure everything. Are we focused on the right priorities?
- How should we balance the benefits of new and emerging technologies (e.g. cloud and mobile) which allow for innovation, exploration, and discovery with the risks?

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